Addis Ababa Institute of Technology

School of Information Technology and Engineering

Online Clearance System

Software Requirements Specification

Team Member

Name	ID	section
1. Gizaw Agodo	UGR/8917/12	1
2. Addisu Motora	UGR/4230/12	1
3. Naol Aklilu	UGR/0207/12	2
4. Haile Dereje	UGR/2190/12	3
5. Bahailu Abera	UGR/3464/12	3
6. yishak Bazezew	UGR/1131/12	3

Advisor: Nuniyat kifle

Date : 12/12/2021

Revision History

Date	Description	Author	Comments
6/12/2021	Version 1	All team member	Initial draft
11/12/2021	Version 2	All team member	Second draft
12/12/2021	Version 3	All team member	Third draft
1/5/2022	Version 4	All team member	Final draft

Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

Signature	Printed name	Title	Date
	Nuniyat kifle		

Table of Content

List of table

List of figures

Definitions, Acronyms, and Abbreviations

- **AAU :-** Addis Ababa University
- **AAiT :-** Addis Ababa Institute of Technology
- **ID :-** Identification
- **SRS :-** Software Requirement Specification
- **FR :-** Functional Requirement
- **UC :-** Use Case
- **HTTPS:-**HyperText Transfer Protocol Secure

DECLARATION

We declare that this online clearance system software requirement document submission represents our own ideas in our own words and the information included from another document has been acknowledged in the reference provided.

Team Members

Name	ID	section
1. Gizaw Agodo	UGR/8917/12	1
2. Addisu Motora	UGR/4230/12	1
3. Naol Aklilu	UGR/0207/12	2
4. Haile Dereje	UGR/2190/12	3
5. Bahailu Abera	UGR/3464/12	3
6. yishak Bazezew	UGR/1131/12	3

Project advisor: Nuniyat kifle

Date :12/10/202

1. Introduction

1.1 Purpose

The major goal of this software requirement specification document is to specify the requirements, each interface, and features for the online clearance system, which is the outcome of our project. This SRS document explains what the system will do and what is contained in the system to the audience.

The reader should be able to understand every feature of the online clearance system after reading this SRS document. It will be used as a reference for other developers and anyone else who needs to understand how the system works.

1.2 Scope

Our project's software product is a web-based platform named Online clearance system. This product's scope is limited to AAU/ AAiT.

The system will carry out the following tasks:

- After logging into the system using their username and password, The system allows the student to request clearance approval.
- The system has a database that stores the student's name, ID, password, and clearance status.
- Students can use the system to check their clearance status.
- The student dashboard receives the outcome of their clearance status from the system.
- The system allows the student to upload his/her clearance status from their dashboard to the office where the clearance is required.

1.3 Overview

The general description section of this SRS document describes this system from the standpoint of the manual clearance system and other related software systems. Other subsections mentioned in this paper include the system's principal function, the user's characteristics or the types of users who will use it, and the constraints that the system will face during the development process.

The external interface requirements, such as user interfaces, Hardware Interfaces, Software Interfaces, and Communication Interfaces, are discussed in the specific requirements section. Functional requirements, use cases, non-functional requirements such as performance and security concerns, and other subsections will all be discussed. Changes in the management process will be discussed as well. The references we used and the document's appendices will be presented at the end.

2. General Description

2.1 Product Perspective

This online clearance system project is a software system that uses a simple and fast web-based approach to assist students in obtaining clearance. We are driven to create this online system in order to reduce the resources and time required by the current system. Students are approved in one or two days under the current procedure. But, since our system is done online, it takes only a few seconds. There is no need to walk from office to office to collect stamps.

In AAU, there are two systems that have been used. These are the following:-

- The manual clearance system and
- AAU Portal clearance system

Manual Clearance System

This is the most widely utilized, old, and time-consuming clearance system, and it is still in use in AAU.

The disadvantages of this clearance system are as follows:

- Employees working in manual processes are under a lot of stress. Because they are required to manually check all of the files.

- It's time-consuming and costly. It takes at least one or two days and two papers per individual student to get clearance papers.
- It is inefficient in university resource management since it requires more labor and physical space to organize and store documents, discover information, and keep details secure.
- Students must visit each office to obtain stamps for the clearance paper. The most inconvenient aspect is that the offices from which students must obtain clearance are not all located on the same campus.
- Students form a line to acquire stamps from each office.

Our system, regardless of the current manual system, provides the following:

- Our system uses a simple web interface to allow students to request and get clearance.
- It relieves the stress of office workers.
- Because everything is done online, there is no need for paper and there is no need to go to an office for clearance, it saves time and money.
- It provides the most effective resource management system.

AAU portal clearance system

This is the most recent clearance system introduced with the AAU website to assist students in requesting clearance to the registrar directly. This system allows users to specify why they require clearance and to request it directly to the registrar's office. However, it is not yet fully functional.

Our system, on the other hand, accepts the request and checks the students' records across all databases and returns the results to them. It also allows the student to send his or her clearance status from the system to the office that requires the student's clearance status.

2.2 Product Functions

The primary function of this product is to provide an online clearance system that facilitates the clearance approval procedure for students. The student may be able to make a clearance request. The system checks the student's status in all offices connected to the clearance system and notifies the student whether or not he or she is cleared. Furthermore, the student can send his or her clearance status from the system to the office that requires the student's clearance status.

2.3 User Characteristics

The system's users are university students who have prior experience with web page access and, for the most part, have no problems with the technology utilized to access our website. Students at AAU/AAiT can use their username and password to log in to the system and enjoy the services it offers.
Almost all students have smartphones or personal computers with no limits on how they use them. If the student does not have access to any of these devices, the digital library desktop can be used as a substitute.

2.4 General Constraints

The following are some of the potential system development constraints:

- Because the system is web-based, one constraint will be internet access.
- It's possible that the system isn't device compatible.
- Time constraint: Because the project requires thorough analysis, there may be a time limit for completion.

2.5 Assumptions and Dependencies

At this time, no specific assumptions or dependencies are being considered.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

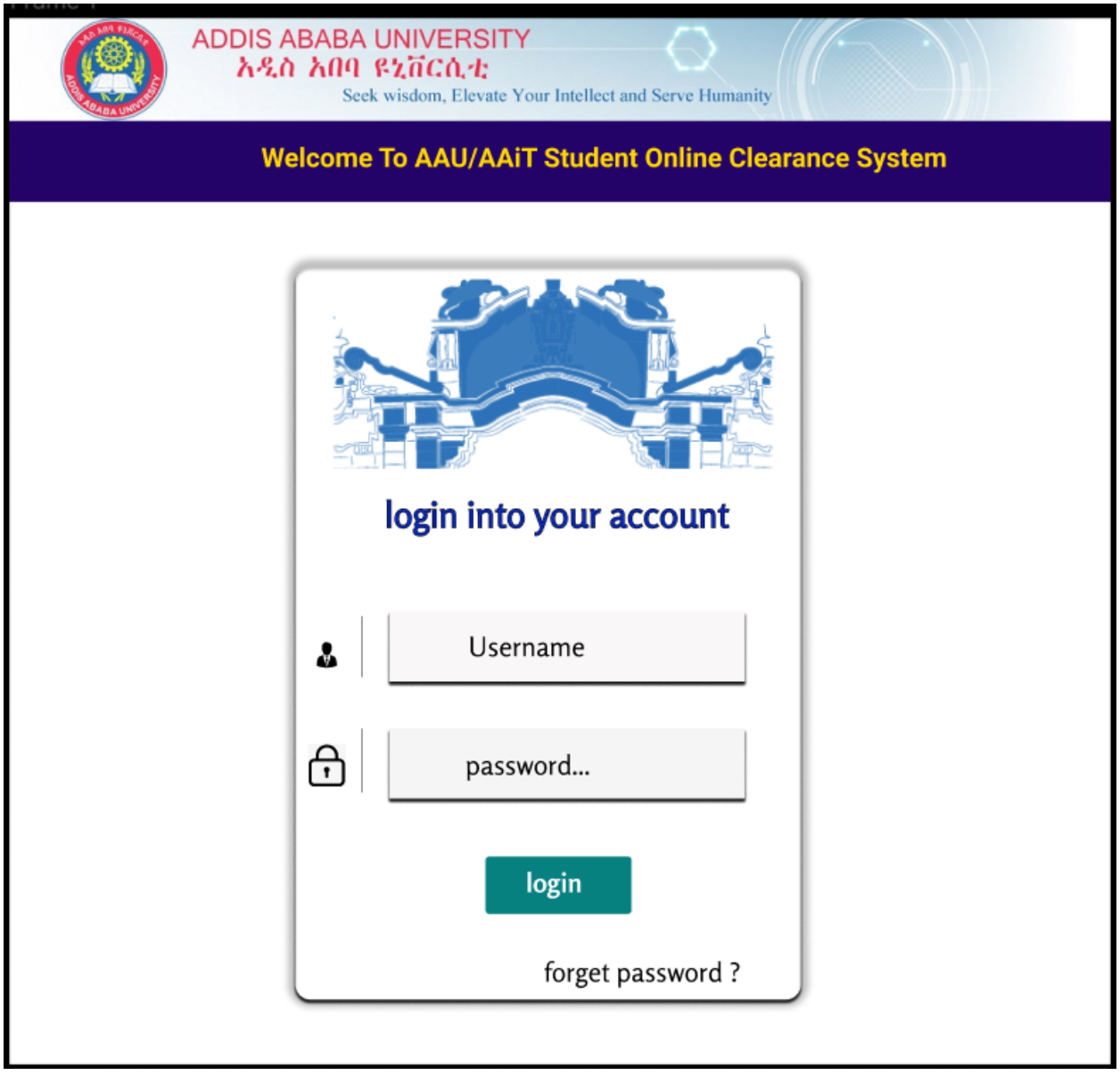


Figure 01 : login page

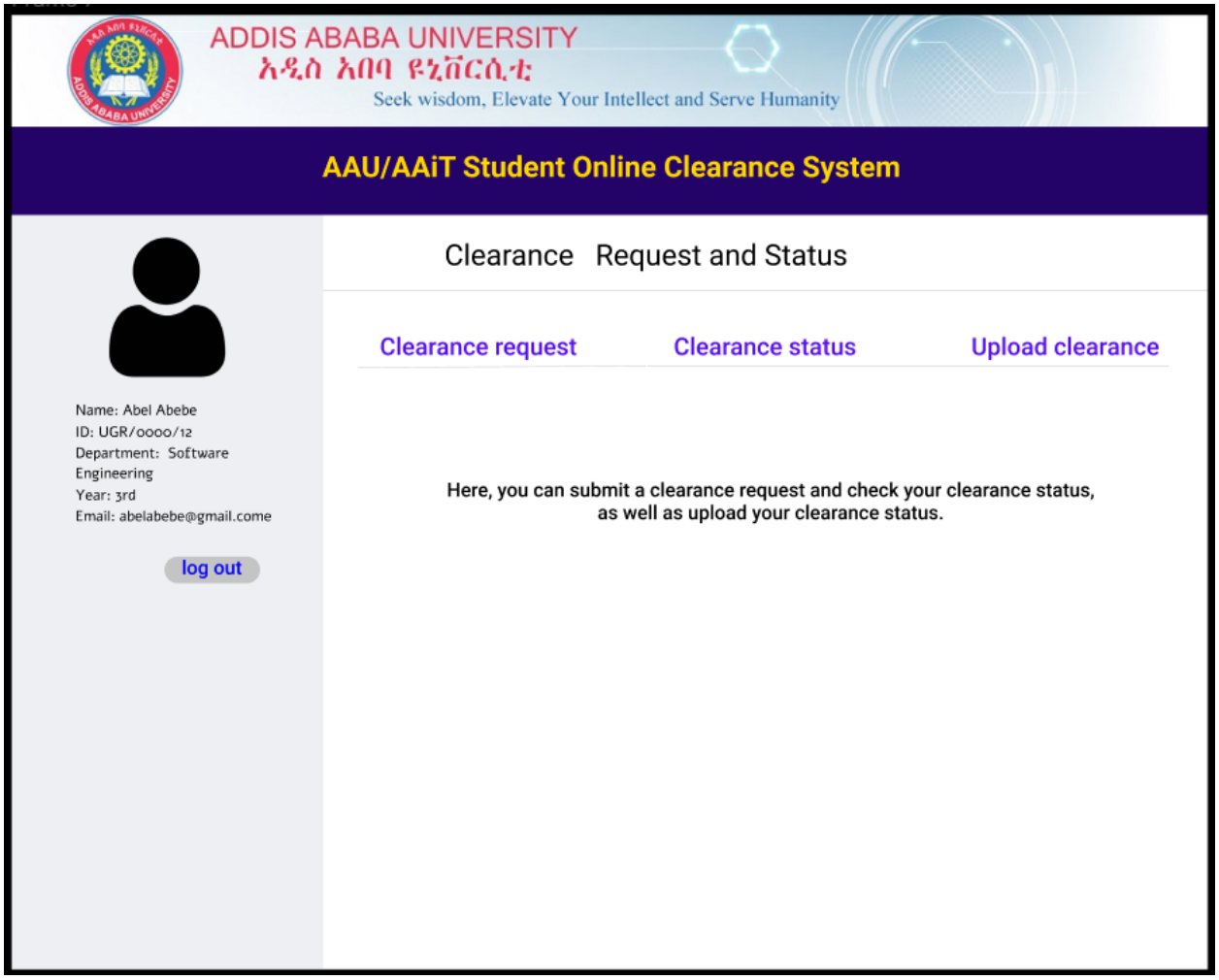


Figure 02 : main page

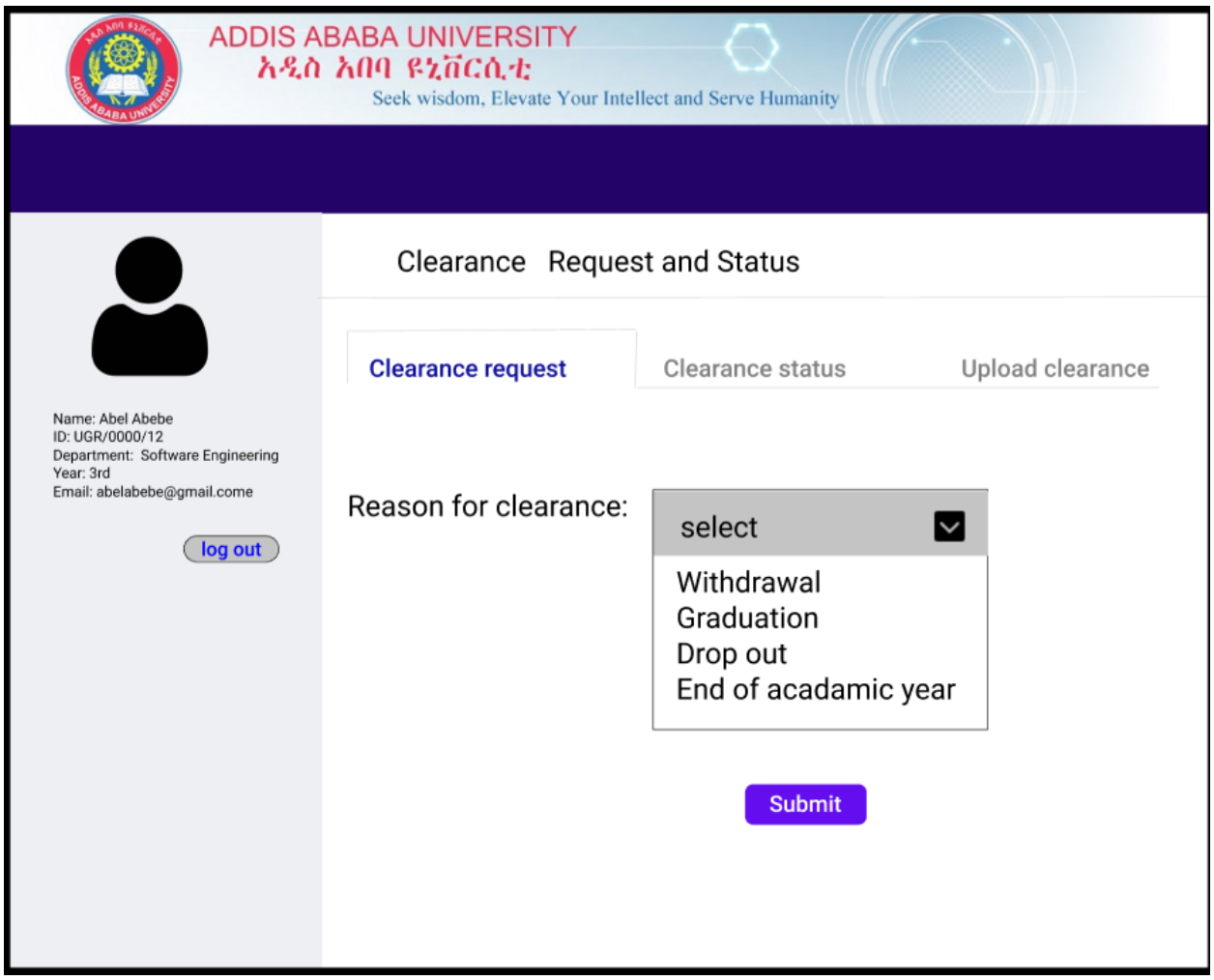


Figure 03 : clearance request page

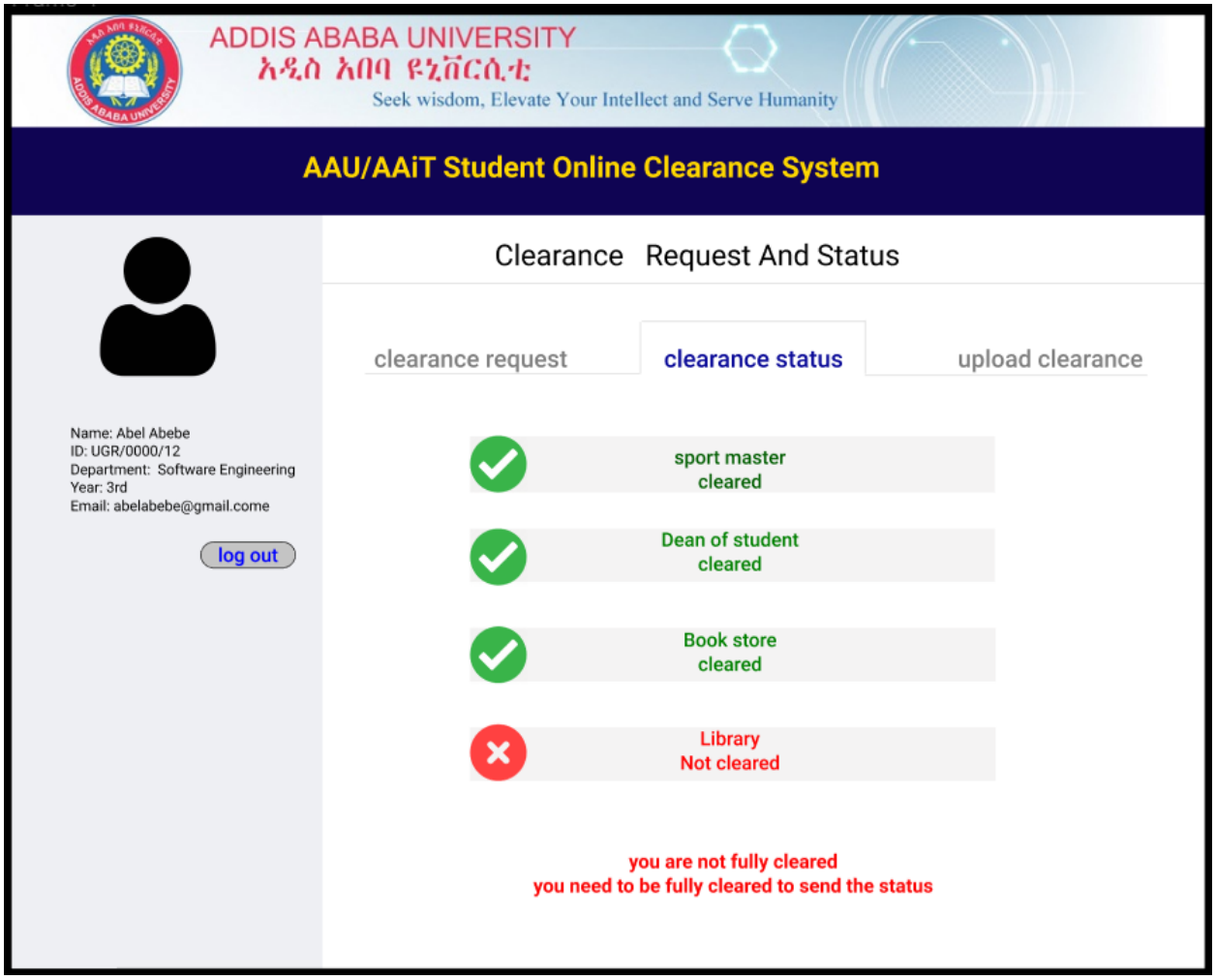


Figure 04: clearance status page

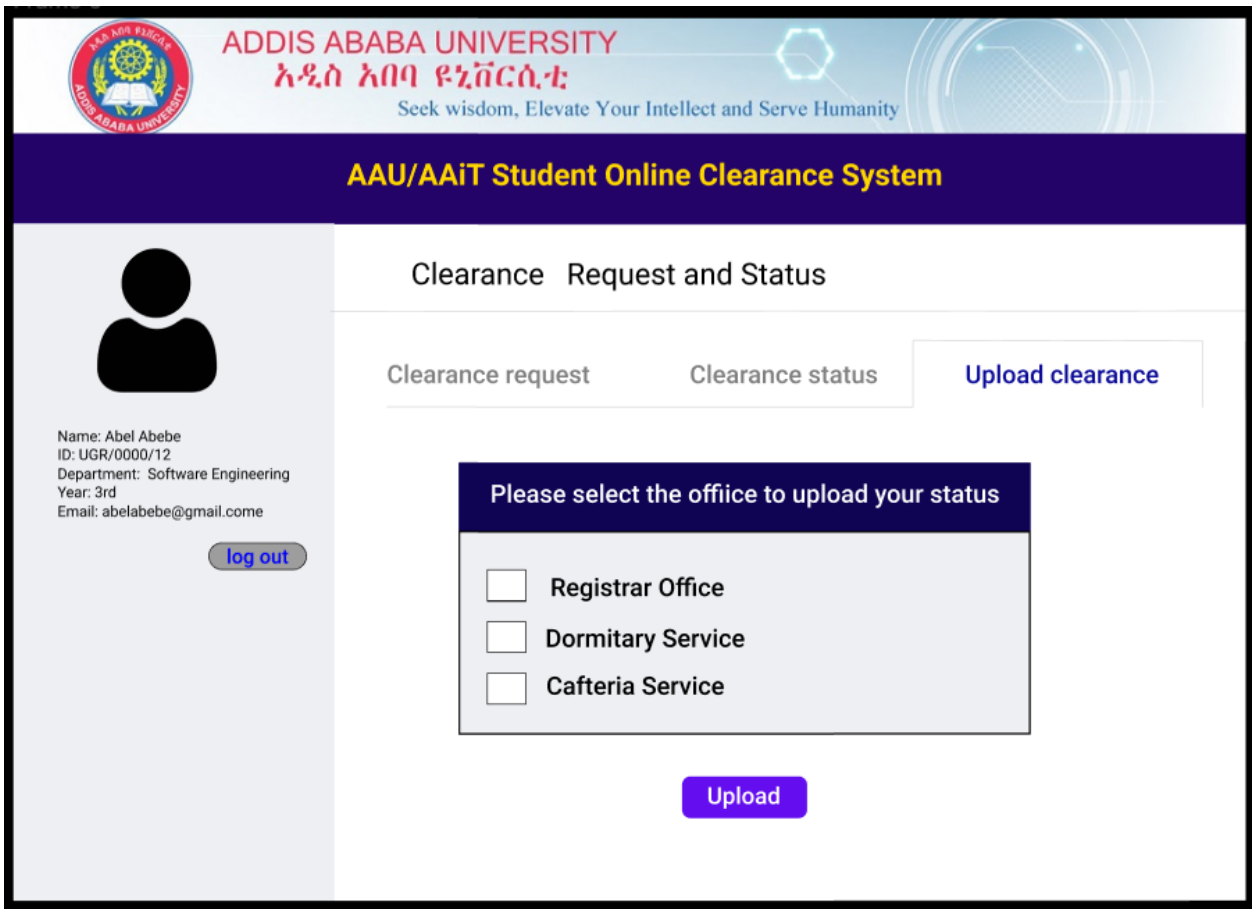


Figure 05 : upload clearance page

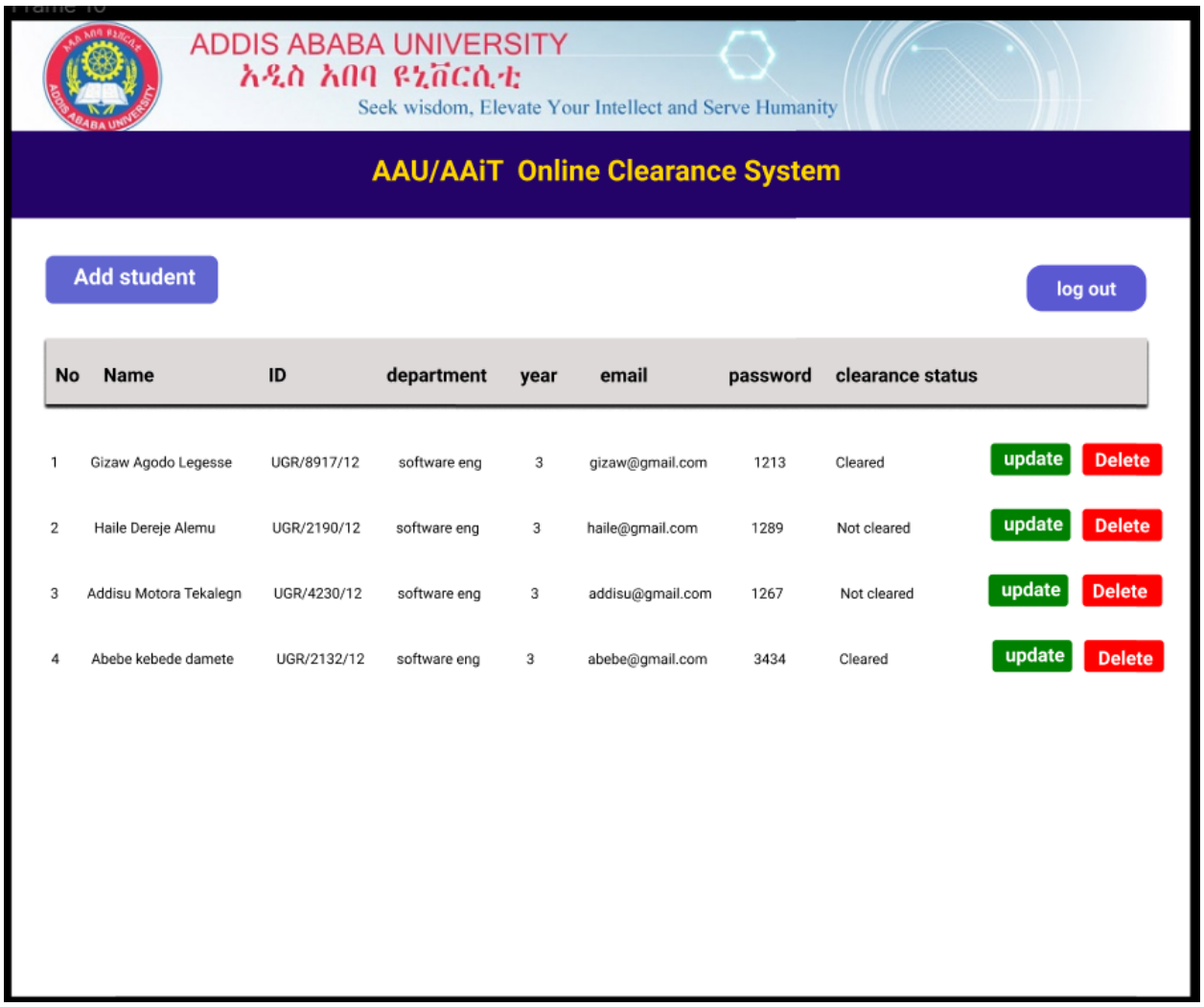


Figure 06 : admin main page

Figure 07 : add student page

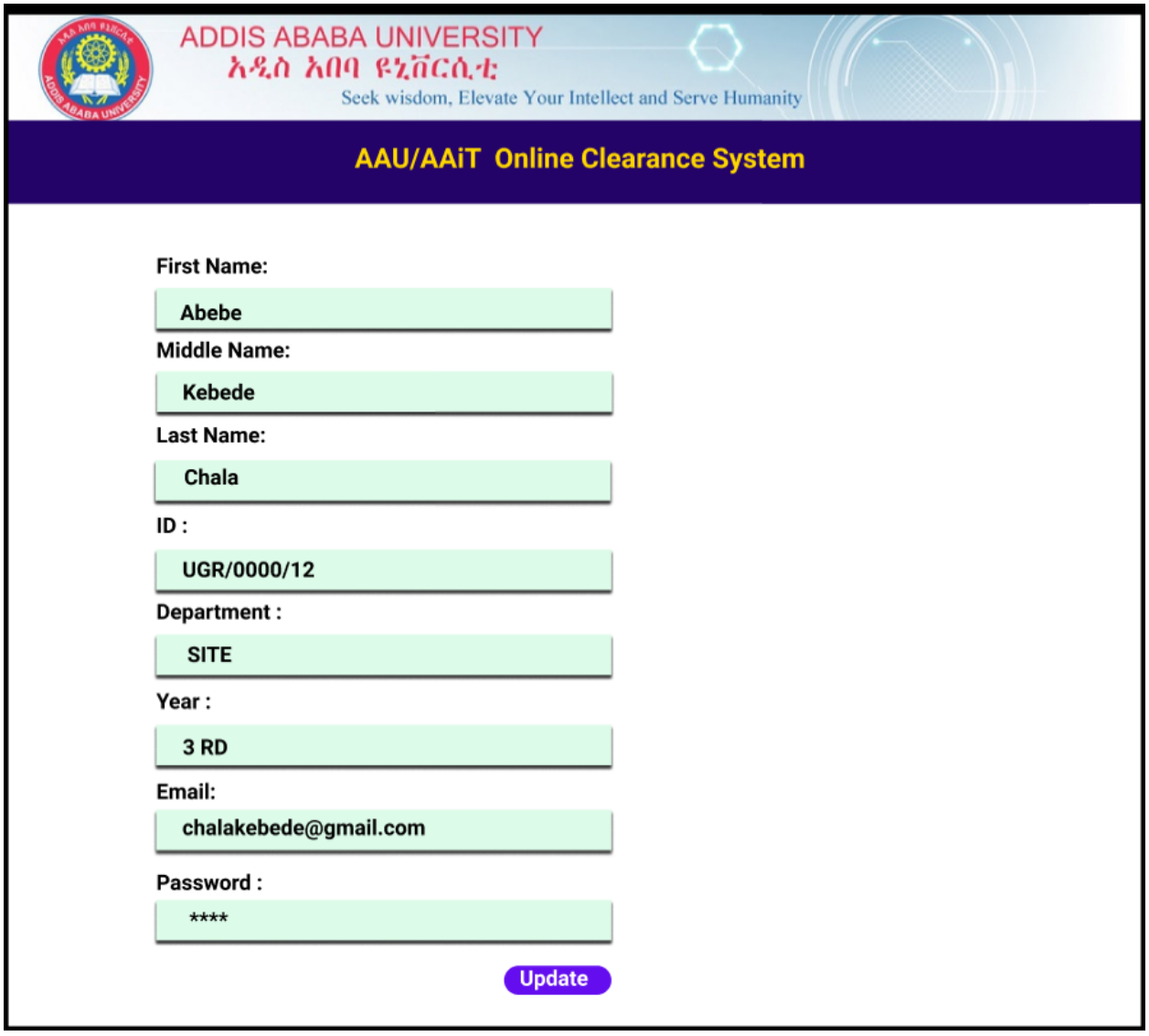


Figure 08 : update page

3.1.2. Hardware Interfaces

Our system has no hardware interface requirement.

3.1.3. Software Interfaces

To run the system, you'll need Chrome version 4-70, Mozilla Firefox version 4-63, Internet Explorer versions 10 and 11, Safari 4-12, and Microsoft Edge version 16-18.

3.1.4. Communications Interfaces

System shall use the HTTPs protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite.

3.2 Functional Requirements

Table FR-01: Login

ID	FR-01
Name	Login
Introduction	The system should allow the student and admin to login to the system.
Input	1.User name 2.password
Processing	The system should check whether the entered username and password matches the data in the database and let the user access the system.
Output	The user login to the system
Error handling	If the user name and the password does not match with the data in the database, the system will indicate the error and let the user try again.
Dependency	none
References	UC 01 , UC 07

Table FR-02: Check clearance

Name	Check clearance status
ID	FR -02
Introduction	The system shall check if the user is cleared or not.
Input	User request for clearance
processing	After the student requests for clearance the system checks if the user is cleared of any debt from each office's database.
output	The system will display the clearance status from each office.
Error handling	NONE
Dependency	FR-01
References	UC -02

Table FR-03: providing clearance status.

Name	Provide clearance status.
ID	FR-03
Introduction	The system shall provide clearance status for the student.
Input	User request
processing	The system checks the clearance status of students from all offices and then displays the clearance status of the student on their dashboard. - If the student is cleared from any school property then the system displays as the student is cleared. - If the student is not cleared from one of the offices then the system displays the reason for not being cleared.
Output	Clearance status of student
Error handling	none
Dependency	FR 02
References	UC-02 ,UC -03

Table FR - 04: upload clearance

ID	FR-04
Name	Upload clearance
Introduction	The system shall allow the student to upload the file to the office that requires clearance status of the student.
Input	Clearance status
processing	The system updates the clearance status of the student for the specified office database.
output	Clearance object representation
Error handling	If the student clearance status is not 100 percent complete or not cleared from all the offices the system will indicate the user to complete clearance status in order to upload his/her clearance status.
Dependency	FR 03
References	UC-05

Table FR - 05: log out

ID	FR-05
Name	Log out
Introduction	The system shall allow the student or admin to log out
Input	none
processing	When the student choose log out option the system enables the user to log out of his dashboard
output	none
Dependency	FR - 01
References	none

3.3 use cases

Table UC-01: student login

ID	UC- 01
name	Student Login
goal	The student needs a clearance
Primary actor	student
precondition	The Student needs to have a given ID and password to login. Internet connection is a must.
Success end	The student login in to the system
Failure end condition	The ID or PASSWORD is invalid
Triggers	The student opens the online clearance system
Main success scenario	1. The student wants to have a clearance 2. The system displays login form to the user., 3. The student Enters student ID and password 4. The system checks the presence of students in the database and If the student ID and PASSWORD is valid,it shall let the student log in.
Extension scenario	4. If the ID or PASSWORD is not valid 4.1. It displays invalid ID or PASSWORD message and 4.2. Allows the student to try again
alternative scenario	None

Table UC-02:Request Clearance

ID	**UC-02**
name	Request clearance.
goal	To send clearance requirement for the system.
Primary actor	Student
pre-condition	- Student log into the system. - There must be internet connection.
Success end	The clearance requirement sent for the system.
Failure end condition	The clearance requirement is not sent to the system.
Triggers	The student initiates the ask clearance button.
Main success scenario	1. The student clicks the clearance request button. 2. The system asks the reason for clearance. 3. The student selects their reason for the clearance request 4. The student submit the request
Extension scenario	3.If a student fails to select a reason for clearance, 3.1 the system will prompt him or her to do so.
Variations scenario	None

Table UC-03:check status

ID	**UC-03**
name	Check status
goal	To check clearance status and save the updated clearance status in the student database.
Primary actor	System.
Secondary actor	Peripheral System database.
precondition	The student submit clearance request.
Success end	The current clearance status is shown for the student.
Failure end condition	The clearance status is not shown.
Main success scenario	1. The student sent a clearance request. 2. The system checks their status of clearance from all offices' databases. 3. The system shows the detail clearance status. 4. The system updates the status as “cleared” or “not cleared" in the system database. 5. The student can see their clearance status on their dashboard
Extension scenario	None
Variation scenario	None

Table UC-04:view status

ID	**UC-04**
name	view clearance status
goal	The student wants to view his clearance status
Primary actor	Student
precondition	System check and update clearance status of the student.
Success end condition	The student views clearance status.
Failure end condition	none
Triggers	User clicks the clearance status button.
Main success scenario	1.The student clicks the clearance status button. 2.The system displays the status of the student
Extension scenario	none
Variations scenario	none

Table UC-05:Upload clearance

ID	**UC-05**
name	Upload clearance
goal	The student wants to submit or upload his /her clearance status
Primary actor	Student
precondition	The student status of clearance must be 100 percent or fully cleared
Success end condition	Upload clearance status
Failure end condition	The student can't upload clearance status.
Triggers	User clicking upload button
Main success scenario	1. User clicks upload button 2. The system checks if student is fully cleared 3. The system presents a check box for office selection. 4. The student selects the office to be sent the clearance status. 5. The system sends clearance status to the selected office 6. The system shows a success message for the student.
Extension scenario	2. If the student is not fully cleared 2.1 The system displays an error message that notifies the student to fulfill his clearance status. 4. If the student does not select the office 4.1 The system asks the student to select the office.
Variations scenario	none

Table UC-06: student logout

ID	**UC-06**
name	Student logout
goal	The student wants to log out of the system
Primary actor	Student
precondition	Logging in
Success end condition	Logging out of the system
Failure end condition	none
Triggers	Clicks logout button
Main success scenario	1. User clicks logout button 2. The system removes the user from his dashboard and returns him to log in page
Extension scenario	None
Variations scenario	None

Table UC-07: admin Login

ID	**UC- 07**
name	admin Login
goal	The admin needs to control the system
Primary actor	admin
precondition	The admin needs to have a username and password to login.
Success end	The admin login in to the system
Failure end condition	Failed to login to the system.
Triggers	The admin opens the online clearance system
Main success scenario	1. Admin enters an online clearance system website. 2. The system displays a login page. 3. The admin enters username and password. 4. The system checks if the entered password and username is valid or not. 5. The system allows the admin to login to the system.
Extension scenario	4. If the username or password is not valid 4.1. It displays invalid username or password message and allows the admin to try again.
Variations scenario	None

Table UC-08:Add new student

ID	**UC-08**
name	Add new student
goal	To add new students data to the system database.
Primary actor	Admin
precondition	The student must be member of the university and have full required information
Success end condition	Add new students data to the system database.
Failure end condition	Fail to add the new student. - Trying to upload student record more than one - Trying to upload incomplete student information
Triggers	Admin clicks add student button
Main success scenario	1. Admin clicks add student button. 2. The system displays a format containing the required information to be added. 3. Admin adds student information. 4. Admin clicks the submit button. 5. The system saves the student record to system database
Extension scenario	3. if full information is not added. 3.1. The system notify the admin to add complete information and resubmit again 5. If students' information already exists on the system database. 5.1 The system will notify the admin that the student already exists.
Variations scenario	none

Table UC-09: update student record

ID	**UC-09**
name	Update student record
goal	To modify records of the student on the system database.
Primary actor	Admin
precondition	Existence of student record on the database.
Success end condition	Update student record.
Failure end condition	None
Triggers	Admin click update button.
Main success scenario	1. Admin click update button of the intended student. 2. Admin edit the student data. 3. Admin submit the updated data. 4. The system saves the updated data.
Extension scenario	None
variations(alternative scenario)	None

Table UC-10: Delete student

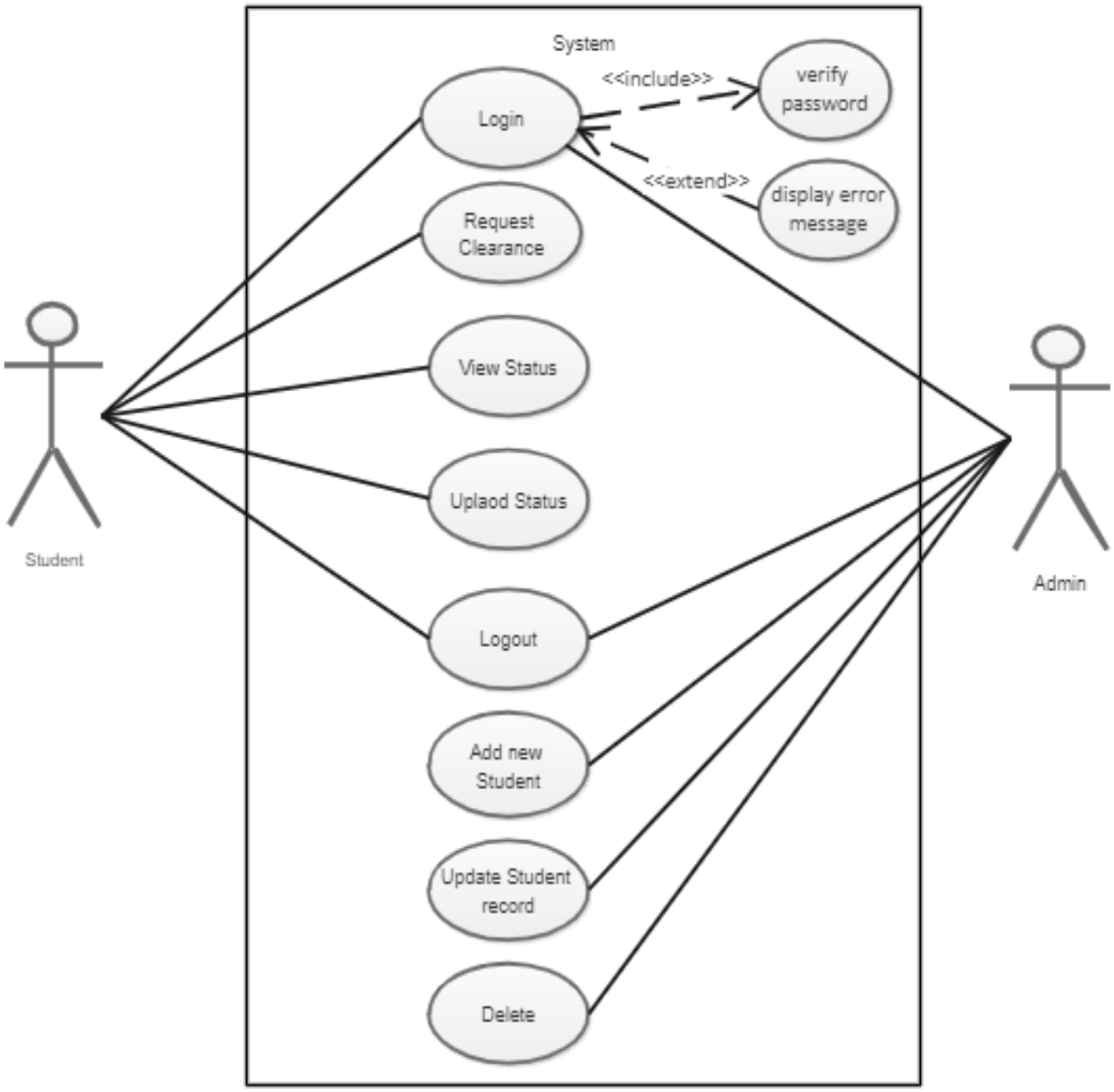
ID	**UC-10**
name	Delete student
goal	To delete the student data from the system database.
Primary actor	Admin
precondition	Existence of student record on the database.
Success end condition	Remove the student record.
Failure end condition	None
Triggers	Admin click delete button.
Main success scenario	1. Admin click delete button of the intended student. 2. The system removes all the students' data from its database.
Extension scenario	None
variations(alternative scenario)	None

Table UC-11: admin log out

ID	**UC-11**
name	Admin log out
goal	The admin wants to log out of the system.
Primary actor	Admin
precondition	Logging in to the system.
Success end condition	Logging out of the system.
Failure end condition	None
Triggers	Click the logout button from the dashboard.
Main success scenario	1. The admin clicks the logout button. 2. The system removes the user from his dashboard and returns him to the login page .
Extension scenario	None
variations(alternative scenario)	None

Use case diagram

Figure 07 : use case diagram



3.4 Non-Functional nRequirements

Performance

- All the web pages should load within 1 seconds.
- Checkout clearance status should complete within 5 seconds.

Reliability:

- The system should support at least 25 people to access simultaneously with 2% failurity.

Security:

- Login operation should be performed using transport layer security (HTTPS).
- All user id and password information should be encrypted using one-way hash algorithms in the database.

Availability:

The project will be deployed on a public shared server so it will be available all the time and will be accessible anywhere in the world using the internet.

Portability:
The system will work with all major internet browsers(Google Chrome, Microsoft Edge, Apple Safari, Mozilla Firefox, Opera web browser,etc) with specified versions.

Maintainability
Readable code with relevant documentation will be used to make it easily understandable by other people for troubleshooting. Low cost for fixing, updating, and extending the system .

Inverse requirement :

The online clearance system is designed to make the clearance process easier by minimizing the amount of time and effort needed to obtain the clearance paper. However, the system does not provide the following.

- Do not allow password change in the system. If so the user needs to ask the registrar since the only registrar can reset the password of the user.
- Do not allow users to edit any information
- Do not provide any soft copy like pdf ,word etc
- Do not allow sign up

3.6 Design Constraints

Some design constraints we may face during the development of the project include:

- W3C Web Accessibility standards and Web Content Accessibility Guidelines (WCAG) should be followed.
- Web pages should be designed using HTML 5.0 transitional standards.

3.7 Logical Database Requirements

The system will have a database that contains the required information of the user for the login in order for the system to work optimally. This database will be used to verify the student's details before allowing him to access his account. In addition, each office will have a database to record the data and other information.

Database	Attributes	Description
User	• First Name • Middle Name • Last Name • ID • Password • Department • Year • Status • email	Users information will be put inside of it
Requesting offices • Faculty of advisor • Dean of student • Library chief of circulation • Sport master • Collage of book store • Students business affairs	• ID • Full name • Faculty • Year • Department • Borrowed item • Status	The student's clearance status is stored in the databases of the offices with which the system is linked.

Database	Attributes	Description
• Property and store • Financial information • Registrar check book		
Offices to submit	• ID • Full Name • Clearance status	

3.8 Other Requirements

3.8.1 Training Related Requirements

There will be no training since it operates with simple steps, easy and straightforward**.**

3.8.2. Packaging Related Requirements

The system will be a web based system. Users only need to get on the web, not package or offline apps.

3.8.3. Legal Requirements

All information and figures accessed from each database are the properties of the university .

3.8.4. Internationalization Requirements

Personal information should be protected and also the system should comply with quality assurance standards.

4. Change Management Process

When a change is expected to occur, all team members will convey this new modification through different communication methods and propose the modification to the advisor. The modification can be made after reaching final agreement with team mates and the advisors and if it is found feasible at that time. The change will be documented, described, and filtered before being used as part of the project.

Reference

Text book: The_Pragmatic_Programmer,_From_Journeyman_To_Master_Andrew_Hunt
Text book: Software-Engineering-9th-Edition-by-Ian-Sommerville
Website: https://ecomputernotes.com/software-engineering/principles-of-software-design-And-concepts Date: Dec 9, 20 21 8:00PM
website:https://www.smharter.com/blog/2017/08/21/the-7-fundamental-principles-of-software-requirements/ Date: Dec 8, 2021 3:30PM