Transfer Credit System For Yemeni Universities

Report

submitted in partial fulfillment of the

requirements for the award of the degree of

Bachelor of Science

IN

Business of Information Technology

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Sana'a - Yemen

2023

Certificate

I hereby declare that I have read this Report titled **"Transfer Credit System For Yemeni Universities (TCSYU)"** and, in my opinion, is sufficient in term of scope and quality for the award of the degree of Bachelor Science of Business Information Technology.

The results obtained in this report have not been submitted to any other University or Institute for the award of any other Degree or Diploma.

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Dedicated to

To our beloved parents, doctors, and teachers

Glossary

Abbreviation	**Full Name**
TCSYU	Transfer Credit System For Yemeni Universities
MHESR	Ministry of Higher Education and Scientific Research
TCP	Transfer Credit Processes
TCR	Transfer Credit Report
CSP	Clearance Subjects Processes
OCR	Optical Character Recognition
NLP	natural language processing
IPA	Integrated Process Analysis
DA	Document Analysis
PUF	Prototyping and User Feedback
HE	Higher education
SLA	Service level agreement
MTTR	Mean time to repair
ERD	Entity relationship diagram
MVC	Model-View- Controller
CRUD	Create, Read, Update and Delete
AI	Artificial intelligence

Acknowledgments

“In the Name of Allah and peace and blessings of Allah be upon our prophet, Mohammad, and upon all his family and companions”.

First and foremost, we would like to express our deep gratitude to Allah, whose inspiration and guidance have been instrumental in the successful completion of the Transfer Credit System For Yemeni Universities project, hereafter referred to as "TCSYU." Without the unwavering support and encouragement from our families, we would not have embarked on this ambitious endeavor or achieved the remarkable milestones we have attained.

The Transfer Credit System For Yemeni Universities team is profoundly indebted to our esteemed supervisor, Dr.Hamzah Ali, for his invaluable instructions and unwavering guidance throughout the duration of this project. His expertise and insights have been pivotal in shaping our work and ensuring its quality.

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Furthermore, we would like to express our heartfelt thanks to Dr. Hany Al-Ghaithi for his unwavering support in the technical and programming aspects of the project. His expertise and guidance have been instrumental in overcoming various challenges and ensuring the smooth implementation of our system.

TCSYU Team

Abstract

This research project, entitled "The Transfer Credit System for Yemeni Universities (TCSYU)," aims to address the challenges faced by Yemeni students when transferring credits between universities. The lack of a unified study plan for credit transfers across all Yemeni universities poses difficulties for students intending to complete their studies at different institutions. To achieve the project's objectives, a desktop application has been designed to facilitate and streamline the credit transfer process.

The research methodology employed consisted of three main approaches: interviews, document analysis, and prototyping with user feedback.

In this study, an Integrated Process Analysis (IPA) approach was also utilized as part of the methodology. The IPA approach focused on analyzing the existing processes related to credit transfers and identifying areas for improvement. By applying the IPA approach, the research team gained a deeper understanding of the current credit transfer system and was able to propose effective solutions to enhance its efficiency and effectiveness.

The main result of this project includes designing a desktop application to facilitate and assist stakeholders in the credit transfer process, which has led to significant reductions in time and effort for all stakeholders involved. In light of these findings, it is recommended to enhance the effectiveness of the credit transfer process by standardizing study plans among Yemeni universities in Sanaa. This standardization would promote consistency, facilitate smoother credit transfers, and reduce potential barriers or complications, ultimately optimizing efficiency and ensuring a seamless experience for students seeking credit transfers.

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CHAPTER 1

Introduction

1.1 General Overview of the Area

Currently, Ministry of Higher Education and Scientific Research (MHESR) provides Clearance Subjects Processes (CSP) as a mechanism that stands for all universities in Yemen that allows student to change from current university by Transfer Credit Process (TCP) to the target university. Yemeni universities are now adopting CSP approach to permit the transferring college process for students. One major CSP mechanism issue is using the manual process through all of the Yemeni universities.

(Transfer) is a term used in this context that means a process to verify document that include student's subjects by MHESR. The document has been taken from the source university for validating clearance subject in the target university. (Credit) is the perioud to hours determined by the university for all subjects in the curriculum plan, which can defer from one university to another, determined hours for a course vary from one course to another depending on the course itself. Transfer Credit System For Yemeni Universities (TCSYU) is a system to upgrade the mechanism of manual process of CSP to automate all process for reduce time, work, effort, cost and make the TCP more reliable for all universities and MHESR.

A need for improving clearance subject's mechanism has been identified especially for universities which use traditional approach process. The force of using manual process which results in an increase many mistakes during TCP in order of transferring and carries a lot of effort, work and costs. The purpose of this study is to analysis MHESR mechanism process that consider the backbone of CSP for generating Transfer Credit Report (TCR) that is influenced by a number of important factors including reliably, ambiguity, mismatching per clearance report.

This complicated of these parameters defines by over MHES and universities. Transfer Credit System For Yemeni Universities (TCSYU) research should clarify high-quality mechanism to make the operation of TCP easier and fixable that is comparable to the existing CSP approach and could be provided at a higher reliable, so it is recommended to use TCSYU which considered one of the modernistic services and systems.

1.2 Problem Statement

Because of the raised growth of the issues that occur during CSP, added to the technological evolution around the world where the manual and traditional mechanism became ineffective. It requires long time and a lot of effort which causes many mistakes, while TCP and these mistakes and problems cause confusion for the MHESR and the university that increase faults This system will change from a manual system to a computerized system which is a quantum leap for this field. It also offers better data for the MHESR and to unified approach for the universities.

1. What are the specific challenges and issues faced during the Transfer Credit Processes (TCP) in higher education and university?

2. How has technological evolution rendered manual and traditional mechanisms ineffective in addressing the challenges of TCP?

3. What are the common mistakes and problems associated with the manual and

traditional mechanisms used in the Transfer Credit Process (TCP)?

4. How does the transition from a manual system to a computerized system represent a quantum leap for the field of higher education and scientific research?

5. In what ways will the computerized system provide better data for the Ministry of Higher Education and Scientific Research (MHESR) and enable a unified approach for universities in managing clearance subjects and credit transfers?

1.3 Significance

The motivation behind using a Transfer Credit System For Yemeni Universities (TCSYU) is to take benefits of technology and use it to serve educational sector to enhance the infrastructure of MHESR and providing more efficient of CSP mechanism that reduce cost, work and effort, integrated and Increase effectiveness and efficiency.

These are the motivative factors that encourage us to use these different technologies and analysises the different scenarios of TCSYU for a better integrated mechanism among Yemeni universities and MHESR.The contribution aims to enhance efficiency and automation in document verification, subject matching, and database management for clearance subjects. Key steps include streamlining verification with Optical Character Recognition (OCR) and machine learning, improving subject matching using natural language processing (NLP), implementing a secure centralized database, automating decision-making for accuracy and speed, integrating data from various sources, and developing a user-friendly platform. Benefits include improved efficiency, automated verification, accurate matching, centralized management, enhanced accuracy, reduced processing time, data integration, analytics, and a centralized platform for clearance subjects.

1.4 Aims and Objectives

1.4.1 Aims

This research mainly focuses on the implementation of TCS to automate manual processes through universities and reach to eliminate ambiguity, reduce time, manual mistakes, and mismatching during TCP. According to our knowledge and search, we could not find any system regarding to doing such these operations for TCP. This motivated us to do scientific research to analyze the manual process of the CSP and TCP over universities and MHESR. Transfer Credit System For Yemeni Universities (TCSYU) provides a common platform and unified mechanism to generate TCR that is performed automatically.

1.4.2 Objectives

- To develop a system that adheres to all existing Ministry of Higher Education and Scientific Research (MHESR) regulations and guidelines for transfer credit processes (TCP).
- To establish a standardized subject catalog or database compatible with MHESR classifications and terminology
- To design algorithms that accurately determine the appropriate level of entry and academic pathway for transfer students.
- To automate manual tasks associated with TCP, significantly reducing processing time and associated administrative burden
- To implement error-checking mechanisms and validation processes to minimize data discrepancies and inaccuracies throughout the TCP.
- To establish the system as the first dedicated platform for credit transfer within the Yemeni university sector.

- To facilitate efficient and transparent credit transfer procedures, paving the way for increased student mobility and academic collaboration.
- To design and develop a system that prioritizes consistency, reliability, and seamless integration with existing university and MHESR infrastructure.

1.5 Research Methodology

The most objective of inquire about is revelation and improvement of progressed strategies and frameworks that use techniques and methods to conduct research scope of involving the overall design and structure of the research study. The steps included in this methodology are the following:

- Literature study
- Data collection
- Data Analysis
- System Model
- User Analysis
- System Analysis
- Verify & Validate User Requirements
- Verify & Validate System Requirements
- System Design

1.6 Scope of Study

TCS is a new system designed to assist both the Ministry of Higher Education and universities. For the MHESR, TCS facilitates the management of colleges and programs, as well as the approval of syllabus and descriptions provided

by universities. The system allows the MHESR to conduct comprehensive searches, explore, and validate or reject TCR from all universities. For universities, TCS enables them to manage their syllabus, including subjects names and their theoretical , laboratory credit hours, descriptions.The system also allows universities to manage the CSP, TCP, generate and view TCR for validation by the MHESR. Universities can then check the list of validated or rejected TCR sent by the MHESR.

1.7 Project Management

- WBS.

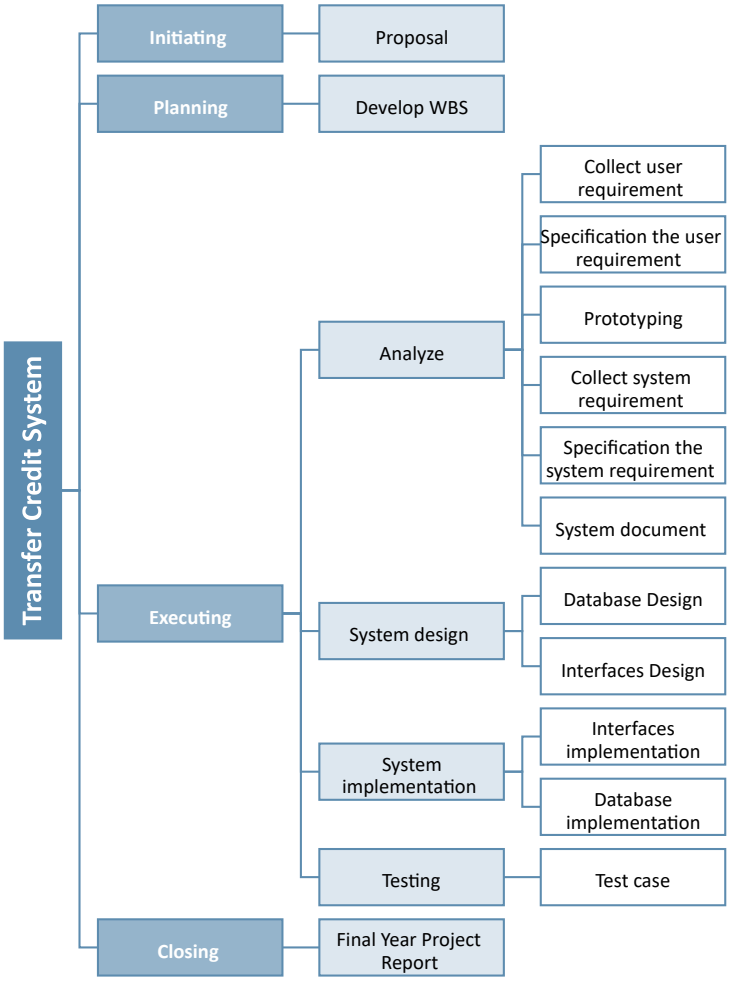

Figure 1.1: Work Breakdown Structure (WBS).

CHAPTER 2

Literature Review

2.1 Introduction

This chapter is a critical component of previous studies, providing an analysis of existing knowledge within a specific field.This chapter aims to establish a theoretical framework and contextualization the research problem. By conducting a thorough numbers of previous studies.This chapter also contributes to en-reach the existing body of knowledge and informs subsequent research. these researches underpin the project and give the researchers an overview of extracts of the already-available research.

2.2 Review of Literature

2.2.1 Credit Transfer in Higher Education

According to E. Pollard, K. Hadjivassiliou, S. Swift, and M. Green(2017) ,"The literature review revealed that institutions have received feedback indicating that students often consider transferring or moving if they experience uncertainty regarding their initial course choice, encounter unexpected course content, or have misunderstandings about the program's requirements. This trend appears to be on the rise due to the increasing number of available course options. A senior

academic expressed concerns about the guidance provided to students during the decision-making process for higher education (HE). The academic highlighted that students who are dissatisfied with their initial course selection often express a desire to switch to related subjects. Additionally, students may seek to transfer if they encounter difficulties in a particular discipline, especially when they face restrictions on the number of exam resits allowed. In such cases, literacy or numeracy issues were identified as potential underlying causes. Furthermore, students' personal ambitions may evolve over time while on a course, leading them to consider changing their course or institution. The feedback suggested that students who wish to transfer typically do so once, occasionally twice, but serial changes are not commonly observed. A few institutions have implemented highly flexible modular structures that facilitate easy transfers within the institution. However, this approach is not widespread in the UK. Examples of such institutions include the Open University, the University of Greenwich's Applied Professional Studies program, and the University of Hertfordshire's CATs program. These programs allow students to create a customized study plan from a diverse range of options and earn credits towards a Bachelor's degree. Nevertheless, it was noted that pursuing a named degree, as opposed to a broad-based or generic award, can limit student flexibility". [1]

2.2.2 Implementation of Credit System and Credit Transfer into Curriculum

According to Accreditations committee of cambodia(2004),"This literature review discusses the process of credit transfer between higher education institutions. It states that every higher education institution should recognize the credits earned by students from another institution that is recognized by the accreditation committee. However, the final decision regarding credit transfer lies with the institution accepting the credits. To facilitate the credit transfer process, the following measures should be taken by each higher education institution:

a) Issue Transcripts: Institutions should issue transcripts upon student request. These transcripts should clearly mention the subjects undertaken by the students, the number of credits associated with each subject, and the grades obtained. Additionally, the transcripts should provide detailed explanations of the grading system and citation offered by the institution.

b) Set Clear Conditions: Institutions should establish transparent conditions for accepting credits from other higher education institutions. These conditions should outline the criteria for determining whether credits earned elsewhere can be transferred and applied towards the student's program of study at the receiving institution.

c) Accept Completed Credits: Institutions should be willing to accept any credits that students have successfully completed at another higher education institution. This means that if a student has fulfilled the requirements for a particular course or subject at their previous institution, the receiving institution should acknowledge and count those credits towards the student's current program of study.

Overall, these measures aim to streamline the credit transfer process between higher education institutions and provide clarity and consistency in recognizing and accepting credits earned by students". [2].

2.2.3 Accelerated courses and switching university or degree

According to Nartey, Angela(2016),"A well-implemented credit transfer scheme holds significant value in supporting widening participation by offering increased flexibility, especially for part-time and mature students. This flexibility plays a crucial role in reducing high attrition rates among these student groups. To ensure effectiveness, any new developments should prioritize an easy-to-understand, fair, and transparent framework. Universality of the scheme is imperative, as it provides students with the best opportunity to transfer to institutions that

align with their needs. Existing literature emphasizes the positive impact of credit transfer schemes in addressing the unique challenges faced by part-time and mature students, promoting engagement and success in higher education. Clear guidelines and transparent processes are essential for enhancing trust and facilitating informed decision-making. Further research is needed to continuously improve the implementation and effectiveness of credit transfer schemes". [3]

2.2.4 Higher Education: Students Need More Information to Help Reduce Challenges in Transferring College Credits

According to United States. Government Accountability Office(2017),"The transfer of credits requires students to provide their previous transcript to the destination school. The acceptance of these credits is determined by the destination school, which uses various criteria for evaluation. These criteria may include a minimum grade requirement, assessment of coursework quality, comparison of course level and content with those at the destination school, and the relevance of the credits to the degree or programs offered. The literature emphasizes the importance of a fair and transparent application of these criteria to ensure successful credit transfers and informed decision-making by students. Further research is needed to enhance the effectiveness and fairness of credit evaluation processes".[4].

2.2.5 Transfer Credit Policy In National University

According to National university(2023),"Requests for course transfer credit must be submitted along with the admissions application to develop an appropriate degree plan for the student. Additional transfer credit requests can be made before degree conferral if the maximum allowable transfer credits have not been accepted by the University. Approval for transfer credit requests must be granted by the Office of the Registrar, School Dean, or their representative.

Evaluation of transfer courses focuses on their currency, relevance to National University (NU) degree programs, and adherence to academic standards. The

Admissions and Evaluation team will record accepted transfer courses and indicate the University requirements they fulfill.

To be considered for transfer credit at National University, credit hours must meet the following criteria:

a) Completion at a regionally or nationally accredited academic institution, an institution accredited by a CHEA member agency, or a collegiate institution accredited by a non-CHEA member agency recognized by the Department of Education.

b) Equivalence to degree program requirements, including specified electives.

c) Official transcript documentation from the institution where the credits were earned.

d) Fulfill required minimum grade requirements outlined by the degree or program level (remedial college credits are not accepted as transfer credit).

e) Completion within the specified timeframe for transfer credit eligibility, as outlined by the degree or program level". [5]

2.3 Transfer Credit System For Yemeni Universities

This literature provides an overview of the Transfer Credit System for Yemeni Universities (TCSYU) and highlights the challenges and issues faced during the Transfer Credit Processes (TCP) in higher education and university. The manual and traditional mechanisms used in the transfer credit Processes (TCP) are deemed ineffective due to their time-consuming nature, high potential for mistakes, and lack of reliability. This literature also discusses the motivation behind implementing a computerized system like TCSYU, which aims to enhance the infrastructure of the Ministry of Higher Education and Scientific Research (MHESR) and improve the efficiency of the TCP mechanism and development the Higher Education sector.

a) Challenges and Issues in TCP The first research question addresses the specific challenges and issues faced during the Clearance Subjects Process (CSP) in higher education. To provide a comprehensive literature review, it is crucial to explore existing studies and scholarly literature that discuss the challenges and issues associated with the TCP in Yemeni universities. This review will shed light on the common problems faced by students, universities, and the MHESR during the TCP.

b) Ineffectiveness of Manual and Traditional Mechanisms The second research question focuses on how technological evolution has rendered manual and traditional mechanisms ineffective in addressing the challenges of TCP. This literature review should examine the impact of technological advancements on higher education systems worldwide, particularly in the context of TCP, and highlight the limitations of manual processes and the benefits of converting to computerized systems.

c) Mistakes and Problems in Manual and Traditional Mechanisms The third research question delves into the common mistakes and problems associated with the manual and traditional mechanisms used in the (TCP). To address this question, this literature review should discuss the shortcomings of manual processes, such as errors in document verification, confusion in subject matching, and the overall inefficiency of the manual transfer process.

d) Transition to a Computerized System The fourth research question focuses on how the transition from a manual system to a computerized system represents a quantum leap for the field of MHESR. This section of the literature review should examine the advantages and potential impact of implementing a computerized Transfer Credit System For Yemeni Universities (TCSYU). By reviewing relevant literature, the section should highlight the benefits of automation, increased accuracy, reduced processing time, and improved data management for both the MHESR and universities.

e) Improved Data and Unified Approach The fifth research question explores how a computerized system can provide better data for the (MHESR) and enable a unified approach for universities in managing TCP. This part of the literature review should focus on studies and articles that discuss the role of technology in data integration, data analytics, and providing a centralized platform for managing TCP. This literature review highlights the advantages of a unified approach, such as streamlined processes, improved communication, and enhanced decision-making capabilities.

Overall ,the implementation of a computerized system like the Transfer Credit System for Yemeni Universities (TCSYU) is proposed as a solution to address the challenges and issues faced during the (TCP) in Yemeni higher education. The (MHESR) would lead the development and implementation of TCSYU, which aims to streamline the TCP and improve efficiency. The system would incorporate features such as online application submission, automated document verification, subject matching algorithms, and a centralized database for managing student records.

CHAPTER 3

Transfer Credit System For Yemeni Universities Methodology

3.1 Introduction

There are many different techniques and procedures used for theoretical and practical objectives, and each method has advantages and disadvantages. This chapter provides a clear picture of the methodology. The appropriate techniques and methods were employed through this project's research.

3.2 Methodology

3.2.1 Data Collection Methods

The Method used to collect data and answer indicated research questions, test hypotheses, and assess results, data collection is the process to gather comprehensive data for this research and system development, the following methods were employed:

3.2.1.1 **Interview Agenda and Protocol (IPA)**: Semi-structured interviews were conducted with key stakeholders from the Ministry of Higher Education and Scientific Research (MHESR) and participating universities. The interview

protocol [see Appendix A] guided discussions to elicit information about current TCP, challenges, and expectations for system improvement.

3.2.1.2 **Document Analysis (DA)**: Relevant documents, including TCP manuals, reports, business processes, and system specifications, were meticulously reviewed to extract key information and gain a deeper understanding of the system's context and constraints. [See Appendix B for details]

3.2.1.3 **Prototyping and User Feedback (PUF)**: Interactive prototypes of the proposed system were created to facilitate usability testing and gather feedback from potential users. This iterative process ensured continuous refinement of the system based on user input.

3.2.2 Quantitative Research

To complement the Quantitative analysis and provide a numerical understanding of TCP efficiency within Sana'a universities, Quantitative data was collected and analyzed. This included:

1. **Information from 45 universities in Sana'a city during one academic year was compiled, including:**

    - Number of submitted (15 - 20 TCR)
    - Number of rejected TCR (45% of total TCR)
    - Average processing time for TCR (2-3 weeks)
    - University type (government or private)
    - Student academic level (1st, 2nd, 3rd, 4th)

2. **Statistical Analysis:Descriptive statistics (means, frequencies, distributions) were calculated to summarize key variables. Inferential statistics (e.g., t-tests, chi-square tests) were used to compare rejection rates and processing times across university types and student levels.**

3.2.3 Qualitative Research

Document Analysis: Focused on textual data, including interview transcripts, field notes, and TCP -related documents (request forms, transfer forms, grade transcripts). Techniques such as content analysis were employed to identify patterns, themes, and meanings within the text, generating insights for conceptual framework development and rich narratives that enhance understanding of TCP processes.

3.2.4 Define Research Questions and Hypotheses

Research begins with the formulation of precise research questions and testable hypotheses, providing a guiding framework. Research questions delineate the study's scope, and hypotheses put forth propositions for testing. This framework guides methodological decisions, ensuring a systematic exploration and a meaningful contribution to academic discourse.

Research Question 1:

(What are the specific challenges and issues faced during the Transfer Credit Process (TCP) in higher education?)

- **H1:** Higher education institutions face significant administrative challenges and resource constraints during the Transfer Credit Process (TCP).
- **H2:** The complexity of academic pathways and regulations contributes to confusion and errors within the TCP.
- **H3:** A lack of communication and collaboration between institutions hinders the smooth flow of the TCP.

Research Question 2:

(How has technological evolution rendered manual and traditional mechanisms ineffective in addressing the challenges of TCP?)

- **H4:** Manual and traditional mechanisms (e.g., paper forms, physical file transfers) are prone to delays, errors, and loss of data in the TCP.
- **H5:** Technological advancements offer faster, more accurate, and more efficient solutions for managing clearance subjects.
- **H6:** The increasing volume and complexity of student data make manual and traditional mechanisms increasingly unsustainable.

Research Question 3:

(What are the common mistakes and problems associated with the manual and traditional mechanisms used in the Transfer Credit Process (TCP)?)

- **H7:** Common mistakes and problems associated with manual and traditional mechanisms in the Transfer Credit Process (TCP) include misinterpretations of credit hours, missing documentation, and delayed approvals.
- **H8:** The lack of standardization in TCP procedures across institutions leads to inconsistencies and difficulties in credit recognition.
- **H9:** Manual TCP processes are susceptible to fraud and manipulation.

Research Question 4:

(How does the transition from a manual system to a computerized system represent a quantum leap for the field of higher education and scientific research?)

- **H10:** Implementing a computerized system for managing clearance subjects and credit transfers will significantly improve efficiency, accuracy, and transparency in higher education.

- **H11:** A centralized, computerized system will facilitate communication and collaboration between institutions, streamlining administrative processes.
- **H12:** Access to real-time data through a computerized system will enable data-driven decision-making and policy development in higher education.

Research Question 5:

(In what ways will the computerized system provide better data for the Ministry of Higher Education and Scientific Research (MHESR) and enable a unified approach for universities in managing clearance subjects and credit transfers?)

- **H13:** : A computerized system will provide the Ministry of Higher Education and Scientific Research (MHESR) with comprehensive and accurate data on student mobility and academic progress.
- **H14:** The MHESR can use data from the computerized system to develop standardized guidelines and procedures for managing clearance subjects and credit transfers across all universities.
- **H15:** A unified approach enabled by a computerized system will promote equity and fairness in student mobility and credit recognition within the national higher education system.

3.2.5 Data Analysis

Both qualitative and quantitative data were analyzed using appropriate techniques:

- Qualitative Data: Thematic analysis, content analysis, and narrative analysis were used to identify patterns, themes, and meanings within the qualitative data.
- Quantitative Data: Descriptive statistics, inferential statistics, and data visualizations were used to analyze the quantitative data.

3.2.6 Interpretation and Conclusion

The findings from both qualitative and quantitative analyses were integrated to draw meaningful interpretations, providing a deeper understanding of the TCP system's strengths, weaknesses, and areas for improvement. The significance of the findings was assessed, considering their impact on student mobility, academic progress, and overall system efficiency. The results were then discussed in relation to the research questions and hypotheses, with implications for policy and practice.

3.2.7 Software process Model

The reason we used this model is because there is no previous system or model that meets the needs of users, so we used iterative model.The Iterative model is a software development approach that starts with a basic implementation of a small set of requirements and gradually improves it through iterations until the complete system is developed. Unlike traditional models, it doesn't require a complete specification of requirements upfront. Instead, it focuses on developing and implementing partial portions of the software, reviewing them for additional requirements, and generating new versions at the end of each iteration. Design modifications and new functionalities are added in each iteration. This iterative and incremental approach allows for simultaneous development cycles and is known as "evolutionary acquisition" or "incremental build." The incremental model divides requirements into builds, and each iteration goes through requirements gathering, design, implementation, and testing, adding more functionalities in subsequent releases until the system meets the requirements.

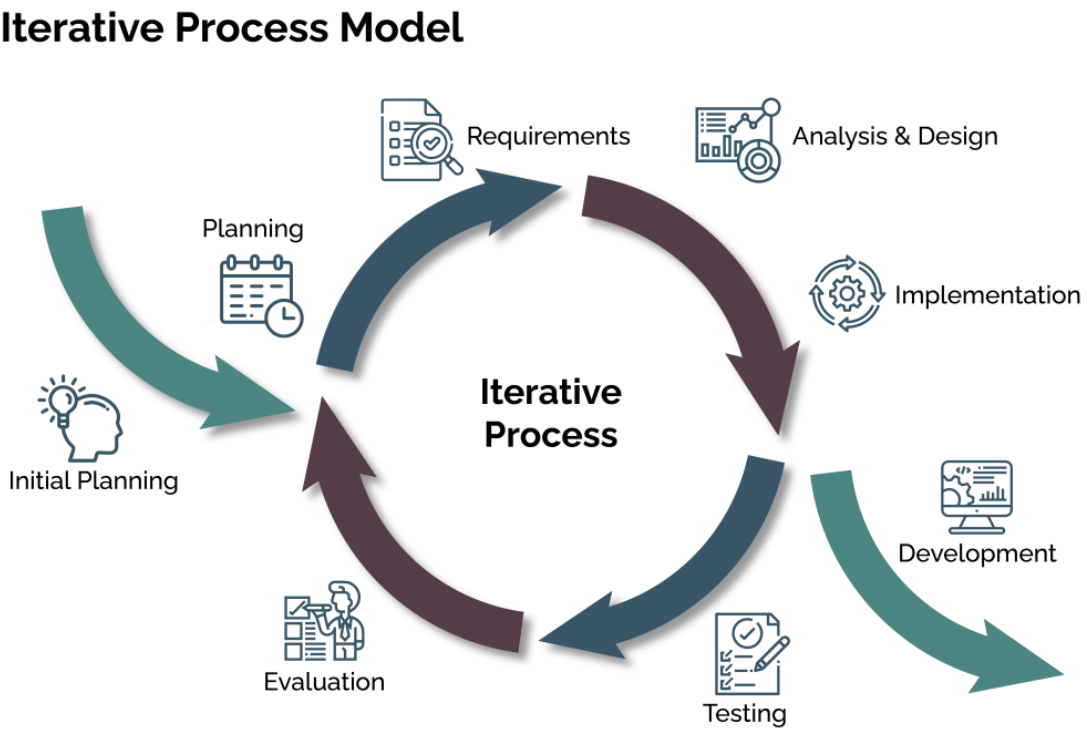

Figure 3.1: Iterative Development Life Cycle.

3.3 Summary

An overview of research methodologies has been given in this chapter, with a particular emphasis on those have some quantitative components. The major goal was to introduce them so that anyone planning to conduct research might choose an acceptable research approach. The methodologies that have been described must also be viewed as complimentary because they can be used at various points in the research process. As a result, they can complete one another in a favorable way and serve as a solid foundation for long-term advancement.

CHAPTER 4

System Analysis

4.1 Introduction

The system requirements and components are covered in this chapter. The requirements of the end users have been determined and stated through the User Requirements, which define what the users do with the system, and the System Requirements, which are the building blocks that will assist the developers in creating the system, when the essential information from the stakeholders has been gathered. There are two categories of system requirements: functional and non-functional. The non-functional requirements specify how the system should operate, whereas the functional requirements specify what the system must be able to perform.

4.2 Feasibility Study

The feasibility study plays an essential role in the achievement of any project. The feasibility and likelihood that the system will have benefits on the education sector. This study aims to explore the success of establishing the (TCS) and by testing the technical feasibility, operational efficiency and economics of this business idea, we will be able to determine whether or not it remains a successful replacement for the

existing manual TCP and TCR between universities and MHESR .

4.2.1 Technical Aspects

Technical aspects focus primarily on the analysis of function, performance, and constraints that may affect the ability of the system. Researchers need to carry out an effective technical aspect to make sure the project solves the current issue and to see whether everything was feasible given the limits that might limit the system's functionality. Since nearly everyone can use computers to make it more effective and easier to use, the project has strong technical viability.

4.2.2 Operational Aspects

Because the technological advancements, people are changing too, and technology has a history of facilitating change. Additionally, stakeholders with a basic understanding of computers are required for all positions. This system can be put into use for that.

4.2.3 Economical Aspects

Comparing between expense of development and the benefit of the involved system is what economic aspect is all about. The expense of system development is reflected in maintenance the expected monthly cost is 100, totaling 1200 USA annually. The return of the capital investment will be in two years. Consequently, this initiative has strong economic viability.

4.2.3.1 Budget Estimate and Financial Analysis

Conducting a budget estimate and financial analysis, decision-makers can gain insights into the financial implications and feasibility of the proposed project. It helps in making informed decisions regarding determining the financial sustainability of the economy and assessing the potential financial risks

and rewards. Additionally, it provides a foundation for financial planning, monitoring, and control throughout the project's life-cycle.

- **Initial Investment:**

Capital Expenditure CAPEX		
Item	Cost	
Equipments e.g (Modem, Printers, etc)	$	800.00
Furnitures e.g (Desks, Tables, Stationery, etc)	$	500.00
Computers / Laptops	$	1,200.00
Software / System / Application		-
Web Hosting Plan	$	107.88
Total CAPEX	$	2,607.88

Monthly Operating Expenses OPEX		
Item	Cost	
Salaries / Wages	$	4,800.00
Utilities e.g (electricity, internet, etc)	$	1,200.00
Supplies	$	-
Cash on hand	$	3,000.00
Total OPEX	$	9,000.00

Initial Investment
Total CAPEX + Total OPEX
$ 11,607.88

- **Sales Forecasting:**

Transfer Ctredit System	First Setup		
Isentinal Price	$	400.00	
Number of Universities in Sana'a Yemen	$	45.00	
Total frist Revenue	$	18,000.00	
	Total	$	18,000.00

Transfer Ctredit System maintenance	Maintenance		
Monthly Price	$	100.00	
Number of Universities in Sana'a Yemen	$	45.00	
Total Revenue annualy	$	4,500.00	
	Total	$	54,000.00

Sales Forecasting							
	Year 1		Year 2		Year 3		Year 4
Demand growth price increase	0%		10%		15%		20%
Prcintage of growth price increase	$	-	$	400.00	$	720.00	$ 1,040.00
Set up Price	$	4,000.00	$	4,000.00	$	4,800.00	$ 5,200.00
Avrage number of Universities in Sana'a Yemen	10		10		12		13
maintenance Revenue	$	-	$	12,000.00	$	14,400.00	$ 15,600.00
Total revenue	$	4,000.00	$	16,400.00	$	19,920.00	$ 21,840.00

Figure 4.1: Budget Estimate and Financial Analysis

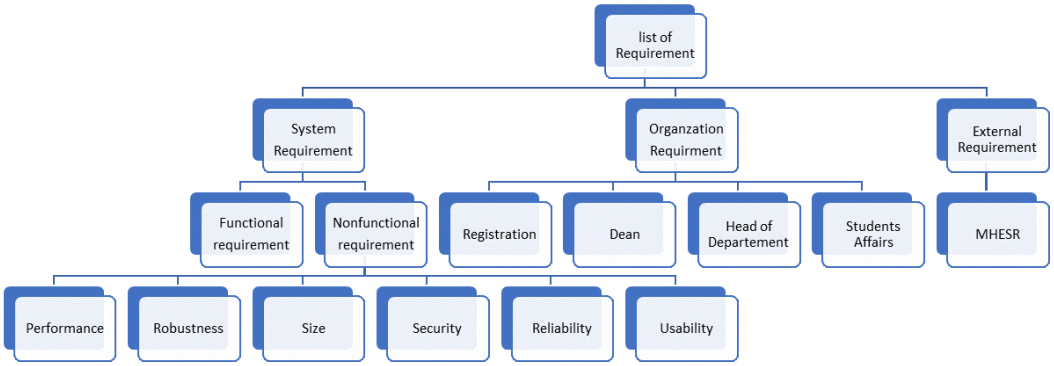

Figure 4.2: List of Requirements

4.3 The Requirements

4.3.1 Organization Requirements

1. **Student Registration**

   - Integration with Ministry of Education: Seamless access to high school student information directly from the Ministry of Education database.
   - Data Validation: Prompt user confirmation before saving any entered data to ensure accuracy.
   - Dynamic Program Display: Automatic adjustment of displayed programs based on the student's high school grade level.
   - Data Editing: Ability to edit previously entered data in case of errors or mistakes.
   - Password Reset: Functionality for recreating and resetting account passwords.

2. **Head of Department**

   - Previous Study Plan Access: Display the student's previous university study plan based on their prior education level.
   - Mark Entry: Ability to input grades for previously studied subjects.

- Mark Editing: Option to modify and correct previously entered marks.
- Program & Major Overview: View the student's chosen program and current major names.
- Final Report Generation: Create a comprehensive final report for each student.
- Final Report Viewing: Review and access previously generated final reports.
- Report Submission to Dean: Electronically send final reports to the Dean for approval.
- Rejected Report Handling: Edit and recreate transfer credit for reports rejected by the Dean.
- Report Status Monitoring: Track the status of each final report (approved, rejected, pending).
- Student Transfer Interest: View the number of students interested in initiating the Transfer Credit Program (TCP).
- Rejected TCR Count: Monitor the number of rejected Transfer Credit Requests (TCRs).
- New Study Plan Creation: Design and implement new study plans for each program.
- Program Syllabus Management: Manage and update syllabuses for all offered programs.
- Subject Matching: Display subjects eligible for transfer credit based on corresponding course equivalencies.

3. **Dean**

- TCR Review: View and assess all submitted Transfer Credit Requests.
- TCR Rejection: Option to reject TCRs that do not meet program requirements or standards.

- Rejection Justification: Provide a written explanation for TCR rejections.
- Report Forwarding: Electronically send approved final reports to Student Affairs.

4. **Student Affairs**

- Program-Specific TCR Overview: View the number of TCRs submitted for each program.
- Conformity Assessment: Review and confirm eligible TCRs according to program guidelines.
- TCR Rejection: Option to reject non-compliant TCRs.
- Rejection Justification: Provide a written explanation for TCR rejections.
- Report Submission to MHESR: Electronically send final reports to the Ministry of Higher Education and Scientific Research (MHESR).
- Review of Rejected Reports: Access and review feedback from MHESR on rejected reports.
- New College & Program Requests: Initiate requests for adding new colleges and programs to the system.
- User Account Management: Manage and maintain user accounts for all university personnel
- Major Transfer Suggestion Request: Submit requests to MHESR for approval of suggested major transfer equivalencies.

4.3.2 External Requirements

1. **Ministry of Higher Education and Scientific Research (MHESR)**

- Subject Matching Algorithm: Implement a system for matching subjects based on detailed course descriptions and learning outcomes.
- Transfer Credit Hour Allocation: Allow transfer of credit hours from higher-level courses to lower-level equivalents (not vice versa).

- Syllabus Comparison: Display both previous and current syllabuses for transferred subjects side-by-side.
- Syllabus Matching Threshold: Require a minimum 70% similarity between compared syllabuses for credit transfer approval.
- Academic Year Synchronization: Match transferred subjects based on the year the student registered for the original course (e.g., 2020 vs. 2022).
- University Major Transfer Request Review: Assess and approve or reject university requests for additional major transfer equivalencies.
- University Program Syllabus Review: Evaluate and approve university program syllabuses submitted for acceptance.

4.3.3 System Requirements

Functional Requirements

1. **Student Registration**
    - The system shall retrieve high school student information from the Ministry of Education database.
    - The system shall prompt the user to confirm data before saving.
    - The system shall display programs based on student's high school grade.
    - The system shall allow users to edit entered data.
    - The system shall allow users to reset account passwords.
2. **Head of Department**
    - The system shall display the student's previous university study plan.
    - The system shall allow entry of marks for previously studied subjects.
    - The system shall allow editing of previously entered marks.
    - The system shall display the student's chosen program and current major names.

- The system shall generate a final report of TCP for each student.
- The system shall allow viewing of previously generated final reports.
- The system shall allow sending final reports to the Dean for approval.
- The system shall allow editing of rejected reports and recreation of transfer credit.
- The system shall track the status of each final report.
- The system shall display the number of students interested in the Transfer Credit Program (TCP).
- The system shall display the number of rejected Transfer Credit Requests (TCRs).
- The system shall allow creation of new study plans for each program.
- The system shall allow management of syllabuses for all offered programs.
- The system shall display subjects eligible for transfer credit and their corresponding course equivalencies.

3. **Dean**

- The system shall allow viewing of all submitted Transfer Credit Requests (TCRs).
- The system shall allow rejection of TCRs.
- The system shall allow provision of a written explanation for TCR rejections.
- The system shall allow sending approved final reports to Student Affairs.

4. **Student Affairs**

- The system shall display the number of TCRs submitted for each program.
- The system shall allow review and confirmation of eligible TCRs.

- The system shall allow rejection of non-compliant TCRs.
- The system shall allow provision of a written explanation for TCR rejections.
- The system shall allow sending final reports to the Ministry of Higher Education and Scientific Research (MHESR).
- The system shall allow viewing of feedback from MHESR on rejected reports.
- The system shall allow initiation of requests for adding new colleges and programs.
- The system shall allow management of user accounts for all university personnel.
- The system shall allow submission of requests to MHESR for approval of suggested major transfer equivalencies.

5. **Ministry of Higher Education and Scientific Research (MHESR)**

- The system shall implement a subject matching algorithm based on course descriptions and learning outcomes.
- The system shall allow transfer of credit hours from higher-level courses to lower-level equivalents.
- The system shall display both previous and current syllabuses for transferred subjects side-by-side.
- The system shall require a minimum 70% similarity between compared syllabuses for credit transfer approval.
- The system shall match transferred subjects based on the year the student registered for the original course.
- The system shall allow assessment and approval or rejection of university requests for additional major transfer equivalencies.

- The system shall allow evaluation and approval of university program syllabuses.

Nonfunctional Requirements

1. **Robustness**

   - The system shall be able to handle high volumes of concurrent users without performance degradation.
   - The system shall be resilient to hardware and software failures with minimal downtime.
   - The system shall be able to recover from data corruption or loss with minimal data impact.
   - The system shall be resistant to unauthorized access and malicious attacks.

2. **Usability**

   - The system shall have a user-friendly interface that is intuitive and easy to navigate.
   - The system shall provide clear and concise instructions and error messages.
   - The system shall be accessible to users with disabilities.
   - The system shall provide online help and documentation.

3. **Reliability**

   - The system shall be available 99.5% of the time during business hours.
   - The system shall meet all performance requirements as specified in the service level agreement (SLA).
   - The system shall have a mean time to repair (MTTR) of less than 4 hours for critical issues.

- The system shall be able to recover from failures quickly and efficiently.

4. **Security**

   - The system shall protect user data from unauthorized access, modification, or deletion.
   - The system shall comply with all relevant data privacy regulations.
   - The system shall use strong encryption for sensitive data.
   - The system shall have a secure login process and require strong passwords.

5. **Size and Performance**

   - The system shall be able to store and manage a large volume of data efficiently.
   - The system shall be able to process data quickly and efficiently.
   - The system shall be able to scale to meet future growth requirements.
   - The system shall meet all performance benchmarks as specified in the system requirements document.

4.4 System Environment

Figure 4.3 shows the System Environment of integrated computer hardware, operating systems software, computer peripherals or its contractors to allow the stakeholders to access and use the Software.

Figure 4.3: System Environment Diagram

4.4.1 Use Case Diagram

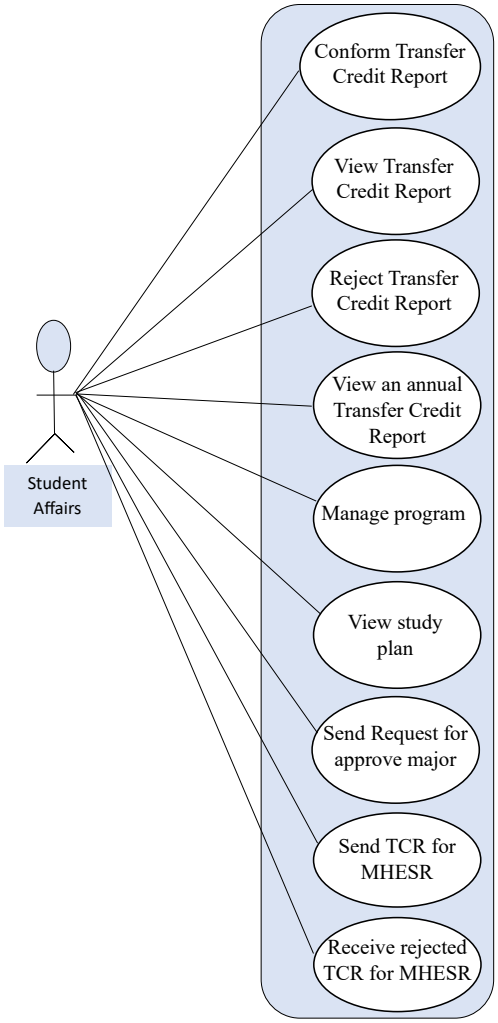

Figure 4.4: Student Affairs Use Case Diagram

Figure 4.4 shows the Use Case Diagram provided functions of the Student Affairs.

- Conform Transfer Credit Report

  The Student Affairs will be able to conform the TCR

- View Transfer Credit Report

  The Student Affairs will be able to View the TCR

- Reject Transfer Credit Report
  The Student Affairs will be able to Reject the TCR if there is mistake
- View an annual Transfer Credit Report
  The Student Affairs will be able to View an annual report of TCR
- Manage program
  The Student Affairs will be able to manage program of the university
- View study plan
  The Student Affairs will be able to View study plan for any college
- Send Request for approve major
  The Student Affairs will be able to send request for the MHESR to approve for new major
- Send TCR for MHESR
  The Student Affairs will be able to send the TCR for MHESR to check the report
- Receive rejected TCR for MHES
  The Student Affairs will be able to receive rejected TCR form the MHES

Figure 4.5 shows the use case diagram provided functions of the Registration.

- Add Student(Register Student)
  The Registrar will be able to register new student information
- Edit Student information
  The Registrar will be able to edit the student information if there is mistake
- Sign the TCR
  The Registrar will be able to sign the TCR
- View Transfer Credit Report
  The Registrar will be able to see the TCR

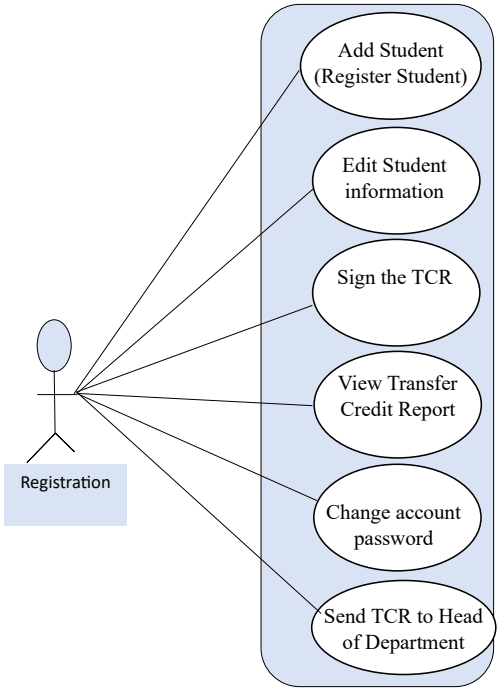

Figure 4.5: Use Case Diagram Registration

- Change account password

  The Registrar will be able to change the account password

- Send TCR to Head of Department

  The Registrar will be able to send the TCR in to the head of department when the finish entering the student information

Figure 4.6 shows the use case diagram provided functions of the Deans.

- View Transfer Credit Report

  The Dean will be able to see the TCR

- Reject Transfer Credit Report

  The Dean will be able to reject the TCR if there is mistake

- Sign the TCR

  The Dean will be able to sign the TCR

- View Stud plan

  The Dean will be able to view study plan

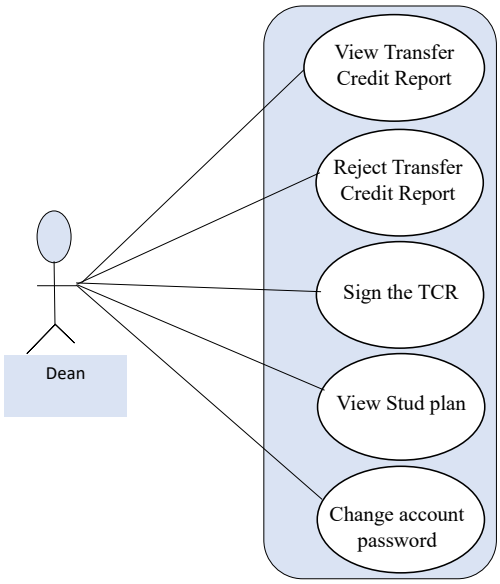

Figure 4.6: Dean Use Case Diagram

- Change account password
  The Dean will be able to change the account password

Figure 4.7 shows the use case diagram provided functions of the Head of Department.

- Select the Student for TCP
  The Head of Department will be able to select the student for starting TCP
- Enter the mark of the previous studded subject
  The Head of Department will be able to enter the mark of the previous studded subject
- Edit the mark of the Previous studded subject
  The Head of Department will be able to edit the mark of the previous studded subject if there is mistake
- View an annual Transfer Credit Report
  The Head of Department will be able to view an annual Report about Transfer Credit

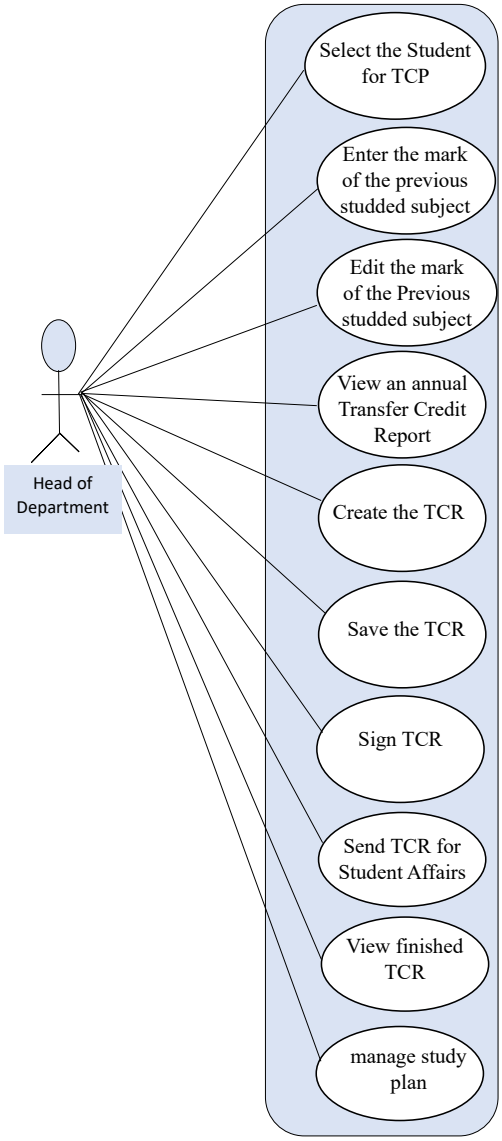

Figure 4.7: Head of Department Use Case Diagram

- Create the TCR

  The Head of Department will be able to create new TCR

- Save the TCR

  The Head of Department will be able to save the TCR

- Sign TCR

  The Head of Department will be able to sign the TCR if it is correct

- Send TCR for Student Affairs

The Head of Department will be able to send the TCR for the student affairs

- View finished TCR

  The Head of Department will be able to View the finished TCR

- manage study plan

  The Head of Department will be able to manage study plan

Figure 4.8 shows the use case diagram provided functions of the Control and Archive

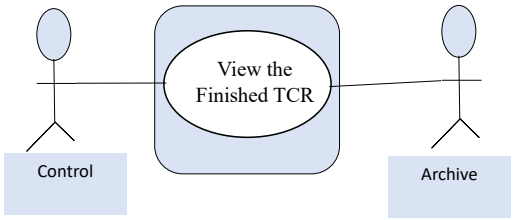

Figure 4.8: Control and Archive Use Case Diagram

- View the Finished TCR The Control and Archive can View the Finished TCR

Figure 4.9 shows the use case diagram provided functions of the Ministry of Higher Education and Scientific Research (MHESR).

- Conform Transfer Credit Report

  The MHESR will be able to conform the TCR

- View Transfer Credit Report

  The MHESR will be able to see the TCR

- Reject Transfer Credit Report

  The MHESR will be able to reject the TCR if there is mistake

- Add University

  The MHESR will be able to add new university

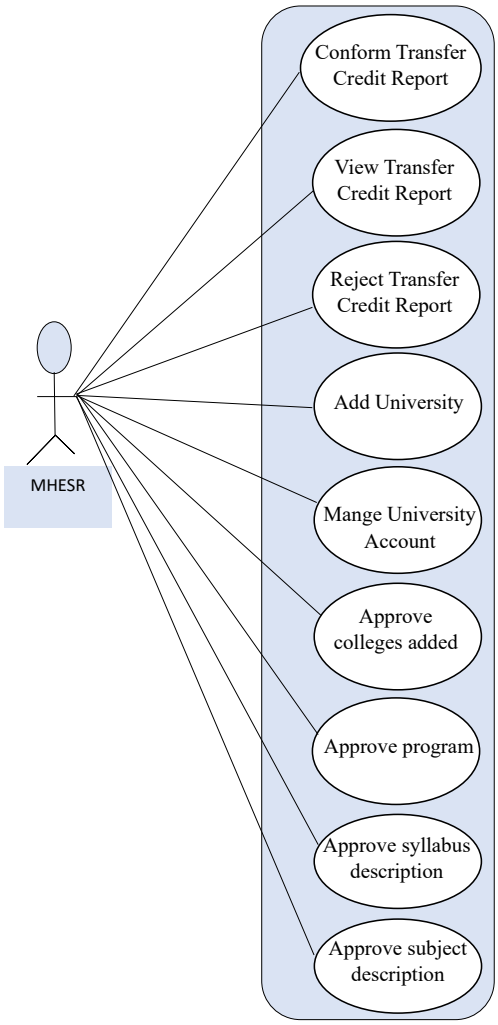

Figure 4.9: Ministry of Higher Education and Scientific Research (MHESR)

- Mange University Account

  The MHESR will be able to manage university account

- Approve colleges added

  The MHESR will be able to approve for adding new college

- Approve program

  The MHESR will be able to approve for adding new program

- Approve syllabus description

  The MHESR will be able to approve for the syllabus description

- Approve subject description

  The MHESR will be able to approve for the subject description

Figure 4.10 shows the use case diagram provided functions of the Admin

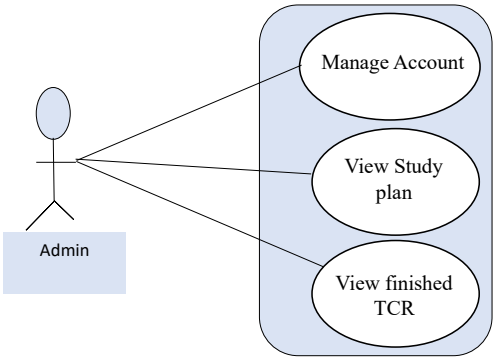

Figure 4.10: Admin Use Case Diagram

- Manage Account

  The Admin will be able to mange the university account

- View Study plan

  The Admin will be able to view study plan

- View finished TCR

  The Admin will be able to view the finished TCR

4.4.2 Activity Diagram

Figure 4.11, 4.12 , 4.13 , 4.14 that illustrates the flow of activities and processes within a system depicts the sequence of actions, decisions, and control flows involved in a particular process of workflow.

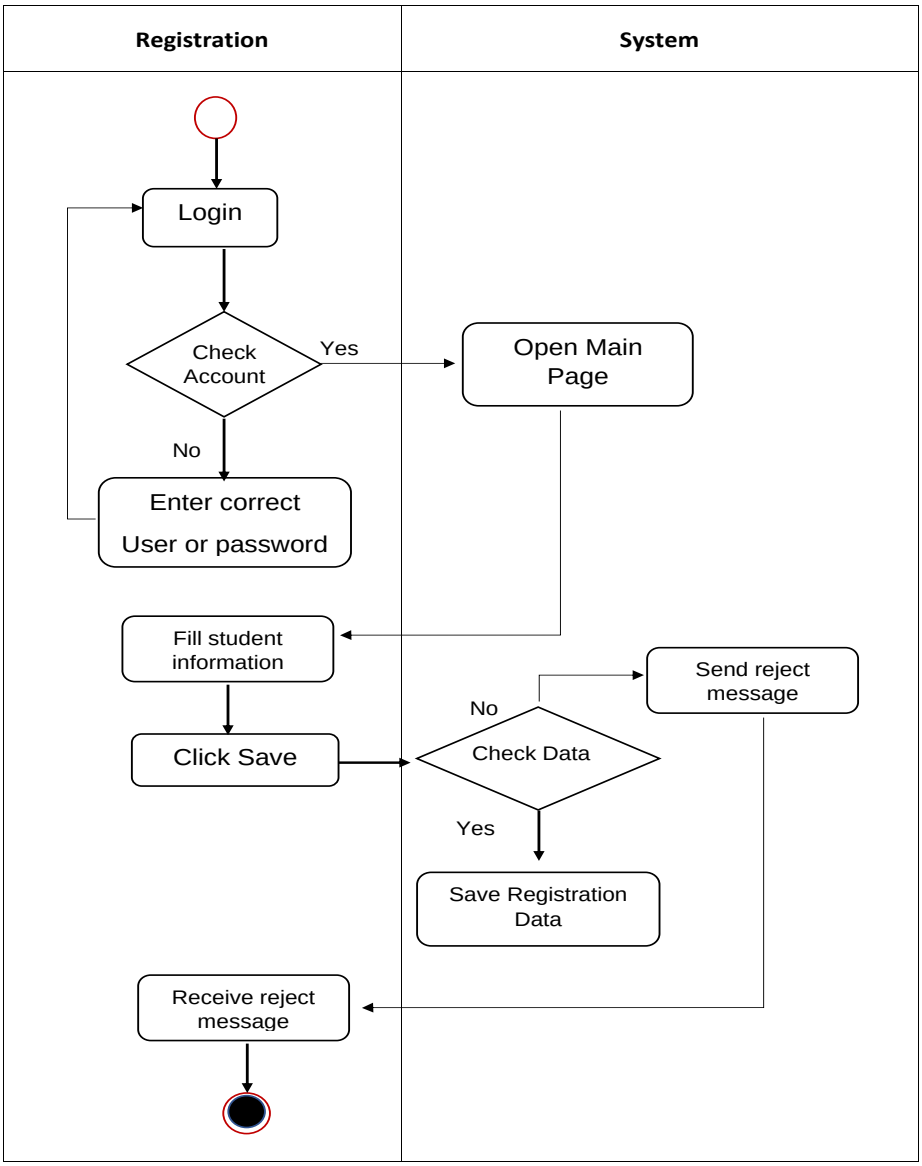

Figure 4.11: Registration

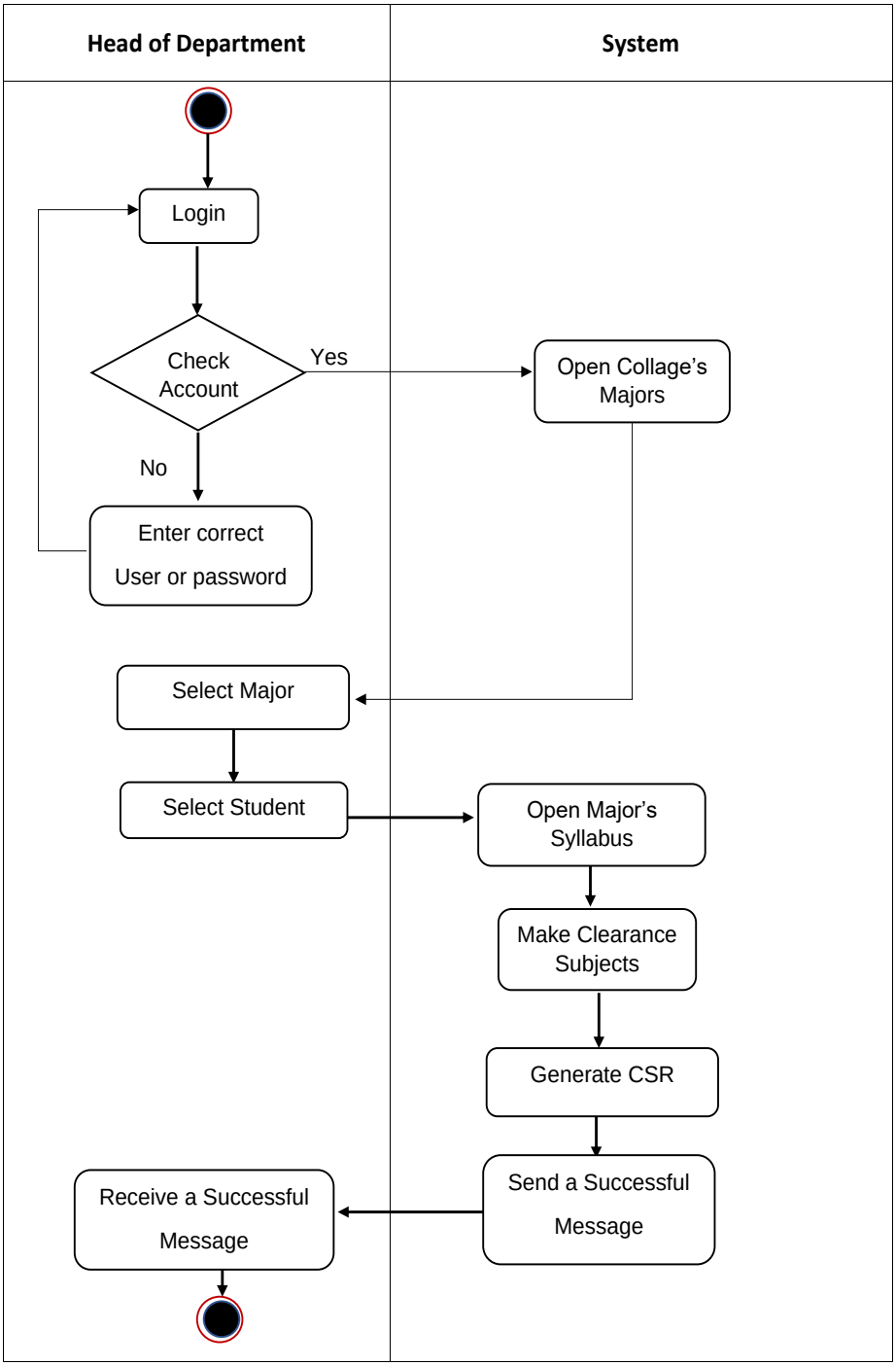

Figure 4.12: Head of Department

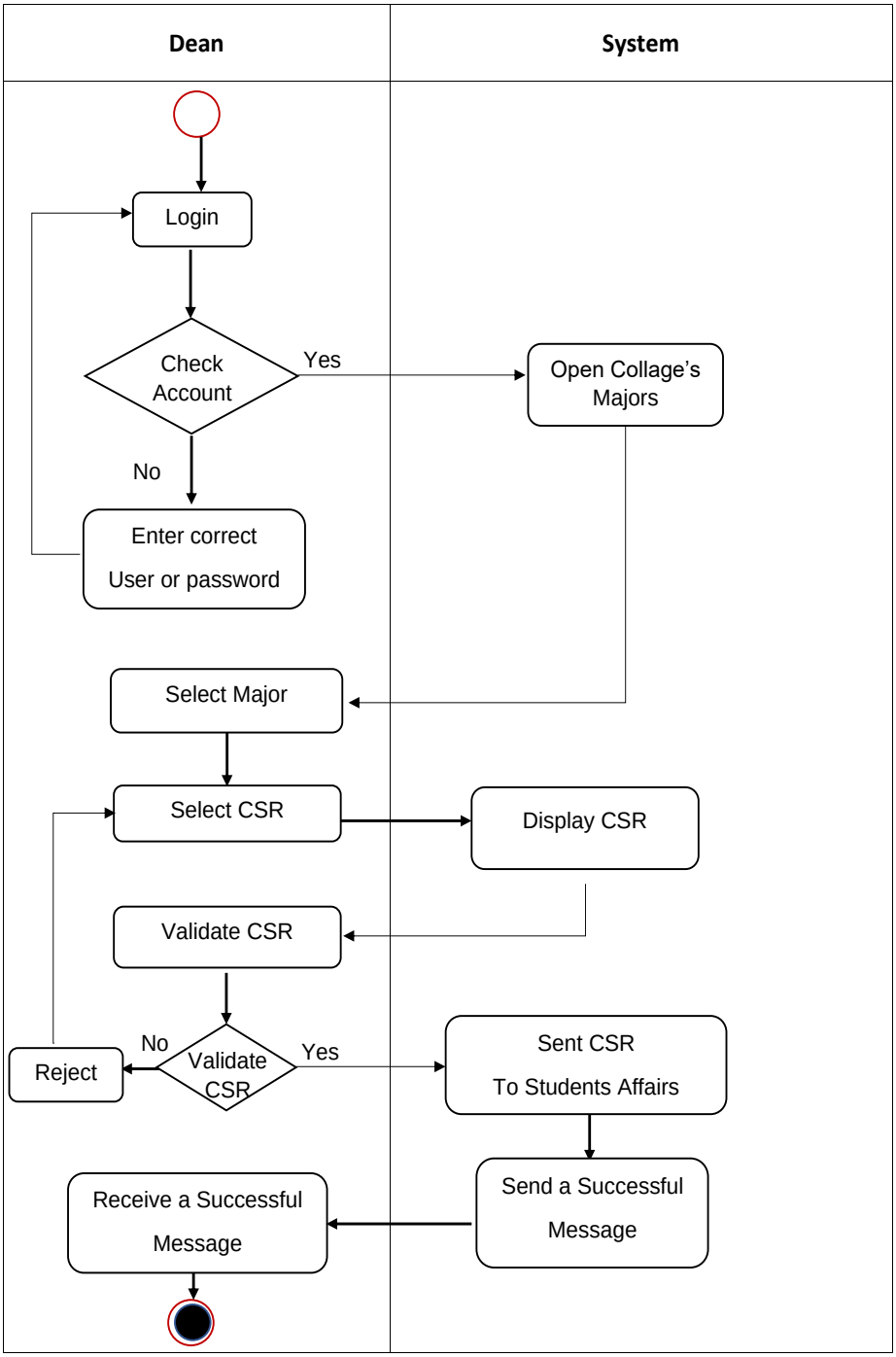

Figure 4.13: Dean

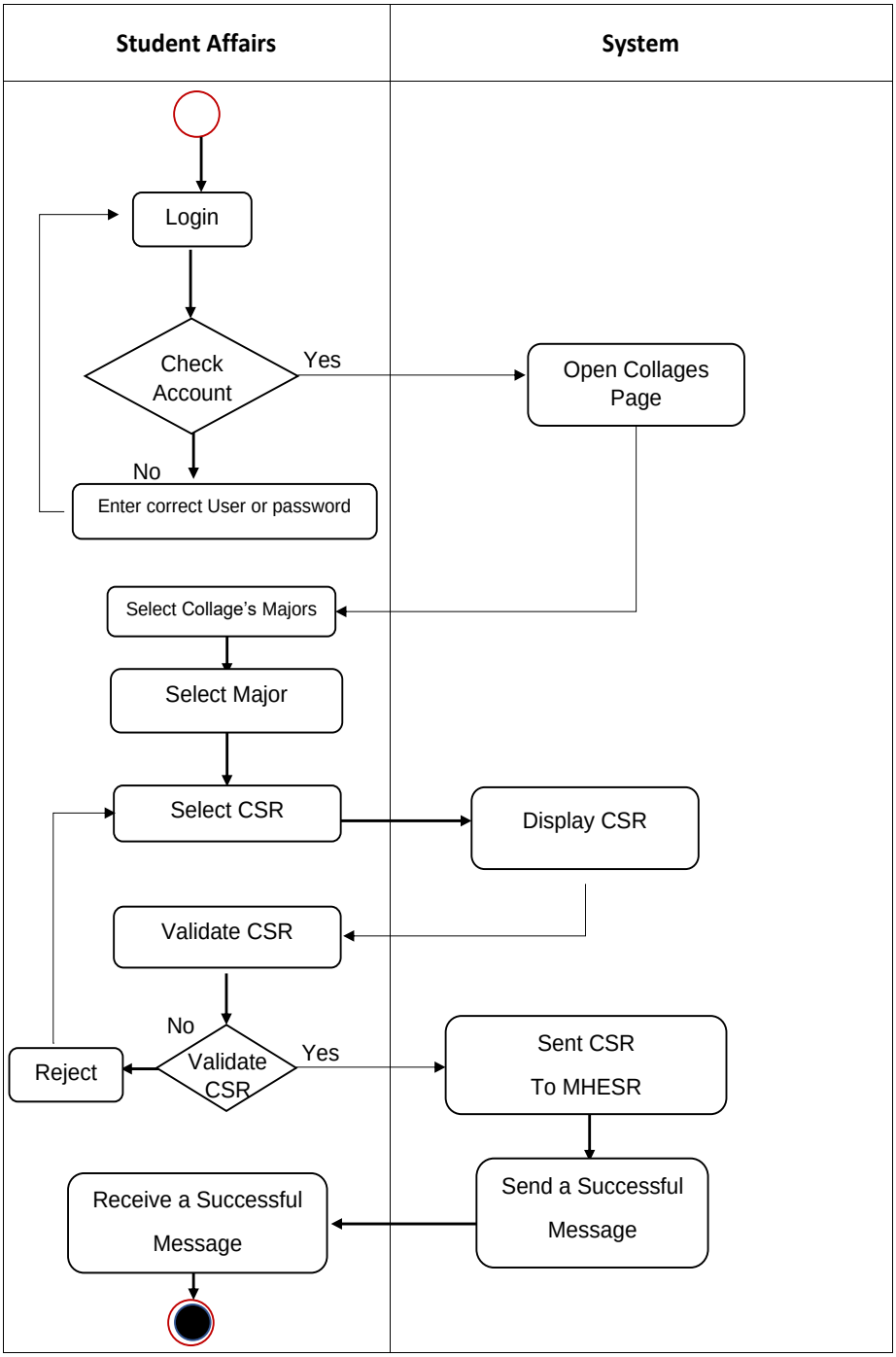

Figure 4.14: Student Affairs

4.4.3 Sequence Diagram

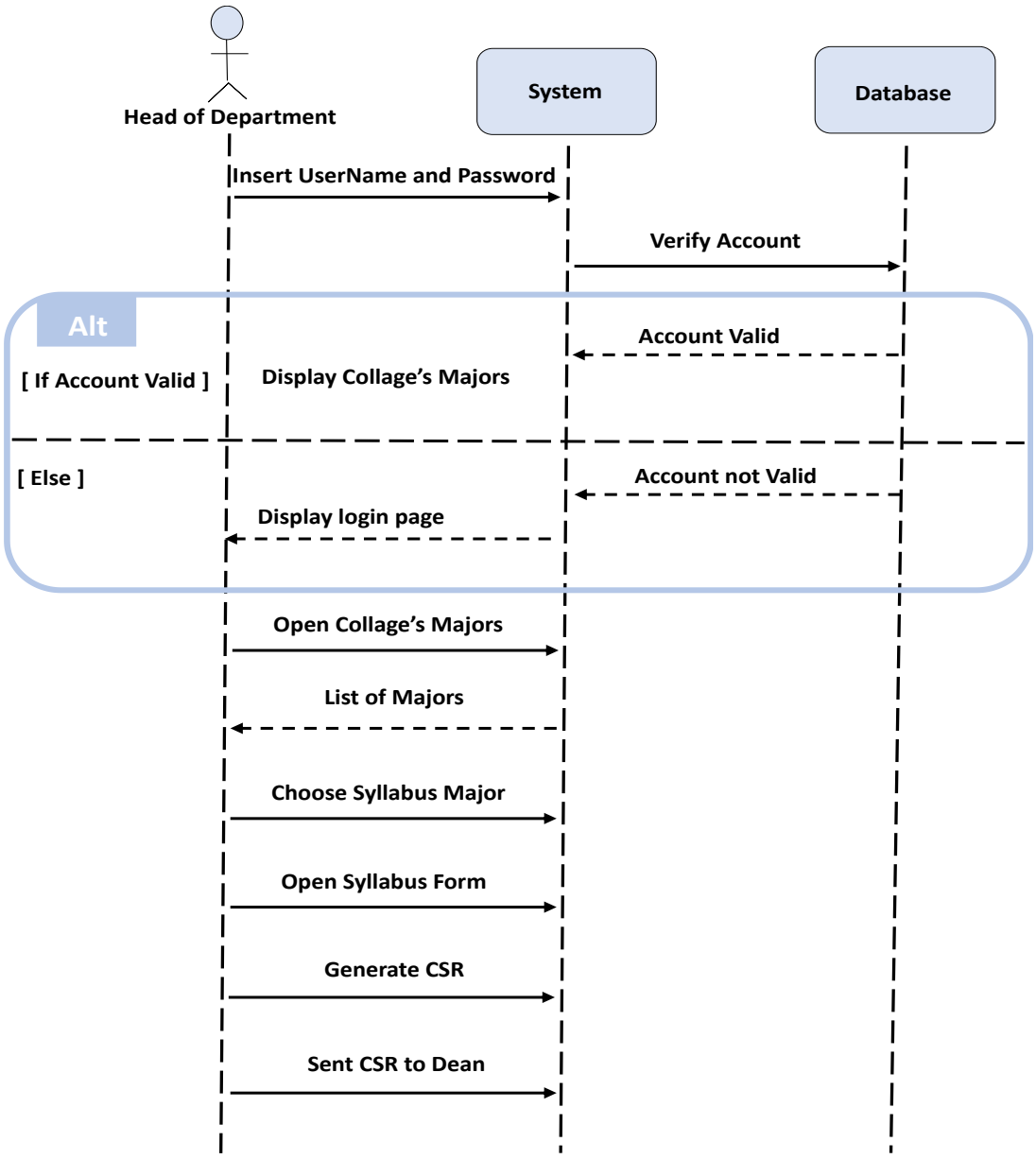

Figure 4.15: Head of Department

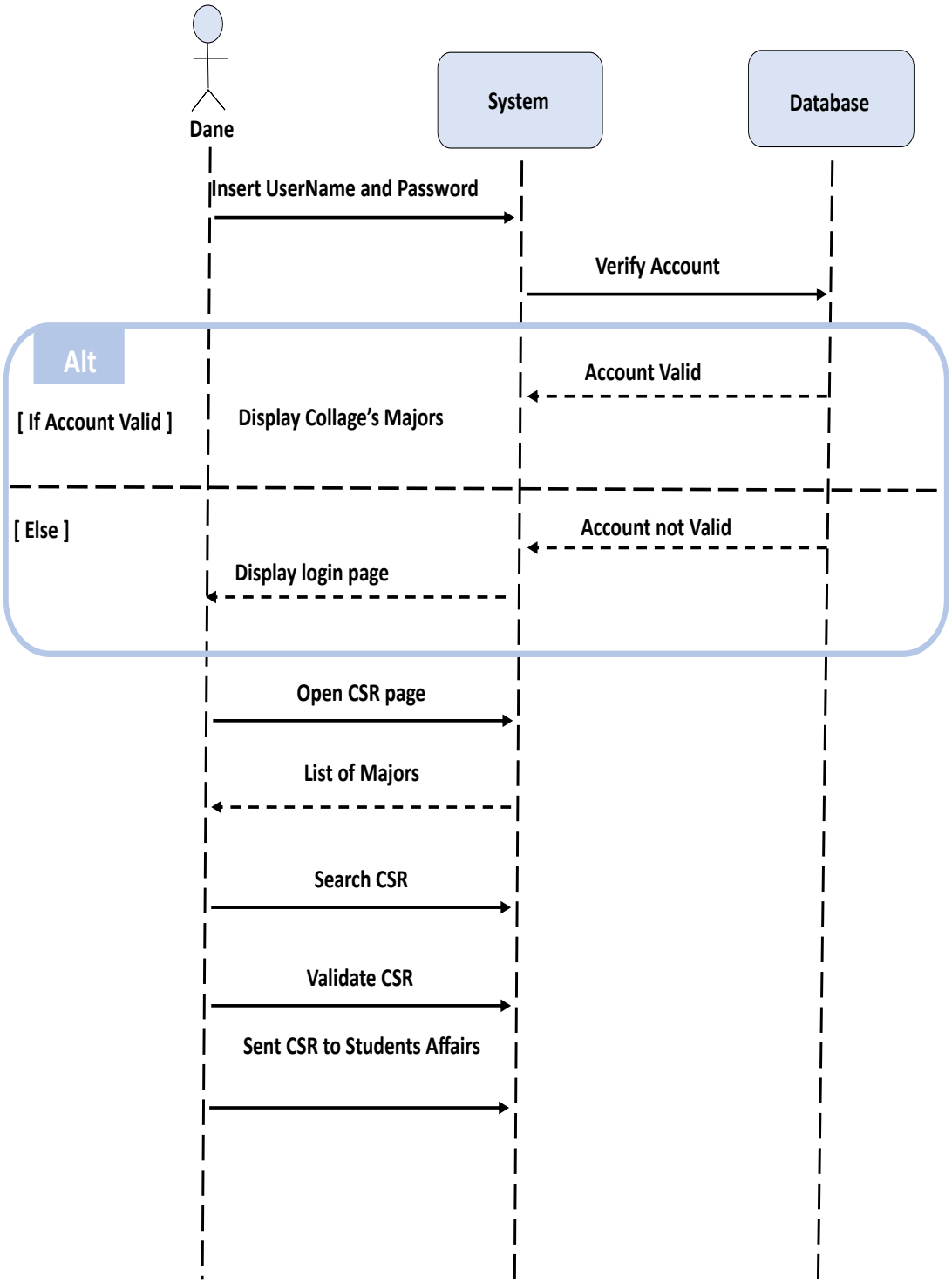

Figure 4.16: Dean

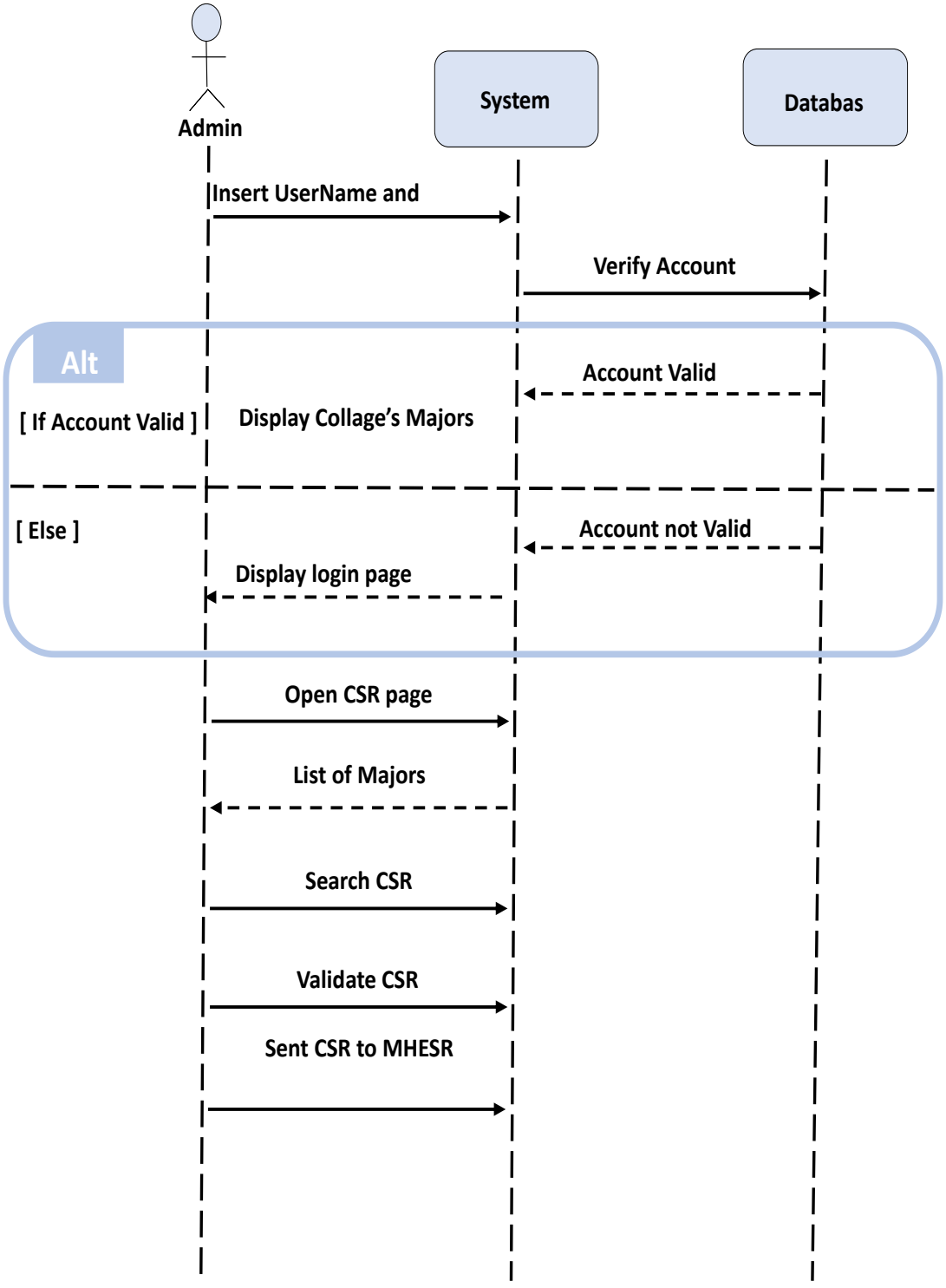

Figure 4.17: Admin

4.5 Summary

Finally, this chapter describes the analysis of the system which includes: User Requirements, System Requirements that are embedded with both Functional and Non-Functional Requirements What the participants in the system need to achieve has been defined by user requirements. Also, a Feasibility Study discussed different aspects of how the system will encourage the education sector and how the benefits delivered to both MEHSR and Universities.

CHAPTER 5

System Design

5.1 Introduction

The system designs are presented in this chapter. Following the discovery and specification of the requirements, these requirements were used to create the architecture, structure, and interfaces of the system. Systems are designed choose precisely how the system will fulfill the requirements, the designs for the system comprise UML diagrams and interfaces.

5.2 Database Design

The figure shows the entity relationship diagram (ERD)which provides a visual starting point for database design.

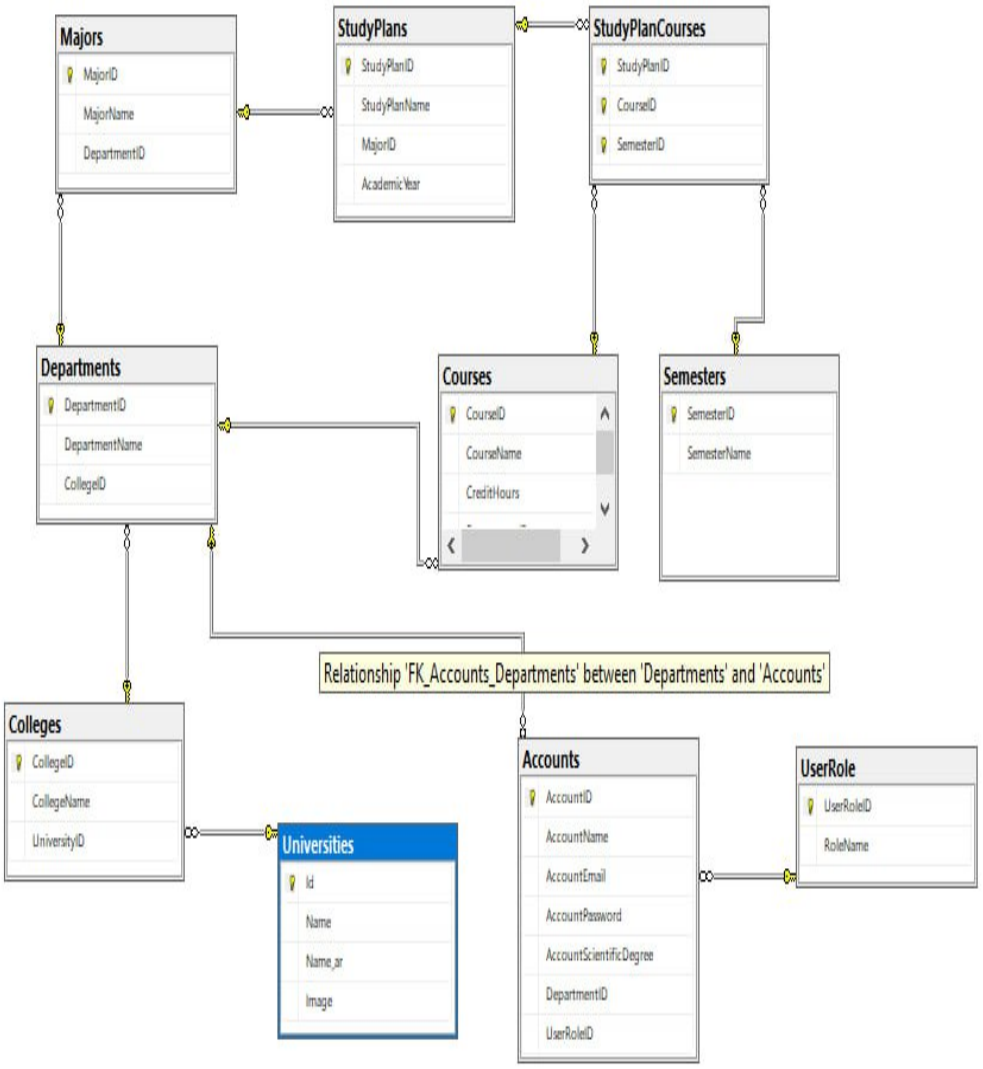

Figure 5.1: Entity relationship diagram (ERD)

5.3 Architectural Design

The architectural model of the Transfer Credit System for Yemeni Universities follows the MVC (Model-View-Controller) pattern, implemented as a desktop application. The frontend, developed using C Sharp framework and utilizing the MVC pattern, serves as the View component. The backend, powered by SQL Server, acts as the Model component for storing and managing the system's assets.

1. Model (backend): The backend component represents the Model in the MVC pattern. It is responsible for storing and managing the system's data and assets, such as student records, course information, and transfer credit details. SQL Server is used as the database system to handle data storage and retrieval.

2. View (frontend): The frontend component serves as the View in the MVC pattern. It is developed using C Sharp framework, following the MVC architectural guidelines. The View is responsible for presenting a user-friendly and interactive interface to the users. It enables them to view and interact with the transfer credit system, providing access to features such as credit transfer requests and viewing transfer history.

3. Controller: The Controller component acts as the intermediary and manages the business logic of the system. It receives user inputs and coordinates the flow of data and operations between the View and Model components. The Controller handles user requests, validates data, and triggers appropriate actions in the Model. It ensures the separation of concerns by facilitating the communication between the View and Model without directly coupling them.

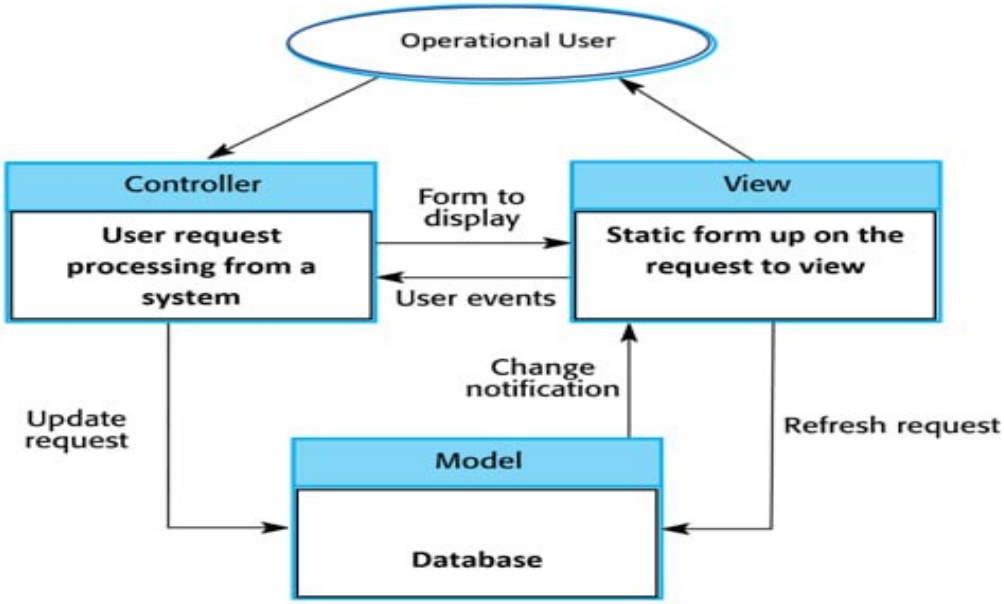

Figure 5.2: MVC (Model-View-Controller)

Table 5.1: Advantages and Disadvantages of using MVC Architectural

No	Advantages	Disadvantages
1	Separation of concerns improves code maintainability and reusability.	Introduces complexity compared to simpler architectural patterns.
2	Code organization enhances understanding and scalability.	May incur performance and memory overhead.
3	Facilitates collaboration among developers, designers, and testers.	Lack of strict guidelines can lead to inconsistencies in coding practices.
4	Offers flexibility and extensibility for adding new features or making changes.	Can be overly complex for small applications.
5	Enables the creation of enhanced user experiences.	Requires a learning curve for developers new to MVC.

5.4 Interface Design

5.4.1 Registration Form

Figure 5.3 shows the login form of the system. The MHESR and Universities can log in to the system by enter the username and password if they have account.

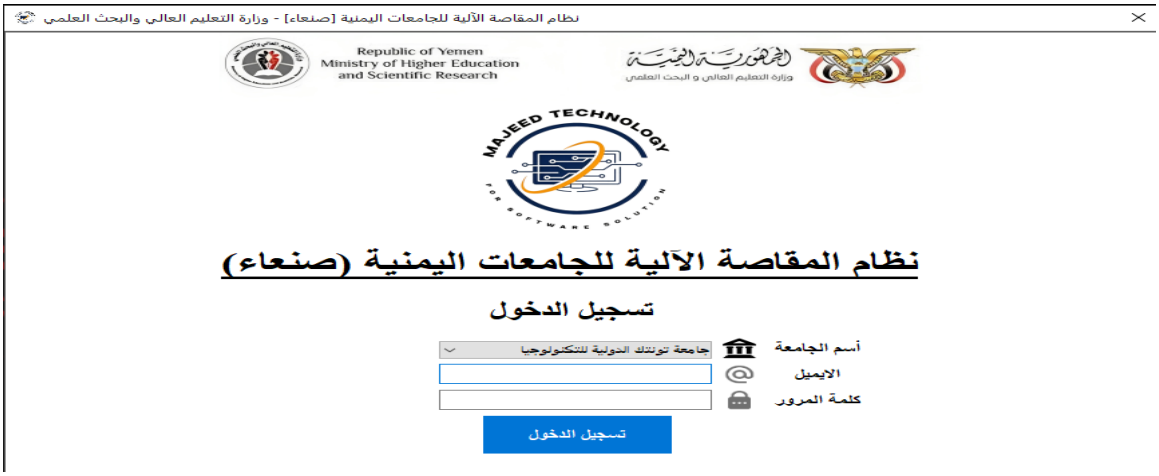

Figure 5.3: Login Form

5.4.2 Registrar Form

Figure 5.4 shows the registrar form. The registrar can use this form to fill the student information, edit the information and conform the TCR.

Figure 5.4: Registrar Form

Figure 5.5 shows the registrar form. In this form the registrar can fill the student information for the TCP.

Figure 5.5: Fill student information Form

Figure 5.6 shows the registrar form. In this form the registrar can edit the student information .

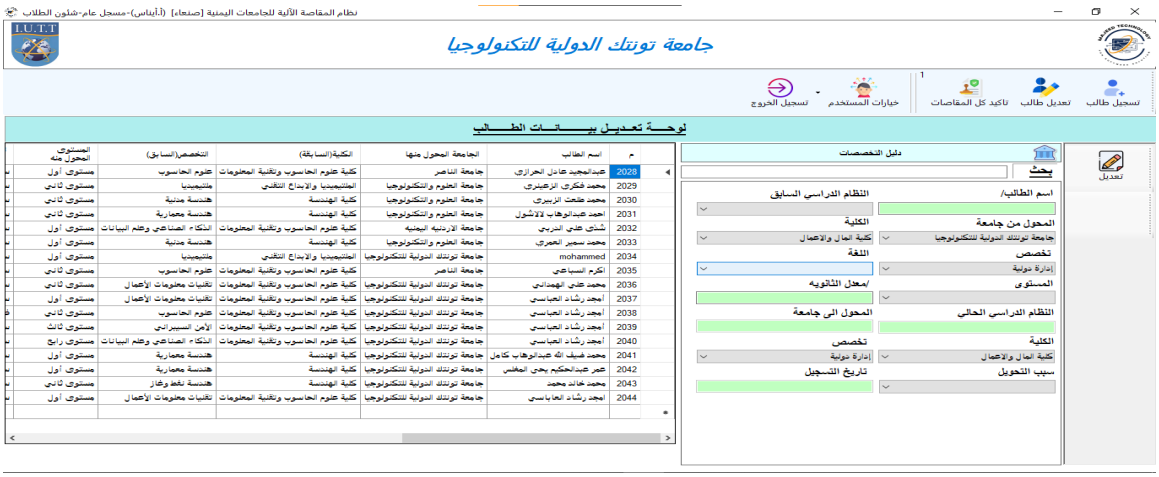

Figure 5.6: Edit student information Form

Figure 5.7 shows the registrar form. In this form the registrar can conform the student TCR .

Figure 5.7: Conform student TCR Form

5.4.3 Head of Department Form

Figure 5.8 shows the Head of department form. In this form the Head of department can create TCR, View the states of TCR, View the rejected TCR,View the finished TCR and manage study plan.

Figure 5.8: Head of department Form

Figure 5.9 shows the Head of department form. In this form the Head of department form can view and start new TCR .

Figure 5.9: View and start new TCR Form

Figure 5.10 shows the Head of department form. In this form the Head of department enter the mark of the studied subject in the previous university.

Figure 5.10: Enter the mark of the studied Form

Figure 5.11 shows the Head of department form. In this form the Head of department compare the subject of the previous and the new university.

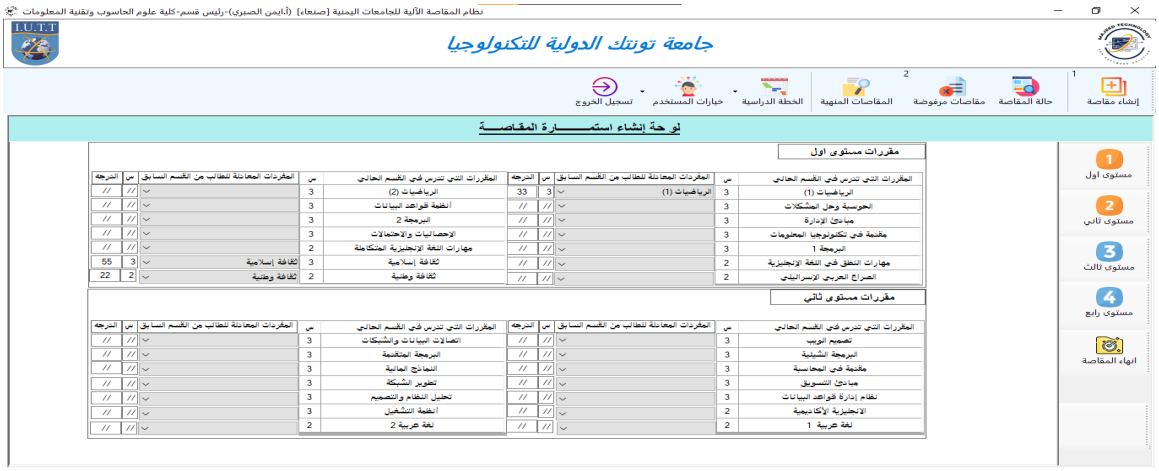

Figure 5.11: Compare the subject Form

Figure 5.12 shows the Head of department form. In this form the Head of department can view the final TCR of the student.

Figure 5.12: View the final TCR Form

Figure 5.13 shows the Head of department form. In this form the Head of department can view the status of the TCR.

Figure 5.13: View the status of the TCR Form

Figure 5.14 shows the Head of department form. In this form the Head of department can view the rejected TCR.

Figure 5.14: View the rejected TCR Form

Figure 5.15 shows the Head of department form. In this form the Head of department can view the finished TCR.

Figure 5.15: View the finished TCR Form

Figure 5.16 shows the Head of department form. In this form the Head of department can edit syllabus (subject ,semester and hour).

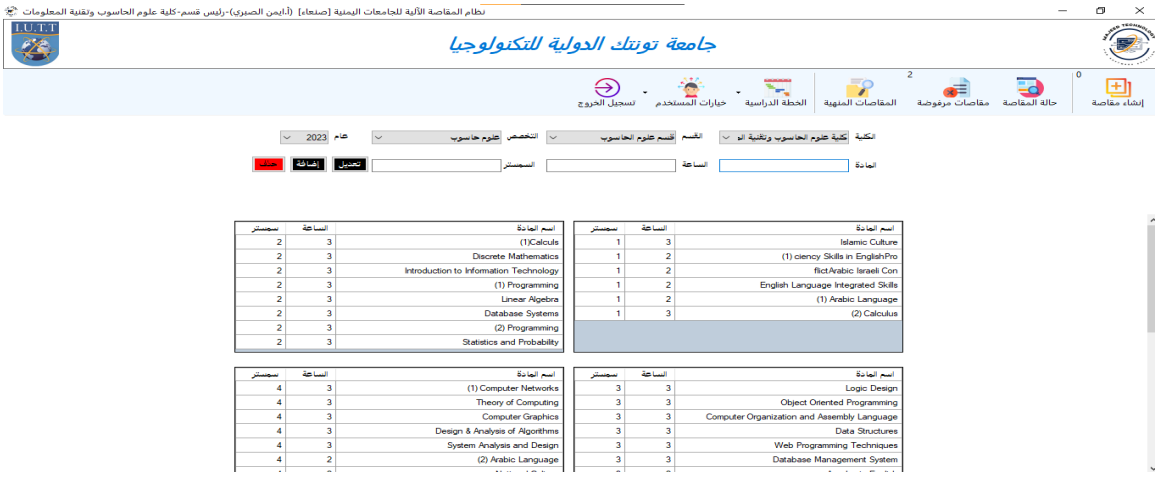

Figure 5.16: Edit syllabus Form

Figure 5.17 shows the Head of department form.In this form the Head of department can add program content(add syllabus ,major and edit subject).

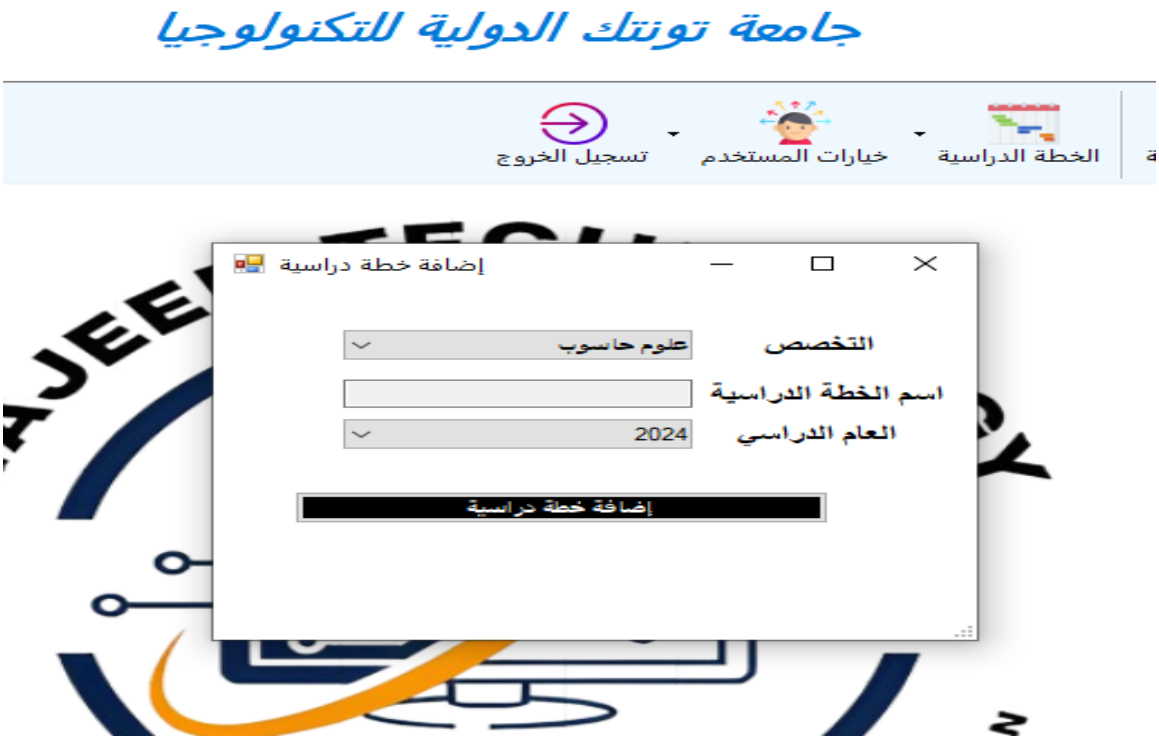

Figure 5.17: Add program Form

5.4.4 Dean Form

Figure 5.18 shows the Dean form. In this form the Dean can Conform TCR , Reject TCR and manage syllabus.

Figure 5.18: Dean Form

Figure 5.19 shows the Dean form. In this form the Dean con View, Conform and Reject TCR.

Figure 5.19: Conform TCR Form

5.4.5 Students Affair Form

Figure 5.20 shows the Students Affair form. In this form the students affair can fill the student information, edit the information, create TCR, conform the TCR, View the states of TCR, View the rejected TCR, View the finished TCR , add new college , manage study plan and add account of the university users.

Figure 5.20: Students Affair Form

Figure 5.21 shows the Students Affair form. In this form the students affair can add new college, department and specialty.

Figure 5.21: Add New College Form

Figure 5.22 shows the Students affair form. In this form the students affair can add account for the university users.

Figure 5.22: Add University Account Form

5.4.6 Ministry of Higher Education and Scientific Research (MHESR)

Figure 5.23 shows the Ministry of Higher Education and Scientific Research (MHESR) form. In this form the (MHESR) can conform the TCR, View the states of TCR, View the rejected TCR, View the finished TCR , add new university and add account of the universities.

Figure 5.23: Add University Account Form

Figure 5.24 shows the Ministry of Higher Education and Scientific Research (MHESR) form. In this form the (MHESR) can add new university.

Figure 5.24: Add University Form

Figure 5.25 shows the Ministry of Higher Education and Scientific Research (MHESR) form. In this form the (MHESR) can add account of the universities user.

Figure 5.25: Add University Account Form

CHAPTER 6

Implementation

6.1 Introduction

This chapter encompasses two primary stages: implementation and testing. The implementation segment explains the process of incorporating various project components, showcasing the tools and environment utilized, as well as addressing implementation challenges like performance, scalability, and flexibility.

6.2 Implementation

The implementation of the Transfer Credit System, as delineated in previous chapters, entailed the development of a desktop application. To ensure optimal efficacy, the project leveraged proficient tools and programming languages. The front-end of the application was implemented using Windows Forms, while the back-end relied on C# and MySQL database for establishing the project's infrastructure.

The project team operated under a divided structure, comprising two distinct sub-teams, each assigned specific responsibilities. The front-end team dedicated their efforts to designing and developing user interfaces, while the back-end team focused on the implementation of Create, Read, Update, and Delete (CRUD)

operations using the C# programming language. Following the successful implementation of the database using SQL Server, the team leader assumed the role of overseeing the integration and organization of the completed project components.

One of the primary challenges encountered during the implementation phase was the absence of standardized study plans, resulting in variations in academic subjects and the allocation of study hours. This lack of uniformity posed significant hurdles, necessitating significant time and effort to design interfaces, evaluate their efficacy, and implement necessary modifications. Overcoming these obstacles required meticulous attention to detail and a comprehensive understanding of the diverse academic requirements, ultimately contributing to a substantial investment of resources and effort in the interface design and testing processes.

CHAPTER 7

Testing

7.1 Testing

The testing section of a project is dedicated to the comprehensive evaluation of its various components through a range of testing methods, including unit testing, integration testing, system testing, and user experience testing. These methods are employed to rigorously assess the project's functionality, performance, and user experience. By leveraging these testing approaches, organizations can identify and rectify any defects or shortcomings, guaranteeing that the project adheres to its specified requirements and delivers optimal user satisfaction.

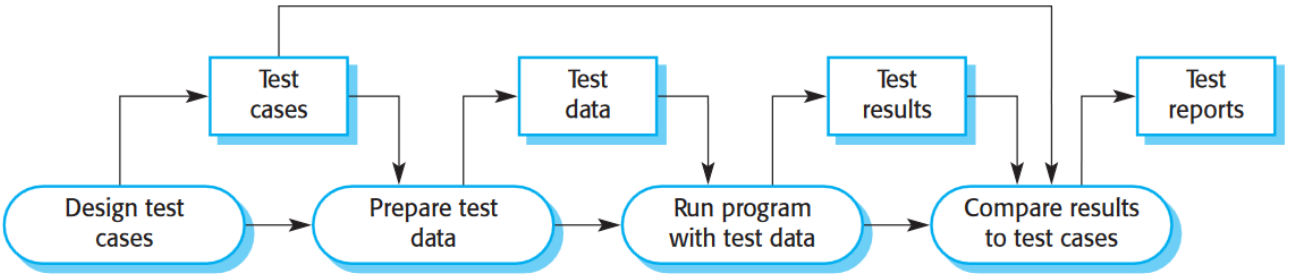

Figure 7.1: A model of the software testing process.

7.2 Test Case for (TCSYU)

1. Login

   Test objective: To ensure that the user is only able to access if he has a valid username and password.

Table 7.1: login unit test.

Action	Input	Expected output	Actual output	Result
Use the button login	Enter a valid username and password	The system grants access to the user for the main page	The user successfully logged in	Pass.
Use the button login	Enter invalid username or password	The system informs the user that invalid username or password.	An error message indicates invalid username or password.	Pass.
Use the button login	using empty username or password	The system informs the user (invalid username or password)	An error message indicates invalid username or password.	Pass.

2. Add Student Information

   Test objective: To ensure that the user can add Student Information.

Table 7.2: Add Student Information unit test.

Action	Input	Expected output	Actual output	Result
Use the button Register student	Add student information with all required data	The system saves and stores the student information in the database and informs the use	The student information is successfully saved and the user is informed	Pass.
Use the button Register student	Add student information without entering all required data	The system informs the user to enter all of the required data	An error message appears, informing the user to enter all the required data	Pass.
Use the button Register student	Add student information without entering any data	The system informs the user to enter all of the required data	An error message indicates invalid username or password.	Pass.

3. Confirm/reject Transfer Credit Report (TCR)

   Test objective: To ensure that the user can Transfer Credit Report (TCR)

Table 7.3: Confirm/reject Transfer Credit Report (TCR) unit test.

Action	Input	Expected output	Actual output	Result
Use the button confirm/reject	Confirm Clearance Subject	The system updates the Clearance Subjects status to confirmed and inform the user	The Clearance Subjects confirmed	Pass.
Use the button confirm/reject	Reject Clearance Subjects	The system updates the Clearance Subjects status to rejected and inform the user	The Clearance Subjects rejected	Pass.

4. Create Transfer Credit Processes (TCP)

   Test objective: To ensure that the user Transfer Credit Processes (TCP)

Table 7.4: Create Transfer Credit Processes (TCP) unit test.

Action	Input	Expected output	Actual output	Result
Use the button Create Clearance Subjects	Enter academic subjects and grades	The system successfully records the academic subjects and grades	The academic subjects and grades are saved	Pass.
Use the button Create Clearance Subjects	Comparison: Entered subjects vs. current subject	Entered Subjects: Mathematics, Science, Current Subject: Science	The system correctly identifies that the current subject (Science) has been entered	Pass.
Use the button Create Clearance Subjects	Comparison: Entered subjects vs. current subject	Entered Subjects: Mathematics, Science, Current Subject: English	The system correctly identifies that the current subject (English) has not been entered previously	Pass.
Use the button Create Clearance Subjects	pass in the Enter academic subjects	The system successfully records the academic subjects and grades	The academic subjects and grades are saved	Pass.
Use the button Create Clearance Subjects	Failed in the Enter academic subjects	The system informs the user to enter subject dose not pass	message appears, The academic subjects and grades are saved	Pass.

5. Add college

   Test objective: To ensure that the user can add a college, department, and specialization

Table 7.5: Add college unit test.

Action	Input	Expected output	Actual output	Result
Use the button add college	Enter a valid college, department, and specialization name	The system saves and stores the college information in the database and informs the use	The college information is successfully saved and the user is informed	Pass.
Use the button add college	Enter a invalid college or department or specialization name	The system informs the user that invalid college or department or specialization name	An error message indicates college or department or specialization name	Pass.

7.2.1 Integration Testing

Integration testing was conducted to assess the cohesive functionality of all the forms and components within the Transfer Credit System. The objective was to ensure that these elements effectively fulfilled both the functional and non-functional requirements outlined in the project. Thorough testing of the entire system's components was performed, yielding positive results that affirmed the seamless integration and harmonious operation of the system as a whole.

7.2.2 System Test

Comprehensive system testing was conducted to evaluate the credit transfer system as a unified entity, ensuring its successful fulfillment of functional requirements. The testing process commenced by examining the system from its initial point of registration and subsequent confirmation by the appropriate authority, be it a university or the Ministry of Higher Education and Scientific Research. Each user type within the system underwent rigorous testing to assess its efficacy.

During the system testing phase, it was confirmed that the accepting, the Ministry of Higher Education and Scientific Research possessed the capabilities to add or update universities, search for registered universities, modify the visibility status of universities, and provide confirmation or rejection of clearances.

During the system testing phase, it was confirmed that the accepting university has the capability, upon logging into the system, to create clearings and submit requests for clearance confirmation. Additionally, the university can perform searches for specific clearance subjects, with the system displaying the available options. The Ministry of Higher Education and Scientific Research is responsible for reviewing and either confirming or rejecting the submitted clearance subjects. This ensures the seamless functioning of the credit transfer system, empowering the accepting university to initiate clearings, search for relevant subjects, and request confirmation, while the Ministry takes on the oversight role of reviewing and approving or rejecting the clearance subjects.

7.2.3 User Acceptance Test

Upon presenting the stakeholders with the final version of the system for testing, it was demonstrated that all of the functional requirements had been successfully met. The system's usability was evident through the implementation of intuitive user interfaces and enhancements made to the user experience, particularly in relation to Clearance Subjects.

Through rigorous testing, it was proven that the system effectively fulfilled its intended purpose, aligning with the functional expectations outlined by the stakeholders. Furthermore, the user interfaces were designed to be user-friendly, enabling stakeholders to navigate the system with ease and perform their tasks efficiently. Notably, the user experience enhancements implemented in the Clearance Subjects module contributed to an improved overall system usability, ensuring a smooth and intuitive process for users.

The academic clarity provided by the final version of the system, coupled with its user-friendly interfaces and enhanced user experience in the Clearance Subjects module, solidified its successful implementation and usability for stakeholders.

7.3 Summary

To implement the Clearance Subjects module, widely used tools for desktop applications were employed. The system underwent comprehensive testing, including unit testing, integration testing, system testing, and user acceptance testing. The outcomes of these testing stages were consistently positive, enabling identification and rectification of any implementation faults.

By utilizing commonly used tools, the Clearance Subjects module was developed in accordance with industry standards for desktop applications. This ensured compatibility, reliability, and maintainability of the system. The extensive testing process encompassed various levels, from individual components to the integration of different modules, and ultimately the overall system functionality. Each testing

stage played a crucial role in detecting and resolving implementation faults, contributing to the refinement and enhancement of the system.

The positive results obtained from testing not only validated the system's adherence to requirements but also instilled confidence in its robustness and effectiveness. The academic clarity of employing widely accepted tools and conducting comprehensive testing further reinforces the credibility and reliability of the Clearance Subjects module within the credit transfer system.

CHAPTER 8

Conclusion and Future Work

8.1 Introduction

In this final chapter, we draw the curtains on our journey, encapsulating the key findings and insights gained throughout this study. The culmination of extensive research, analysis, and deliberation has brought us to this pivotal moment of reflection and forward thinking. As we embark upon the conclusion, we unravel the threads of our investigation, weaving them into a coherent tapestry that not only summarizes our achievements but also paves the way for future endeavors. This chapter serves as a pivotal bridge between the past and the future, offering a comprehensive overview of our study's outcomes while outlining a clear roadmap for the path that lies ahead. Join us as we delve into the depths of our conclusions, uncovering the implications and significance of our work, and setting our sights on the promising horizons of the future.

8.2 Future Work

8.2.1 Enhancing Functionality and Improving User Experience

The primary objective is to convert the project from a desktop application to a web application, thereby leveraging the benefits of web-based technology. This transition will enable the integration of artificial intelligence (AI) capabilities, specifically designed to compare the content of academic subjects. Consequently, the clearing process will become more practical, reliable, and less susceptible to errors.

8.2.2 Medical Specialties (Block credit transfer)

The information regarding the subjects that will be cleared encase an individual intends to transfer from one medical specialization to another considering the overall equivalence in the program of studies. This is for those seeking to navigate the transfer process and make informed decisions about their academic path in medical specialties. By highlighting the subjects involved in the clearance procedure, users will have a clear and transparent overview of the academic criteria that must be met to pursue their desired medical specialization.

8.2.3 Information Section

Providing comprehensive information about Yemeni universities will include details about the universities' academic programs, admission requirements, faculty, research facilities, and other relevant information. The aim here to equip interested people with the necessary knowledge to make informed choices about their academic journey.

8.2.4 Data Mining Section

Subsequent to the installation of the system and the passage of an extended duration, during which a substantial corpus of data has been amassed, a meticulous data

extraction process shall be undertaken. The fundamental objective of this process entails the extraction of valuable insights and the provision of comprehensive responses to diverse inquiries. The application of advanced data mining techniques shall significantly clarify the decision-making process across various dimensions.

Primarily, the data mining process will serve as a valuable tool for decision-makers, aiding in their comprehension of the underlying factors that motivate students to undertake transfers from their present academic institutions and select specific establishments as their preferred alternative destinations. Furthermore, it shall engender a comprehensive understanding of the foundational rationales that underpin students' decisions to transition from their current majors to alternative fields of study. Additionally, it shall afford decision-makers the ability to discern the universities highlighting the highest transfer rates, both as sources and recipients of transfers. The disciplines that command the greatest influx of transferring students shall be unveiled, while simultaneously identifying those majors that demonstrate diminished student's interest.

Consequently, this valuable information will inform decisions pertaining to the initiation or cessation of majors, as well as provide guidance for the expansion or contraction of academic programs. Furthermore, the Ministry of Higher Education should derive substantial advantages from the outcomes of the data extraction process. Acquiring evaluations pertaining to universities and majors will facilitate informed assessments and comparisons, thereby enhancing the ministry's ability to make well-informed decisions.

CHAPTER 9

System Configuration

9.1 System Configuration

9.1.1 Introduction

This chapter provides an overview of the system configuration utilized in our research project. The system configuration is instrumental in supporting the objectives and requirements of the project.

9.1.2 Hardware Configuration

The hardware requirements for our system configuration include:

- Ethernet connection (WAN) or a wireless adapter (Wi-Fi): This ensures network connectivity for data transfer and communication.
- Processor: A minimum processor speed of 4GHz is required, while a recommended speed of 4.72GHz or higher is preferred. This ensures efficient computation and processing capabilities.
- Memory (RAM): A minimum of 8GB of RAM or above is necessary to handle data processing and storage requirements effectively.

- Display: The system employs Intel HD Graphics for visual output and user interface rendering.

9.1.3 Software Configuration

The software components used in our system configuration include:

- Front End: We utilize C# WindowsForm.Net as the primary front-end framework. This framework provides a user-friendly interface and facilitates seamless interaction with the system.
- Backend: The back-end of our system is powered by MYSQL, a reliable and robust database management system. MYSQL ensures efficient data storage, retrieval, and management for our research project.
- Operating System: Our system configuration is based on the Windows operating system. The specific version used depends on the compatibility and requirements of the chosen software components.

9.1.4 Network Configuration

Our system configuration requires an internet connection for data exchange and remote access. It supports both Ethernet (WAN) and wireless (Wi-Fi) connectivity options to ensure flexibility in network access.

9.1.5 System Architecture

The system architecture follows a client-server model, where the C# WindowsForm.Net front-end interacts with the MYSQL backend database. The client-side processing handles user input and system output, while the server-side manages data storage, retrieval, and computation.

9.1.6 Configuration Management

To effectively manage the system configuration, we employ version control systems such as Git to track changes and maintain a history of configuration files. This ensures traceability and facilitates collaboration among team members working on the research project.

9.1.7 Performance Considerations

Our system configuration, with its recommended processor speed and sufficient memory, ensures efficient execution of computational tasks. The use of C# WindowsForm.Net provides a responsive and user-friendly interface. MYSQL offers optimized data handling and retrieval, contributing to overall system performance.

9.1.8 Limitations and Constraints

While our system configuration meets the project's requirements, certain limitations and constraints should be considered. The hardware specifications, including the processor speed and memory capacity, are subject to budget constraints. Additionally, software compatibility issues may arise due to the specific versions and dependencies of the chosen software components.

9.1.9 Conclusion

This chapter provided an overview of the system configuration employed in our research project. The hardware and software components, network configuration, system architecture, configuration management, performance considerations, and limitations were discussed. Understanding and documenting the system configuration are essential for the successful execution and reproducibility of our research project.

References

[1] E. Pollard, K. Hadjivassiliou, S. Swift, and M. Green, "Credit transfer in higher education," 2017.

[2] "Accreditations committee of cambodia . (19 november 2004). implementation of credit system and credit transfer into curriculum. available: [online] http://www.bbc.co.uk/news/technology-24897584."

[3] A. Nartey, "Accelerated_courses_and_switching_university_or_degree," 2016.

[4] U. S. G. A. Office, *Higher Education, Students Need More Information to Help Reduce Challenges in Transferring College Credits:.* United States Government Accountability Office, 2017.

[5] 'National university '.(2023,.mar.23) transfer credit policy [online] available:https://www.nu.edu/wp-content/uploads/2023/03/Transfer-Credit-Policy.pdf

Appendix

A Interviews

A.1 Ministry of Higher Education and Scientific Research

Figure 1, 2 that illustrates the interview that we make with the Vice president and the Responsible for the clearance subject process in the MHESR

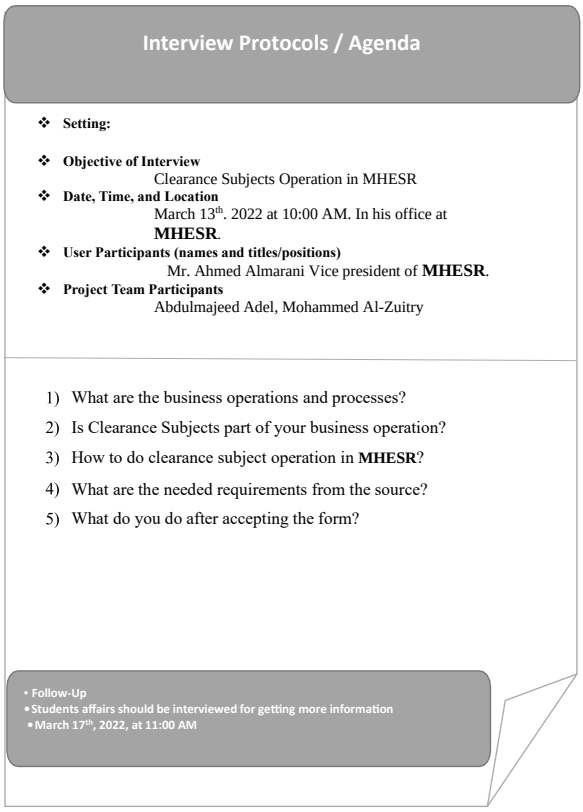

Figure 1: Interview 1.

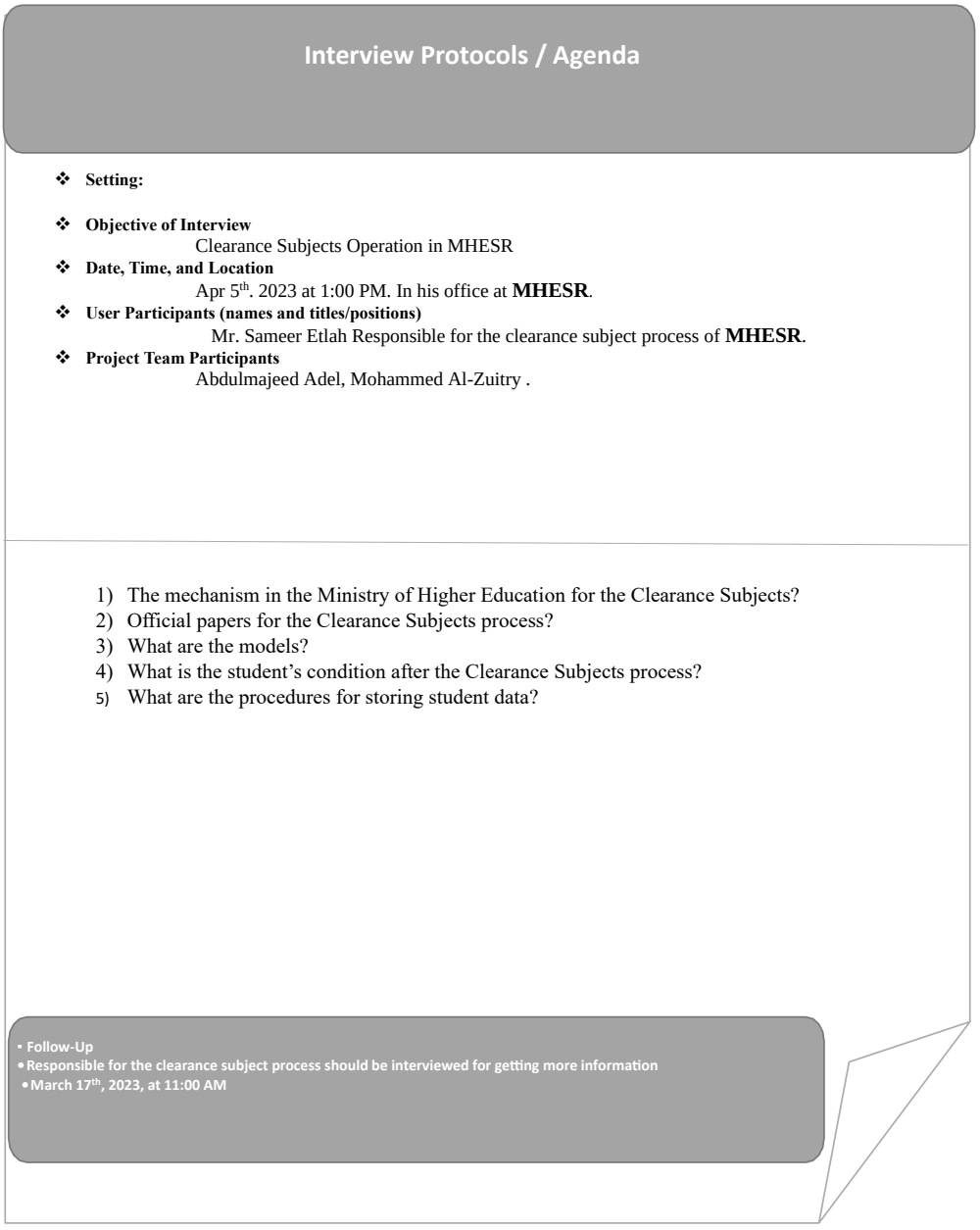

Figure 2: Interview 2.

A.2 public Universities(Sana'a University)

Figure 3 that illustrates the interview that we make with the Registrar of CS and IT college of the Sana'a University.

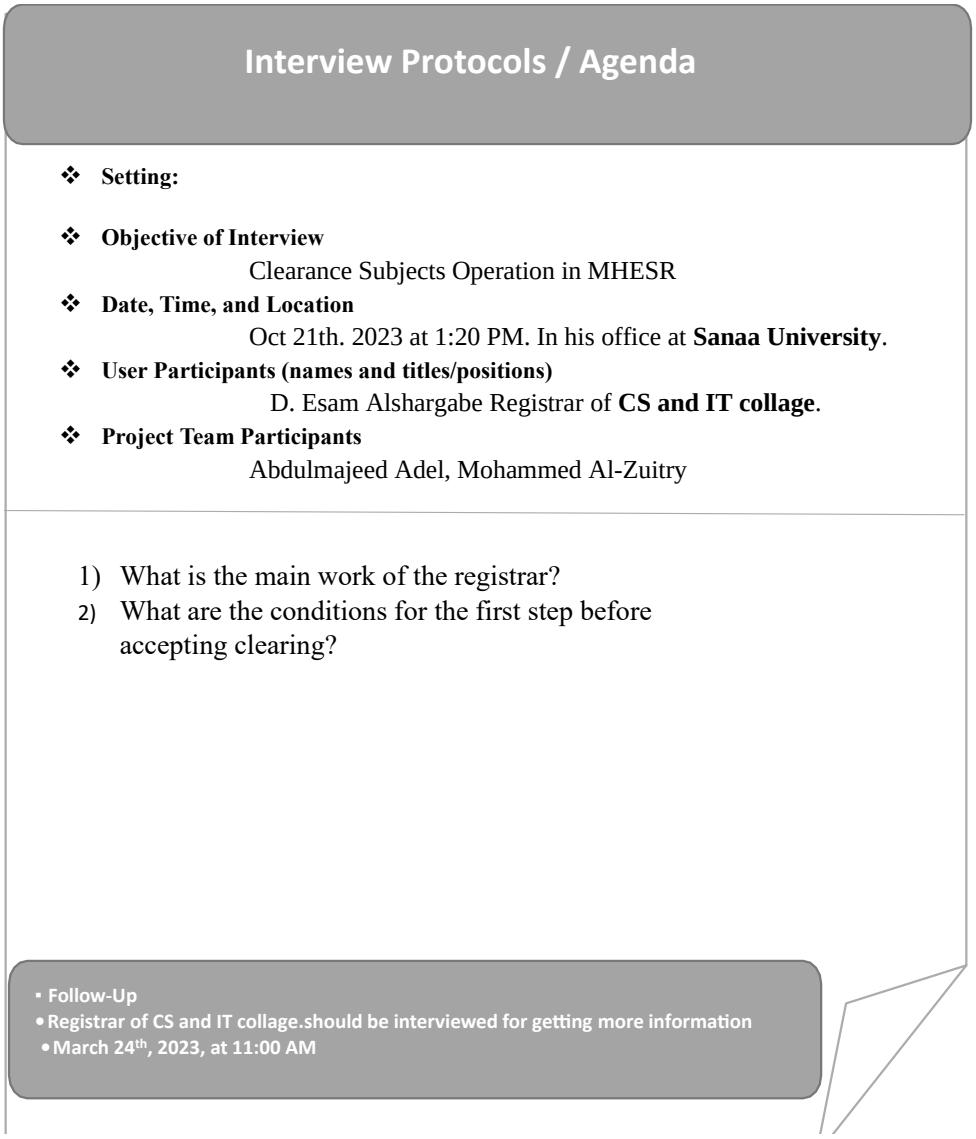

Figure 3: Interview 3.

A.3 private Universities(Twintech University)

Figure 4 ,5 ,6 that illustrates the interview that we make with the Dean , Student Affairs and Archives Officer of Twintech University.

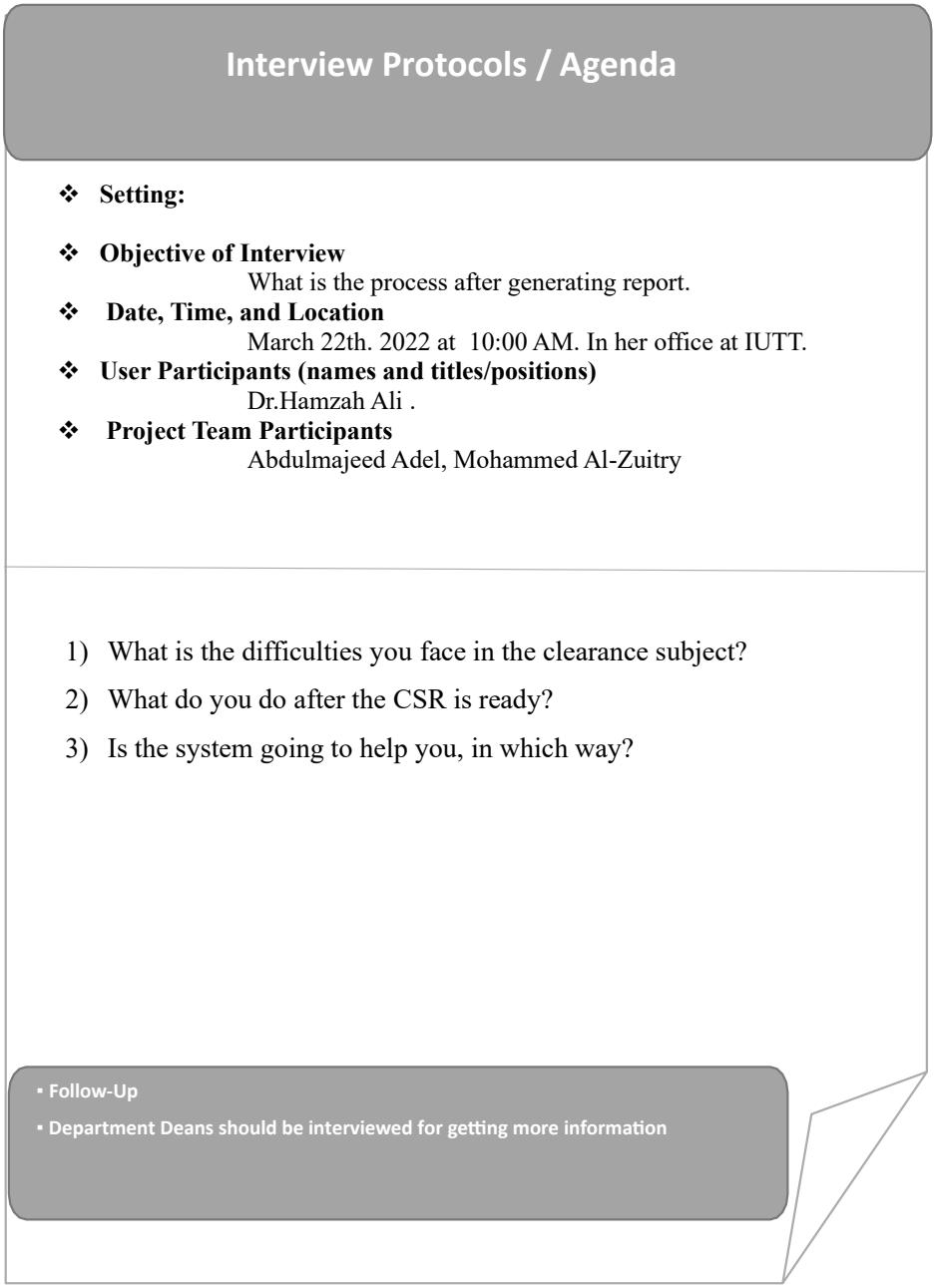

Figure 4: Interview 4.

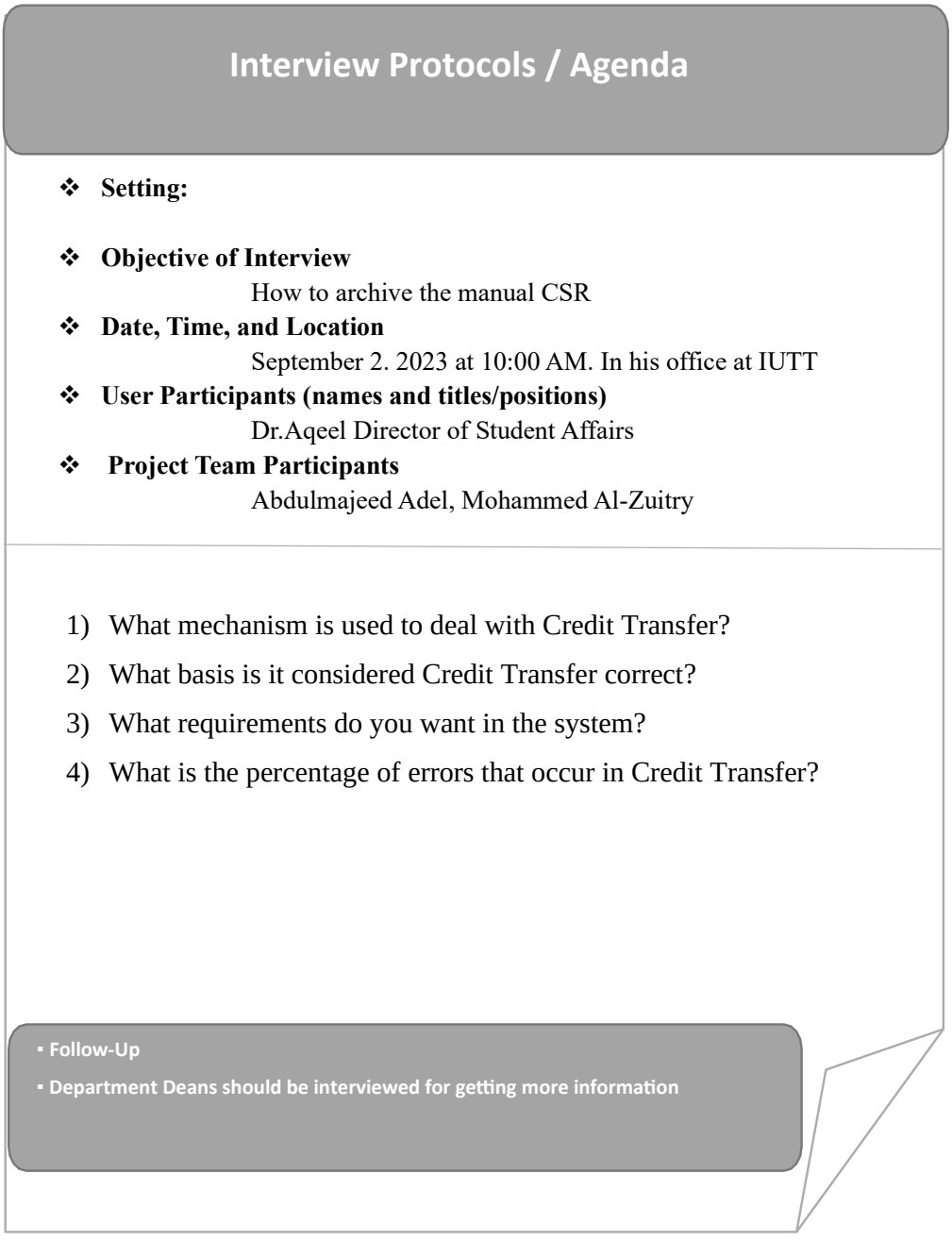

Figure 5: Interview 5.

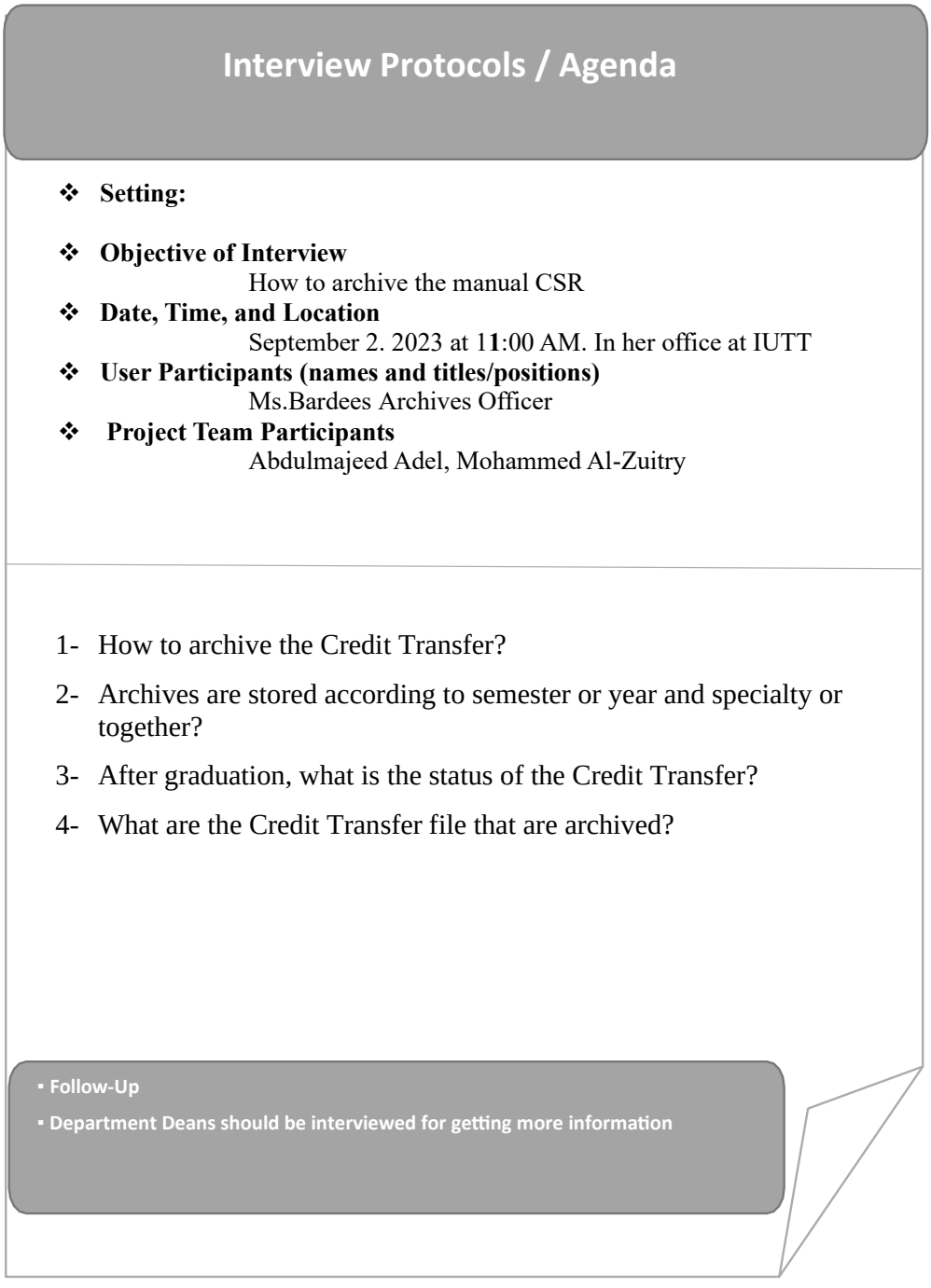

Figure 6: Interview 6.

B Document Analysis

Figure 7 ,8 ,9 that illustrates the From of transfer credit and the conditions.

شروط وضوابط المقاصة والتحويل للعام 1445هـ - 2024/2023م.

1. أن تنطبق على الطالب الشروط الواردة في المواد (9-13-14-(15 باستثناء الفقرة هـ) -16-17-18-19-26) من قرار رئيس الوزراء رقم (284) لسنة 2008.
2. في حالة تحويل الطلبة الناجحين إلى مستوى ثاني فأعلى من تخصصات طبية إلى تخصصات طبية آخرى أو التحويل من كلية إلى أخرى سواءً في إطار الجامعة أو غيرها وكان التناظر في إجمالي مقررات التخصصين أقل من 50% يُسكن الطلاب في المستوى الدراسي الأول ونُقاصص لهم مقررات متطلبات الجامعة فقط باستثناء مقررات اللغة الإنجليزية المرتبطة بالتخصص.
3. الحد الأقصى المسموح به لنقل الطلبة المحولين (طلاب المقاصة في عام تحويلهم فقط) إلى مستوى أعلى هو ثلاثة مقررات تخصصية ومقررين متطلبات أو مهارية، باستثناء تخصصي الطب البشري وطب الأسنان فالحد الأقصى ثلاثة مقررات فقط سواءً كانت تخصصية أو متطلبة أو مهارية على أن يتم مراعاة عدم الأخذ في الاعتبار المقررات التي تم إجراء المقاصة لها في المستوى المُسكن فيه لجميع التخصصات الطبية وغير الطبية.
4. يُمنع منعاً باتاً تحويل طلبة الطب البشري وطب الأسنان في حالة اختلاف النظام الدراسي بين الجامعتين (بلوكات – سنوي – فصلي – ساعات).
5. في حالة اختلاف درجة النجاح ونظام التقديرات بين الجامعتين المحول منها والمحول اليها فلا يتم مقاصة المقررات التي تقل درجاتها عن 70%، وبالنسبة للطلبة المحولين من الخارج فلا تقاصص لهم المقررات التي تقل درجاتها عن 50%.
6. يجب أن تكون مفردات مقررات المقاصة متطابقة بنسبة لا تقل عن 75%.
7. الحد الأقصى لفترة الإنقطاع المسموح بها أربع سنوات للتخصصات التطبيقية وست سنوات للتخصصات الإنسانية والإدارية.
8. الطلاب الحاصلين على البكالوريوس او الليسانس الراغبين بالحصول على شهادة تخرج جديدة يتم قبولهم من مستوى أول دون مقاصة أي مقرر.
9. ألا يتجاوز عدد الطلاب المقبولين بنظام المقاصة 5% من الطاقة الاستيعابية لكل تخصص في الجامعة.

تعليمات مهمة جداً

أ. يُمنع قبول أي طالب مُحول قبل المصادقة من قِبل الوزارة على كشف الدرجات الصادر من الجامعة المُحول منها، وبالنسبة للطلاب المُحولين من الجامعات الواقعة في المحافظات المُحتلة التي لا يمكن المصادقة على كشوفات غير الخريجين الصادرة منها فلا يتم قبولهم إلا بمذكرات تحويل من الوزارة.

ب. يجب ان تكون بيانات المقاصة (خلف الاستمارة) مطبوعة ولن تقبل أي بيانات بخط اليد، وأن تُسلم للوزارة عن طريق مندوبي الجامعات خلال فترة التنسيق والقبول.

ج. تلتزم الجامعات بكتابة أسماء رئيس القسم وعميد الكلية ودرجتهما العلمية في استمارة المقاصة ويُمنع التوقيع بالإنابة عنهما في الاستمارة.

د. استمارة المقاصة خلف هذه الاستمارة جزء اساسي منها ويُرفق بها أصل كشف درجات الجامعة المُحول منها وصورة الثانوية العامة وسند سداد الرسوم.

ه. تلتزم الجامعات برفع طلبات التحويل إلى الوزارة خلال فترة التنسيق والقبول فقط ولن تقبل الوزارة أي طلب بعد ذلك مهما كانت الأسباب والمبررات.

و. في حالة عدم انطباق أي شرط من الشروط أعلاه يتم إشعار الطالب بالرجوع إلى الجامعة السابقة لمواصلة دراسته ولا يحق للجامعة رفض إعادته لمواصلة الدراسة.

Figure 7: Condition page of clearance subject.

REPUBLIC OF YEMEN
Ministry of Higher Education and Scientific Research
Deputy Minister For Educational Affairs

الجمهورية اليمنية
بسم الله الرحمن الرحيم
وزارة التعليم العالي والبحث العلمي
قطاع الشؤون التعليمية

استمارة طلب تحويل من جامعة إلى اخرى للعام الجامعي 1445هـ - 2024/2023م

الاخ / وكيل قطاع الشؤون التعليمية بوزارة التعليم العالي والبحث العلمي **المحترم**

بعد التحية؛؛؛

تكرموا بالتوجيه لمن يلزم بإستكمال إجراءات المقاصة والتحويل للطالب الموضح بياناته في الجدول أدناه بحسب النظام الموحد لشؤون الطلاب للجامعات اليمنية، وبحسب شروط وضوابط المقاصة والتحويل الموضحة أدناه. (مرفق خلف هذا استمارة المقاصة)

اسم الطالب	بيانات الطالب في الجامعة السابقة (الجامعة المُحول منها)						بيانات الطالب في الجامعة المُحول إليها				
	النظام الدراسي	التخصص	الكلية	الجامعة	المستوى	العام الدراسي	النظام الدراسي	التخصص	الكلية	الجامعة	المستوى

ونؤكد صحة وسلامة إجراءات المقاصة والتسكين والترفيع التي تمت للطالب بحسب استمارة المقاصة الموقعة من المختصين لدينا بالجامعة خلف هذه الاستمارة وفقاً لشروط المقاصة والتحويل المُقرة من الوزارة والموضحة أدناه ونتحمل المسئولية الكاملة عن ذلك، وفي حالة ثبت مخالفتنا لهذه الشروط فإن للوزارة الحق في تخفيض 10% من الطاقة الاستيعابية المخصصة للجامعة (في التخصص المقبول فيه الطالب بالمخالفة) في العام القادم وفرض الغرامات والعقوبات التي تراها الوزارة.

مسجل عام جامعة..... رئيس جامعة ..... ختم الجامعة

الأخ رئيس جامعة/..... **المحترم**

بعد التحية؛؛؛

بناءً على موافقتكم أعلاه بقبول الطالب/..... في تخصص/.....، فلا مانع من قبوله بناءً على المقاصة الموضحة خلف هذه الاستمارة، في إطار البوابة الإلكترونية بحسب النظام وبحسب الشروط أدناه، وتسكينه في المستوى الدراسي/ ..... للعام الجامعي 1445هـ - 2024/2023م.

مدير عام الإعتراف والتصديق والمعادلات مدير عام التعليم الحكومي / الأهلي المكتب الفني وكيل قطاع الشؤون التعليمية

شروط وضوابط المقاصة والتحويل للعام 1445هـ - 2024/2023م.

1. أن تنطبق على الطالب الشروط الواردة في المواد (9-13-14-(15 باستثناء الفقرة هـ) -16-17-18-19-26) من قرار رئيس الوزراء رقم (284) لسنة 2008.
2. في حالة تحويل الطلبة الناجحين إلى مستوى ثاني فأعلى من تخصصات طبية إلى تخصصات طبية أخرى أو التحويل من كلية إلى أخرى سواءً في إطار الجامعة أو غيرها وكان التناظر في إجمالي مقررات التخصصين أقل من 50% يُسكن الطلاب في المستوى الدراسي الأول وتُقاصص لهم مقررات متطلبات الجامعة فقط باستثناء مقررات اللغة الإنجليزية المرتبطة بالتخصص.
3. الحد الأقصى المسموح به لنقل الطلبة المحولين (طلاب المقاصة في عام تحويلهم فقط) إلى مستوى أعلى هو ثلاثة مقررات تخصصية ومقررين متطلبات أو مهارية، باستثناء تخصصي الطب البشري وطب الأسنان فالحد الأقصى ثلاثة مقررات فقط سواءً كانت تخصصية أو متطلبة أو مهارية على أن يتم مراعاة عدم الأخذ في الاعتبار المقررات التي تم إجراء المقاصة لها في المستوى المُسكن فيه لجميع التخصصات الطبية وغير الطبية.
4. يُمنع منعاً باتاً تحويل طلبة الطب البشري وطب الأسنان في حالة اختلاف النظام الدراسي بين الجامعتين (بلوكات – سنوي – فصلي – ساعات).
5. في حالة اختلاف درجة النجاح ونظام التقديرات بين الجامعتين المحول منها والمحول اليها فلا يتم مقاصة المقررات التي تقل درجاتها عن 70%، وبالنسبة للطلبة المحولين من الخارج فلا تقاصص لهم المقررات التي تقل درجاتها عن 50%.
6. يجب أن تكون مفردات مقررات المقاصة متطابقة بنسبة لا تقل عن 75%.
7. الحد الأقصى لفترة الإنقطاع المسموح بها أربع سنوات للتخصصات التطبيقية وست سنوات للتخصصات الإنسانية والإدارية.
8. الطلاب الحاصلين على البكالوريوس او الليسانس الراغبين بالحصول على شهادة تخرج جديدة يتم قبولهم من مستوى أول دون مقاصة أي مقرر.
9. ألا يتجاوز عدد الطلاب المقبولين بنظام المقاصة 5% من الطاقة الاستيعابية لكل تخصص في الجامعة.

تعليمات مهمة جداً

أ. يُمنع قبول أي طالب مُحول قبل المصادقة من قبل الوزارة على كشف الدرجات الصادر من الجامعة المُحول منها، وبالنسبة للطلاب المُحولين من الجامعات الواقعة في المحافظات المُحتلة التي لا يمكن المصادقة على كشوفات غير الخريجين الصادرة منها فلا يتم قبولهم إلا بمذكرات تحويل من الوزارة.
ب. يجب ان تكون بيانات المقاصة (خلف الاستمارة) مطبوعة ولن تقبل أي بيانات بخط اليد، وأن تُسلم للوزارة عن طريق مندوبي الجامعات خلال فترة التنسيق والقبول.
ج. تلتزم الجامعات بكتابة أسماء رئيس القسم وعميد الكلية ودرجتهما العلمية في استمارة المقاصة ويُمنع التوقيع بالإنابة عنهما في الاستمارة.
د. استمارة المقاصة خلف هذه الاستمارة جزء اساسي منها ويُرفق بها أصل كشف درجات الجامعة المُحول منها وصورة الثانوية العامة وسند سداد الرسوم.
ه. تلتزم الجامعات برفع طلبات التحويل إلى الوزارة خلال فترة التنسيق والقبول فقط ولن تقبل الوزارة أي طلب بعد ذلك مهما كانت الأسباب والمبررات.
و. في حالة عدم انطباق أي شرط من الشروط أعلاه يتم إشعار الطالب بالرجوع إلى الجامعة السابقة لمواصلة دراسته ولا يحق للجامعة رفض إعادته لمواصلة الدراسة.

رسوم المقاصة والتحويل مبلغ (11000) إحدى عشر ألف ريال فقط – لا تُسدد إلا في حالة إنطباق كافة الشروط والتعليمات على الطالب

Figure 8: Front page of clearance subject.

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة .....

شعار الجامعة

Republic of Yemen
Ministry of Higher Education&
Scientific Research

استمارة المقـــاصـــة للعام الجامعي 1445هـ - 2024/2023م

اسم الطالب/ المحول من جامعة/ كلية / تخصص/
سبب التحويل/ يرغب بمواصلة الدراسة لدينا في كلية / تخصص /

	المقررات التي تدرس في القسم الحالي	س	المفردات المعادلة للطالب من القسم السابق	س	الدرجة		المقررات التي تدرس في القسم الحالي	س	المفردات المعادلة للطالب من القسم السابق	س	الدرجة
مستوى أول الفصل الأول						مستوى أول الفصل الثاني					
مستوى ثاني الفصل الأول						مستوى ثاني الفصل الثاني					
مستوى ثالث الفصل الأول						مستوى ثالث الفصل الثاني					
مستوى رابع الفصل الأول						مستوى رابع الفصل الثاني					

بعد مراجعة المقررات الدراسية وساعاتها المعتمدة في كشف درجات الطالب الصادر من الجامعة المُحول منها ومقارنتها مع مفردات المقررات الدراسية وساعاتها المعتمدة في خطتنا الدراسية بالقسم ومطابقتها، وبناءً على شروط وضوابط المقاصة والتحويل الواردة طي هذه الاستمارة تم قبول تحويل الطالب وتسكينه في المستوى/ .....، ونتحمل المسئولية الكاملة عن صحة وسلامة إجراءات المقاصة والتسكين والترفيع التي تمت في هذه الاستمارة.

رئيس القسم / الاسم والدرجة العلمية/ — عميد الكلية / الاسم والدرجة العلمية/ — المسجل العام / الاسم / — ختم الجامعة

يمنع منعاً باتاً التوقيع على هذه الاستمارة بالإنابة عن المخولين بالتوقيع أعلاه.

الأخ / رئيس وأعضاء اللجنة المحترمون

بيانات الطالب في البوابة	التخصص السابق	التخصص المطلوب	معدل الثانوية	فترة الانقطاع	ترخيص البرنامج	مصادقة الكشف	مراجعة المقاصة

بعد مراجعة البيانات أعلاه والوثائق المرفقة تبين إنطباق شروط التحويل الواردة طي هذه الاستمارة على الطالب الموضح بياناته أعلاه.

سكرتارية مكتب الوكيل — إدارة البيانات بالإدارة العامة للتعليم الحكومي / الأهلي — قسم الجامعات الحكومية / الأهلية بإدارة التصديقات

Figure 9: Back page of clearance subject.

B.1 Transfer credit

Figure 10 ,11 ,12 that illustrates the From of transfer credit and the required data from the student.

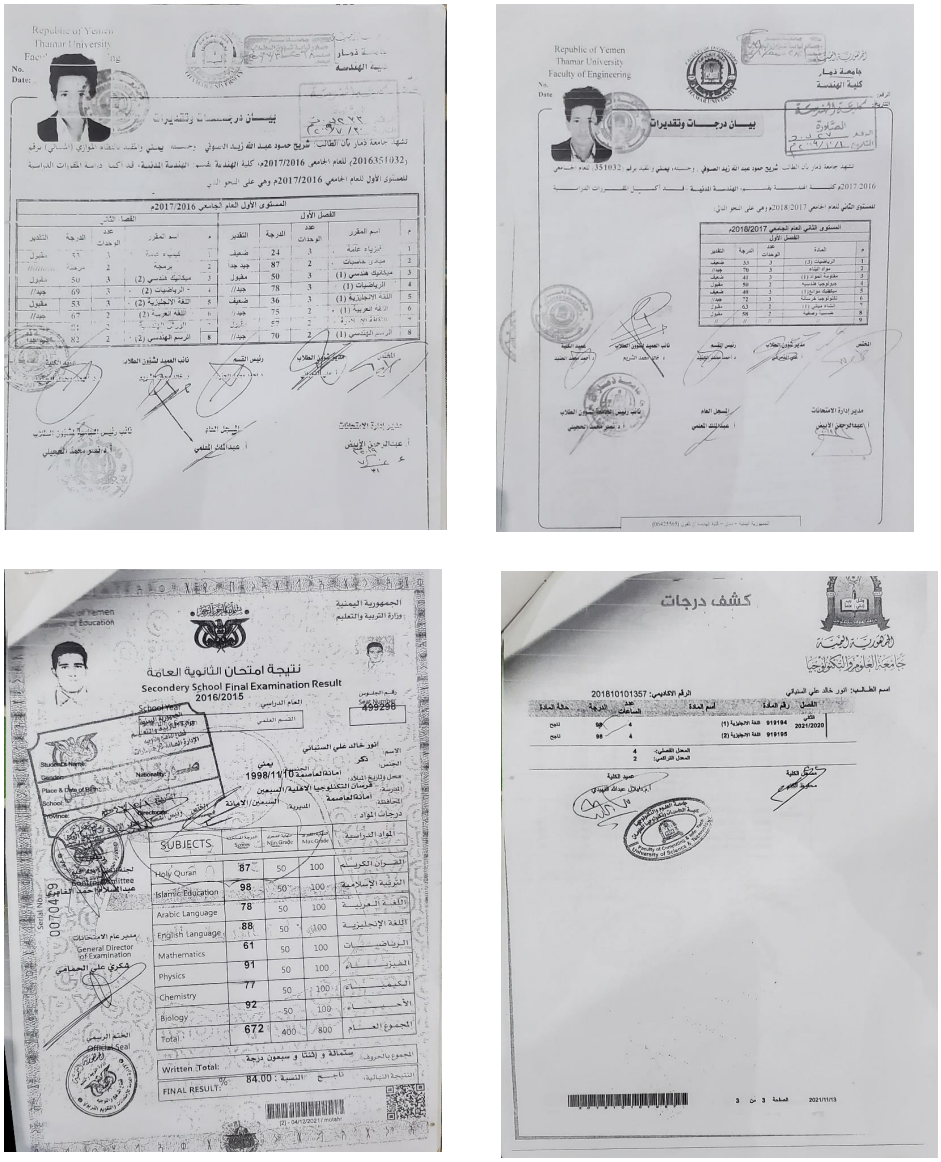

Figure 10: Clearance form.

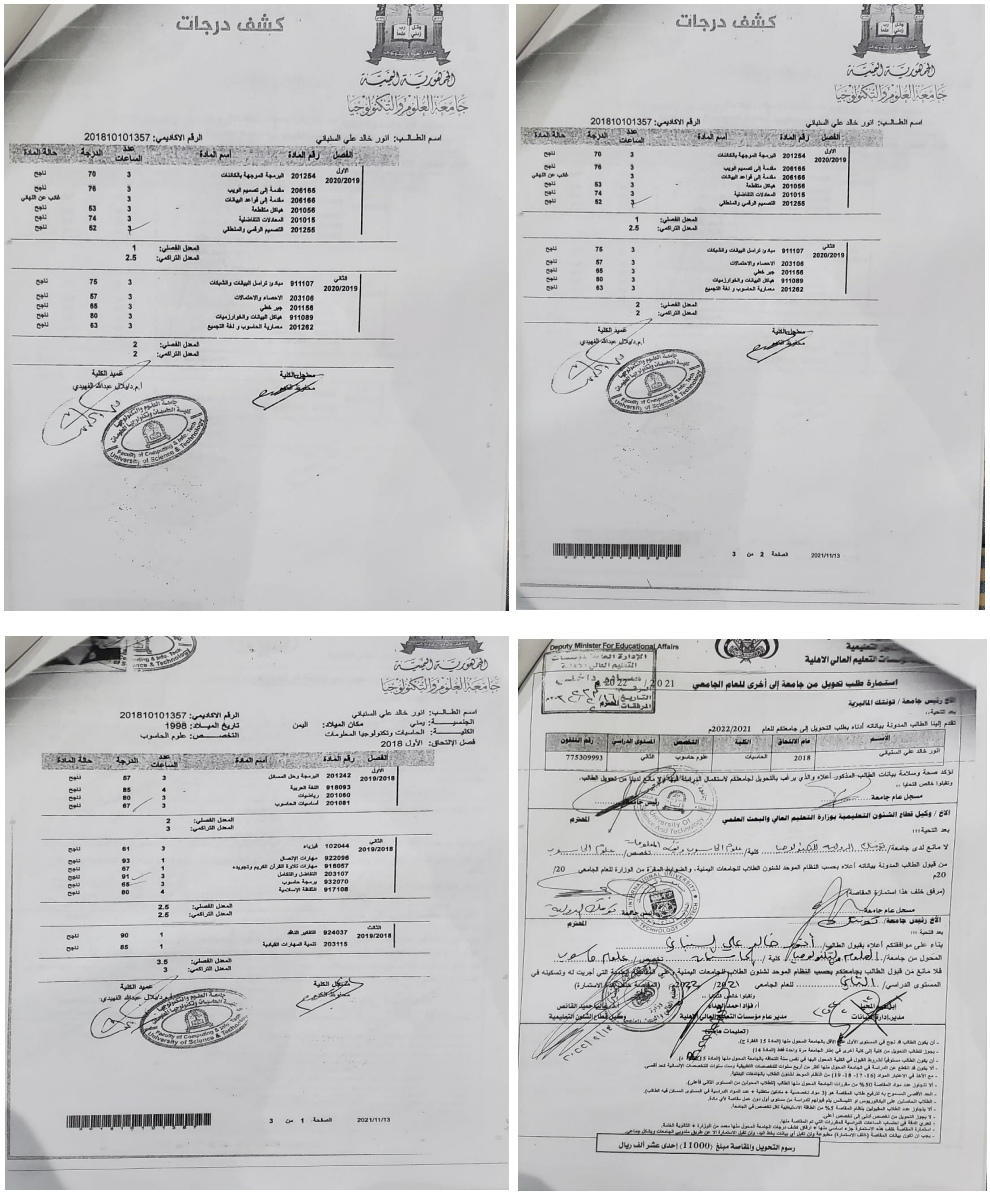

Figure 11: Clearance form.

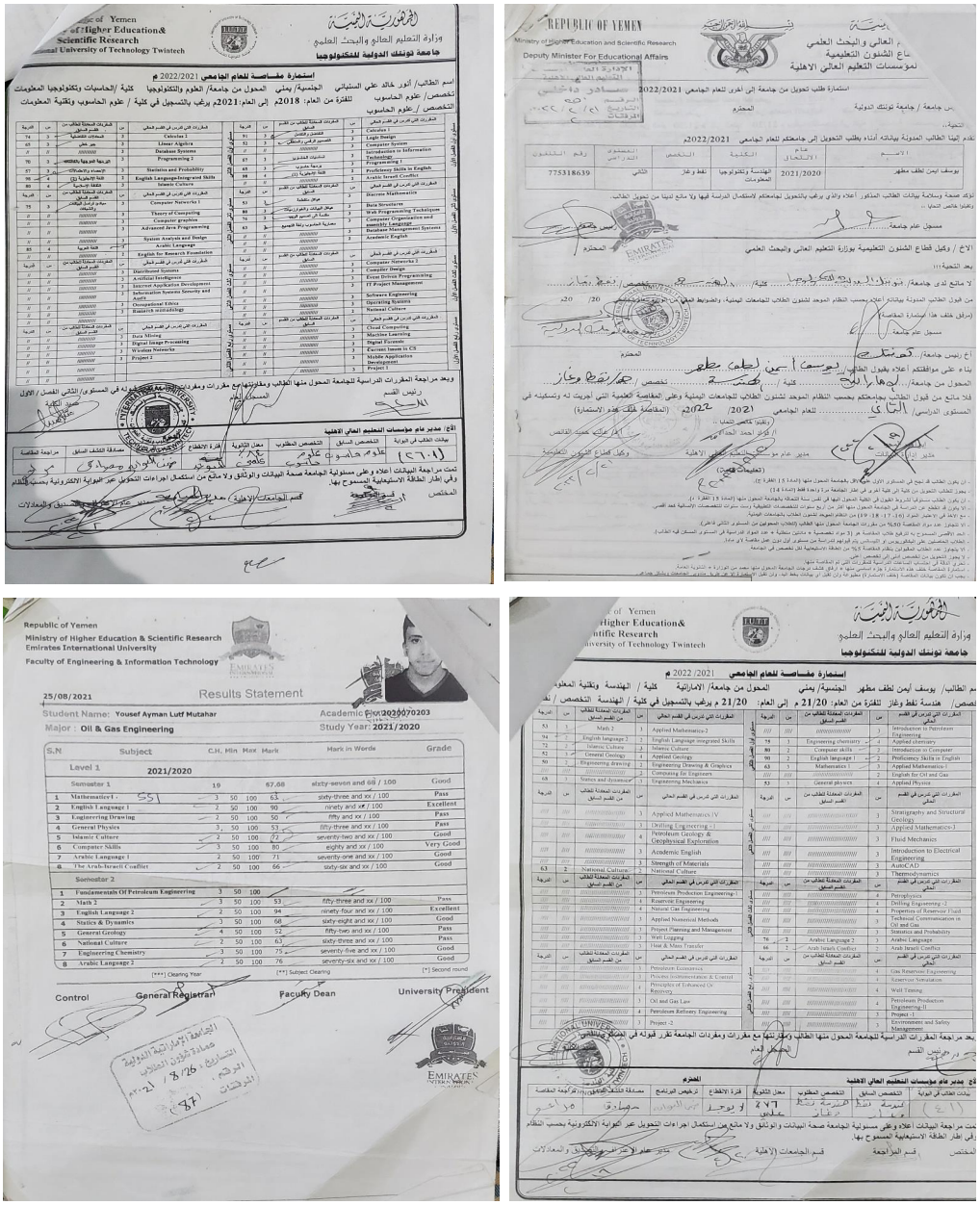

Figure 12: Clearance form.