YARDSTICK INTERNATIONAL COLLEGE

DEPARTMENT OF COMPUTER SCIENCE

"TASKMASTER ASSIGNMENT HELPER AND CV MAKER"

A Senior Project

Submitted to Department of Computer Science, Yardstick International College, in Partial fulfillment for the requirement of the Degree of Bachelor Science in Computer Science.

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CERTIFICATION OF RESEARCH APPROVAL

Yardstick International College

This is to certify that the research prepared by the above listed group members, entitled "**Taskmaster Assignment Helper and CV Maker**" and submitted in partial fulfillment requirement for the Bachelor Degree of **Computer Science** (BA) compiles with the regulation of the university and meets the accepted standards with respect to originality of quality.

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Abbreviations

CV: Curriculum Vitae

HTML: Hypertext Markup Language

PHP: Hypertext Preprocessing

CSS: Cascading Stylesheet

JS: JavaScript

XAMPP: Cross-platform, Apache, MySQL, PHP, and Perl

PDF: Portable Document Format

RDBMS: Rational Database Management System

MS: Microsoft

UML: Unified Modeling Language

OOP: Object-Oriented Programming

MYSQL: My Structured Query Language

WCAG: Web Content Accessibility Guidelines

GDPR: General Data Protection Regulation

BLDBs: Binary Large Objects

IP: Internet Protocol

ACLs: Access Control Lists

RBAC: Role-based Access Control

MFA: Multi-Factor Authentication

SSO: Single Sign-On

API: Application Programming Interface

IIS: Internet Information Services

HTTP: Hypertext Transfer Protocol

ASP.NET: Active Server Pages Network Enabled Technologies

NAS: Network-Attached Storage

SSD: Solid-State Drive

HDD: Hard Disk Drive

SMS: Short Message Service

Abstract

The Taskmaster Assignment Helper and CV Maker website represents our final year project as computer science students, aimed at revolutionizing Assignment result, time management, and CV creativity for all undergraduate students in Ethiopia. This innovative project introduces a comprehensive system for Assignment, and CV creation.

In contrast our project proposes a digitalized, and automated solution to streamline workflow and enhance productivity. By leveraging cutting-edge technologies and object-oriented techniques, we aim to create a user-friendly platform that simplifies Assignment and CV creation for students, teachers, and administrators.

Developed as a web-based application from scratch, our project utilizes a combination of client-side languages such as JavaScript and HTML, along with server-side PHP powered by XAMPP Server Faces. This robust backend handles database management, session handling, and other critical functionalities, ensuring seamless integration and smooth operation.

The key objective of our project is to minimize administrative burden, reduce errors, and enhance security in Assignment and CV creation processes. Through our innovative system, we strive to provide Ethiopian educational system with a practical and efficient solution that meets the demands of modern education.

Our project is designed to facilitate Assignment asking, evaluation, and feedback, as well as streamline CV creation and management, contributing to a more organized and efficient academic environment for Ethiopia.

CHAPTER ONE

1. Introduction

The Taskmaster Assignment Helper and CV Maker platforms aim to provide students with access to verified professional lecturers who can assist them with their Assignment creativity, and other educational questions. In addition, the platform offers a wide range of customizable templates for creating professional CVs, allowing customers to easily modify the contents according to their preferences. With its powerful tools and user-friendly interface, this platform ensures a seamless experience for both students and job seekers.

1.1. Existing System

Currently, this platform does not exist in Ethiopia. In other countries, there are many existing systems, such as https://www.coursehero.com, https://www.studybay.com, and others, but still, their platforms are not working correctly in Ethiopia because their payment system is not eligible in Ethiopia. Some platforms are working in Ethiopia but do not give useful explanation. In Ethiopia, using a manual system means students find teachers or helpers to get great results for assignments.

CV Maker does not exist in Ethiopia, but it’s available from outside of Ethiopia. The customers or students modify or copy the other person's CV. However, the Taskmaster Assignment Helper and CV Maker platforms exist on two platforms in one place.

1.2. Motivation

Our motivation stems from a fundamental belief: facilitating student-teacher interaction during the Assignment process is paramount. We understand the challenges students face in finding reliable assistance across all subjects. Relying solely on manual methods can be time-consuming and lacks assurance in accuracy.

Moreover, we recognize the hurdles in crafting an impressive CV or resume for job applications. Hence, introducing a dedicated platform for Ethiopia holds immense potential. It offers students a convenient and dependable resource for Assignment help and access to precise information.

With this platform, we aim to bridge the gap between students and reliable assistance, ensuring a smoother journey towards academic success and career advancement. Together, let's embrace this innovative solution tailored for Ethiopia's educational landscape.

1.3. Statement of the problem

Currently, more students are do not submit the correct answer for those assignments, and homework or delay from submit date. Graduated students are more confused about creating their CVs or resume letters. Students and teachers do not get more resources for all courses. The current state is summarized by the following problems:

- Lack of understanding and clarity in assignment instructions: Many students struggle to comprehend the requirements and expectations of their assignments, leading to incorrect submissions.
- Insufficient guidance and support for creating CVs and resume letters: Graduated students often face challenges in effectively showcasing their skills and experiences in their job applications due to a lack of proper guidance and resources.
- Currently, more students do not get more reliable resources and assistance.
- There is more time to gather handouts and other content.
- Not create a more powerful CV and Resume letter

1.4. Objective

The project utilizes a Taskmaster Assignment Helper and CV Maker system to address student assignment and resume issues, as well as resource-gathering challenges for teachers and students.

1.4.1. General objective

The general objective of this project is to build a Taskmaster Assignment Helper and CV Maker for all students and all verified teachers.

1.4.2. Specific objective

The specific objectives of the proposed system can be enumerated as follows

- To analyze the existing system and identify the problem.
- To study and analyze the limitations of the existing system.
- To develop and design the system.
- To develop, test, and implement the design system.

1.5. Methodology

Developing a Taskmaster Assignment Helper and CV Maker website involves various aspects, including user interface design, backend functionality, and data processing. Below is a comprehensive methodology that you should follow to ensure the success of your project:

1.5.1. Project Planning and Analysis

1) Taskmaster Assignment Helper:
   a) Assignment send and receive system
   b) Upload materials and customize the data storage system
   c) User authentication
   d) Gathering Feedback
   e) Notification system
2) CV Maker:
   a) Template selection and customization
   b) Data storage and retrieval
   c) Export functionality (PDF, Word)

1.5.2. Development Tools

a) Front-end Technology Stack
   i) HTML is a markup language used to define the meaning and structure of web content.
   ii) CSS is a style sheet language used to describe the presentation and the overall look of web content.
   iii) JavaScript is a scripting language mostly used in website development that's supported by all modern web browsers.
   iv) Java is a powerful language for creating an Android application.
   v) Chrome is a web browser with powerful web development tools.
   vi) Android Studio is to create an Android application.
b) Back-end Development
   i) PHP is an open-source scripting language that is suited to web development.
   ii) MySQL is a relational database management system (RDBMS) service that manages databases and cloud-native applications.
c) Development environment
   i) XAMPP: a package containing Apache2 Server, PHP, MySQL database, and PhpMyAdmin. This development environment is used to develop web applications.
   ii) Visual Code Studio is a powerful code editor with many features that assist web developers.
d) Documentation- MS Word, MS Excel

e) User Training- MS PowerPoint

1.5.3. Test Procedure

The system would be tested to discover as many faults (errors) as possible so they can be repaired before it is delivered

- **Unit testing**: - In unit testing, every unit of the code is separately tested. The programmer often does it to test that the unit he/she has implemented is producing the expected output against the given input. With that aim, the project team did unit tests for each unit of the code
- **Integration testing**: This would be done in which a combination of subsystems would be integrated and tested as a group.
- **User test:** Conduct user testing to gather feedback on usability and identify any issues.

1.5.4. Implementation

The implementation phase of realizing the envisaged system consists of the following activities;

- **Coding**: This is the process of building the functionalities of the envisaged system that fulfill the requirements of the client and admin. The process includes coding on the interface and database programming using the selected and front mentioned above and back-end development tools.
- **Testing**: The testing procedures mentioned above will be undertaken during and after coding.
- **Installation**: This is the step that includes installing and configuring the developed system, the database, and other interfaces for hosting.

1.6. Scope of the system

The scope of the project for the "Taskmaster Assignment Helper and CV Maker" website is as follows:

- The website is a platform that provides **two main services** for students and job seekers, or teachers: **assignment helper** and a **CV maker**.
- The **assignment helper** service allows users to get help with their academic assignments, such as essays, reports, presentations, etc. Users can specify the topic, subject, level, deadline, and other assignment requirements, and the helper will generate customized and

original content for them. Users can also request revisions and feedback for their assignments.

- The **CV maker** service allows users to create a professional and attractive curriculum vitae (CV) or resume for their job applications. Users can choose from various templates, styles, and formats and fill in their personal details, such as education, work experience, skills, achievements, etc. The website will generate a PDF or Word file of their CV or resume, which they can download and print.
- The website aims to provide a **high-quality**, **reliable**, and **quick** service for its users and to help them achieve their academic and career goals. The website also ensures the **privacy** and **security** of its users' data and does not share or sell it to any third parties.

1.7. The significance of the study

The significance of the study is that it aims to benefit the users by saving their time, effort, and money. It can also enhance their academic or professional performance and opportunities by providing them with quality and reliable assistance or professional job seekers. The website offers the following features:

- **Taskmaster Assignment Helper**: This feature allows users to get help with various types of assignments, such as essays, reports, presentations, case studies, and more. Users can specify the topic, deadline, word count, citation style, and other assignment requirements. The website will then send the assignments to teachers or job seekers. Users can also request revisions, feedback, or editing services from the helper experts.
- **CV Maker**: This feature allows users to create a professional and attractive curriculum vitae (CV) that showcases their skills, qualifications, and achievements. Users can choose from different templates, formats, and styles for their CVs. The website will then populate the CV with the user's personal information, education, work experience, and other relevant details. Users can also customize their CVs according to their preferences and needs.

The website is designed to be user-friendly, responsive, and secure. It uses a natural language processing to collect data and any feedback. It also protects the user's privacy and data by using encryption and authentication methods. The website is accessible from any device or browser and supports multiple languages and currencies.

The website is expected to benefit the users by saving them time, effort, and money. It can also enhance their academic or professional performance and opportunities by providing them with quality and reliable assistance.

1.8. Work breakdown

A work breakdown for the "Taskmaster Assignment Helper and CV Maker" website is a hierarchical decomposition of the project scope into manageable and deliverable tasks. It can help to define, organize, and allocate the project resources and activities. A possible work breakdown for the website is as follows:

- **Project management**: This task involves planning, monitoring, and controlling the project activities, such as defining the project scope, objectives, schedule, budget, quality, and risks. It also involves communicating and coordinating with the project stakeholders, such as the clients, users, developers, and testers.
- **Website design**: This task involves creating the visual and functional aspects of the website, such as the layout, color scheme, typography, navigation, and user interface.
- **Website development**: This task involves implementing the website features and functionalities, such as the Taskmaster Assignment Helper and CV Maker. It also involves integrating the website with external services, such as payment gateways, databases, and cloud platforms.
- **Website testing**: This task involves verifying and validating the website's performance, functionality, security, and compatibility. It also involves conducting various types of testing, such as unit testing, integration testing, system testing, and user acceptance testing. It also involves identifying and resolving any bugs, errors, or issues in the website.
- **Website deployment**: This task involves deploying the website to the production environment, where the end-users can access it. It also involves configuring the website settings, such as the domain name, hosting, and SSL certificate. It also involves performing maintenance and support activities, such as updating, backup, and troubleshooting.

CHAPTER TWO

Proposed System

2.1. Overview of the proposed system

The proposed system is a web-based application that aims to help students and job seekers with their tasks and resumes. The system has two main features: **assignment helper** and **CV maker**. The **assignment helper** feature allows users to input their assignment details, such as topic, deadline, word count, and format. The system then generates a customized plan for completing the assignment, including a list of resources, an outline, and a timeline. The system also provides feedback and suggestions form for user's progress and quality of work.

The **CV maker** feature allows users to create a professional and attractive resume based on their personal information, education, work experience, skills, and achievements. The system offers various templates and formats to suit different industries and preferences. The system also provides tips and examples on how to write an effective and impressive resume.

The proposed system uses a natural language processing techniques to analyze the user's input and output. The system also leverages the Bing search engine to access relevant and reliable information from the web. The system aims to provide a user-friendly and helpful service that can improve the user's academic and career performance.

2.2. Functional requirement

Functional requirements pertain to the capabilities and features of the system, outlining the specific services it will offer to users. These requirements articulate the services the system is expected to deliver, how it should respond to user inputs, and the expected behavior in various scenarios.

1) General Functional Requirement for all
   - FR1: The system must facilitate a login process for registered users.
   - FR2: The system must provide a logout feature for users.
   - FR3: Users should have the capability to change their passwords after logging in.
   - FR4: Implement secure authentication and data protection measures for all user roles.
   - FR6: Ensure the system complies with relevant data protection and privacy regulations for all user roles.

- FR7: Conduct usability testing with representatives from each user role to validate system usability.
- FR8: Include a feature for users to provide feedback on the system's features and usability.

2) Admin
   - FR1: Create, update, and delete user accounts.
   - FR2: Manage educational resources, including adding, updating, and removing content.
   - FR3: Assign roles (admin, teacher, student).
   - FR4: Manage user access permissions.
   - FR5: Configure system settings, including notification preferences.
3) Student
   - FR1: Upload assignments with details (title, description, deadline).
   - FR2: Receive confirmation upon successful submission.
   - FR3: View feedback provided by teachers on completed assignments.
   - FR4: Give feedback on the quality and clarity of teacher feedback.
   - FR5: Use the CV maker to create and update personal CVs.
   - FR6: Access educational resources provided by the system.
4) Teacher
   - FR1: Receive notifications of new assignments.
   - FR2: Review, and provide answers on student assignments.
   - FR3: Submit completed assignments back to the respective students.
   - FR4: Access and create CVs for academic, job seeking, or career guidance.
   - FR5: Access and contribute educational resources.

2.3. Nonfunctional requirement

1) User Interface

- The user interface should follow a responsive design, ensuring a consistent and user-friendly experience across various devices and screen sizes.
- All user interface components must adhere to established design principles to enhance usability and accessibility.

2) Hardware Consideration

- The system should be compatible with standard hardware configurations to ensure widespread accessibility.
- The system must be designed to operate efficiently within the specified hardware constraints.

3) Software Consideration

- The system should be compatible with major operating systems (e.g., Windows, macOS, Linux).
- Software components must be modular to facilitate future updates and enhancements.

4) Performance Consideration

- The system must respond to user inputs within 3 seconds to ensure a responsive and efficient user experience.
- Performance tests should be conducted under various loads to identify and address potential bottlenecks.

5. Availability

- The system must have an uptime of at least 99.5% to ensure continuous availability during operational hours.
- Regular maintenance activities that may impact availability should be scheduled during non-peak hours.

6. Error Handling

- The system should provide clear and user-friendly error messages for different types of errors.
- Error logs must be maintained to facilitate troubleshooting and issue resolution.

7. Security

- All user data must be encrypted during transmission to protect against unauthorized access.
- The system must implement role-based access control to ensure that users have appropriate levels of access.

8. Maintainability

- The system code must be well-documented using industry-standard documentation practices.

- Routine code reviews should be conducted to identify and address potential maintainability issues.

9. **Accessibility**
    - Accessibility testing should be conducted regularly to identify and address any barriers to accessibility.

These non-functional requirements cover various aspects of the system's performance, reliability, and user experience, ensuring that it meets both technical and user-related criteria for success.

CHAPTER THREE

SYSTEM MODELING

3.1. Introduction

In this chapter, we'll break down the nuts and bolts of system modeling specifically tailored for our Taskmaster Assignment Helper and CV Maker website. We're diving into the user-friendly aspects of system use case diagrams, use case descriptions, sequence diagrams, and activity diagrams. Our system about making sure the website does what it's supposed to do in the simplest, most effective way. Use case diagrams act like a map, showing us how users will navigate through our assignment helper and CV maker features. It's like sketching out the game plan before we hit the field. The use case descriptions go a step further, giving us a detailed script of how things will play out. Sequence diagrams add a bit of action to the mix. They show us the choreography of events, like a dance routine, so we know exactly how our website components will interact in a specific scenario. And then there's the activity diagram – our visual checklist for the website's processes. It's like having a roadmap for managing tasks and creating CVs seamlessly. At the end of the day, what we're crafting here is more than just diagrams. It's a better way of helping users manage assignments, craft impressive CVs, and access educational resources effortlessly. So, let's dive into these visuals, understand our system from the inside out, and ensure that our Taskmaster Assignment Helper and CV Maker website is as user-friendly as it gets.

3.2. Use case diagram

Use case diagrams are created to visualize interaction of our system with external world. Also, a use case model is the representation of the system intended functions and its environment. The functionalities are specified by the “use case” and “the actor “specified to the environment. Since the identification of these two entities goes hand in hand, we have identified them together.

Actor Identification:

The actors are: -

- Student
- Teacher (Job seeker)
- Admin

Actor	Description and Performance
Student	A person performing the following action: ➔ Navigates to the "Home" section. ➔ Select "Ask" section, and fill question, course title, expiration date, description (optional), submit to the system. ➔ After receive the solution give feedback. ➔ If it is good, it can download and submit, else ask again the correction. ➔ Select "CV Maker" section of the website ➔ They choose to either create new CV or edit an existing one (Template). ➔ If editing, they can modify any section of the existing CV. ➔ The student saves the changes, and the system updates the CV accordingly. ➔ Optionally, the student can preview the CV to ensure accuracy. ➔ Download or print CV for submit anywhere.
Teacher	A person performing the following action: ➔ Pass teachers' evaluation for authorized to the teacher's platform. ➔ Navigates to the "Assignment Helper" section of the website. ➔ See a list of assignments pending to solve. ➔ Select one of the list assignments and give the solution. ➔ Submit the solved assignment to the system. ➔ Select "CV Maker" section of the website ➔ They choose to either create new CV or edit an existing one (Template). ➔ If editing, they can modify any section of the existing CV. ➔ The student saves the changes, and the system updates the CV accordingly. ➔ Optionally, the student can preview the CV to ensure accuracy. ➔ Download or print CV for submit anywhere.
Admin	A person performing the following action: ➔ Access the "User Management" section of the admin dashboard. ➔ Update user profile, including personal information and role assignments. ➔ Optionally, it can be deactivated or suspend user accounts in case of policy violations. ➔ Create, edit, and delete evaluation question.

	➔ Assign assignments for teachers and gathering feedback from students. ➔ Create, modify, and delete CV.

Table 1: Actor Identification

The use cases are: -

Use cases	**Description & performing the action**
User Registration	Users register on the website by providing necessary details like name, email, and password, creating an account for accessing assignment help, CV creation, and other features.
User Login	Registered users log in by entering their credentials, gaining access to personalized features based on their role.
Assignment solution	Students upload assignments or ask questions to the system, providing necessary details for easy to understand for solver.
Evaluation	Evaluate teachers by admin, for to know their knowledge and skill.
Review and give feedback	Student access solved assignment review and give feedback.
View Assignment Feedback	Teachers access feedback on their submitted assignments, understanding areas of improvement and acknowledging rate.
Create and Manage CV	Students or Teachers use the CV Maker to input personal details, education history, work experience, skills and generate a professional CV for all.
Access Educational Resources	Users access a repository of educational resources, including guides, articles, and text book, for academic assistance and career development.
Update CV	Users can update their CV with new skills, qualifications, or experiences, ensuring it reflects their latest accomplishments.
View CV	All users can view their generated CV, ensuring it accurately represents the qualification and achievements.
Contact Support	All users contact support if they encounter issues or require assistance with assignments, CV creation, or website functionality.

Table 2: Use case list

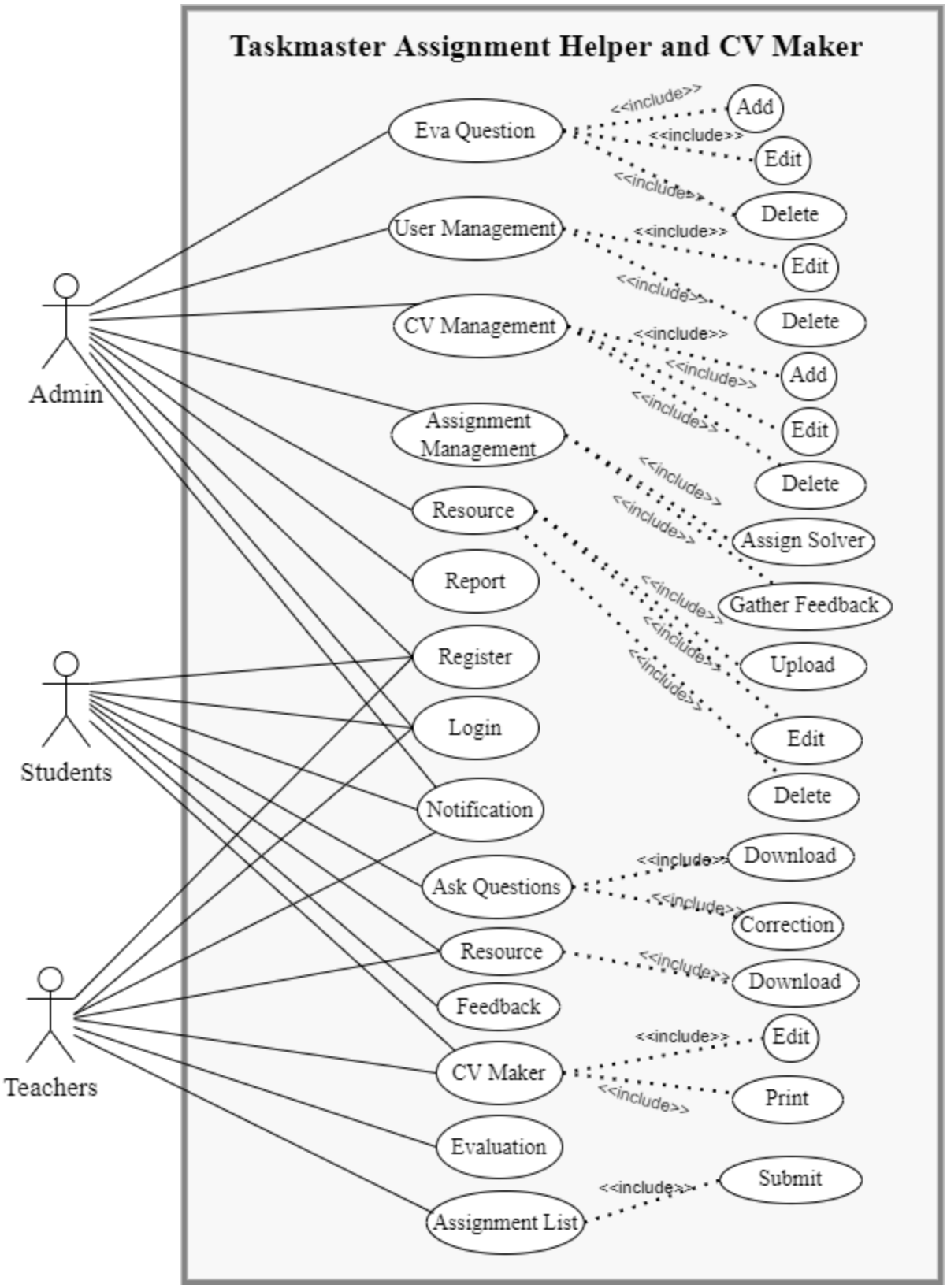

Figure 1:Use case diagram Taskmaster Assignment Helper and CV Maker

3.3. Use case description

1) Use case documentation for student registration

Use case ID	UC001-A	
Use case name	Student Registration	
Actor	Student	
Description	Create an account for student into the system	
Precondition	Fulfilled necessary information by student	
Basic Flow	User Action	System Response
	1) Click “create an account” link. 3) Choose “Student” 5) Fulfill necessary information 6) Click create account button	2) Display chooses from student or teacher with modal form 4) Display Student registration form 7) The system returns to login page. 8) End use case
Post condition	Return the page into “Login” page.	
Alternative flows	If the student inserts invalid information	
	9) Reinsert the correct information	9.1) The system display error messages

Table 3: UC001-A - Student Registration

2) Use case documentation for teacher registration

Use case ID	UC001-B	
Use case name	Teacher Registration	
Actor	Teacher	
Description	Create an account for teacher into the system	
Precondition	Fulfilled necessary information by teacher	
Basic Flow	User Action	System Response

	1) Click create an account link 3) Choose "Teacher" 5) Fulfill necessary information 6) Click create account button 8) Fulfilled all necessary information	2) Display chooses from student or teacher with modal form 4) Display Teacher registration form 7) Display "Teacher evaluation" page 9) The system display "Please wait 5 – 10 minutes for evaluation feedback". 10) The system returns to login page 11) End use case.
Post condition	Return the page into "Login" page.	
Alternative flows	If the teachers insert invalid information	
	12) Reinserts the correct information.	12.1) The system display error messages
	If the teacher not pass the evaluation	
		13) The system display "You are not ineligible for teacher, because you are not fulfilled all requirements. Thank you"

Table 4: UC001-B - Teacher Registration

3) Use case documentation for Admin Registration

Use case ID	UC001-B	
Use case name	Admin Registration	
Actor	Admin	
Description	Create an account for new admin into the system	
Precondition	Admin login to the system and fulfilled necessary information by admin	
Basic Flow	User Action	System Response

	1) Admin login to the system. 3)Click “Create admin” Link 5) Fulfill necessary information 6) Click create account button 8) Fulfilled all necessary information	2) Display admin page. 4) Display new admin registration page 7) Display “Successfully created” message 11) End use case.
Post condition	Return the page into “registration” page.	

Table 5: UC001-C - Admin Registration

4) Use case documentation for Login

Use case ID	UC002	
Use case name	Login	
Actor	Teacher, Student, and Admin.	
Description	Authenticate, and Authorized users.	
Precondition	The users are must have and Email address and password to login to the system	
Basic Flow	User Action	System Response
	1) The users are insert their Email address and password 2) Then click login button.	3) The system validates the entered Email address, and password, then display the main page. 4) End use case.
Post condition	The users use their own pages.	
Alternative flows	If the users insert invalid information	
	5) The users reinsert the correct Email address and password.	5.1) The system display “Incorrect Email address or password please check again”

Table 6: UC002 – Login

5) Use case documentation for Evaluation Management

Use case ID	UC003	
Use case name	Evaluation Management	
Actor	Admin	
Description	The admin to add, and manage evaluation questions for teachers.	
Precondition	Admin is logged into the system. Access to the evaluation management functionality is available.	
Basic Flow	User Action	System Response
	1) Admin navigates to the "Evaluation Question" section. 3) Admin views the existing evaluation questions is any. 4) Admin adds a new evaluation, include Question Text, Question Type, Multiple Choice and others. 5) Optionally, admin edits or deletes existing evaluation questions.	2) The system displays the "Evaluation" page. 6) The system stores the updated evaluation questions in the database. 7) The system display successfully message. 8) End use case.
Post condition	Evaluation questions for teachers are successfully updated and stored in the system.	

Table 7: UC003 – Evaluation

6) Use case documentation for User Management

Use case ID	UC004
Use case name	User Management
Actor	Admin
Description	The admin to manage user accounts on the Taskmaster Assignment Helper and CV Maker website, including creation, modification, and deactivation.

Precondition	Admin is logged into the system. Access to user management functionality is available.	
Basic Flow	User Action	System Response
	1) Admin navigates to the "User Management" section of the website. 2) Admin views a list of existing user accounts with relevant details (e.g., name, role, status). 3) Optionally, admin modifies existing teacher account details or role. 4) Admin deactivates a user account, changing its status to "Inactive".	2) The system display “User Management” section. 5) System updates the user accounts in the database based on the admin's actions. 6) End use case
Post condition	User accounts are successfully created, modified, or deactivated based on the admin's actions.	
Alternative flows	If the admin wants to modify and reactive the teacher account	
	6.1) Modify User Details: If the admin chooses to modify an existing user's details. 6.2) Reactivate User Account: If needed, the admin can reactivate a previously deactivated user account, changing its status to "Active".	6.3) the system updates the user information accordingly.

Table 8: UC 004 - User Management

7) Use case documentation for CV Management

Use case ID	UC005	
Use case name	CV Management	
Actor	Admin.	
Description	Allows the admin to manage Curriculum Vitae (CV) details for to create easily accessible and more interactive templates for users. It includes viewing, editing, and updating CV information on behalf of all users.	
Precondition	Admin is logged into the system. Access to CV management functionality is available.	
Basic Flow	User Action	System Response
	1) Admin navigates to the "CV Management" section of the website. 3) Admin views a list of created CVs. 4) Admin selects a specific CV for manage or create new. 6) Admin views and edits the CV details, including personal information, education, experience, and skills samples. 7) Admin saves the changes, updating the CV in the system.	2) The system display "CV Management" section. 5) The system display "CV creator interface. 8) System stores the updated CV details in the database. 9) End use case
Post condition	The CV details are successfully updated based on the admin's actions.	

Table 9: UC005 - CV Management

8) Use case documentation for Assignment Management

Use case ID	UC006	
Use case name	Assignment Management	
Actor	Admin	
Description	The admin to assign assignments for teachers and manage them to submit before student assign deadline.	
Precondition	Admin is logged into the system. Access to the assignment management functionality is available.	
Basic Flow	User Action	System Response
	1) Admin navigates to the "Assignment Management" section. 3) Admin views the assignment status. 4)When it's a new assignment arrange helper (Teacher). 5) Save an update.	2) The system displays the "Assignment" page. 6) The system saved the admin change into the database. 7) The system display successfully message. 8) End use case
Post condition	Assignment details, submissions, grades, and feedback are successfully managed and stored in the system	

Table 10: UC006 - Assignment Management

9) Use case documentation for Resource Management

Use case ID	UC007
Use case name	Resource Management
Actor	Admin
Description	This use case involves the process of the admin providing educational resources on the website. Resources may include documents, links, or other materials useful for both students and teachers.
Precondition	Educational resources are successfully provided and stored in the system.

Basic Flow	User Action	System Response
	1) Admin navigates to the "Resource Management" section of the website. 3) Admin uploads educational resources, providing a title, description, and category for each resource.	2) The system displays the “Resource Management” section. 4) System stores the uploaded resources in the database. 5) End use case
Post condition	Admin gains insights into the requested data through the generated report.	
Alternative Flows	If the admin wants to edit, update, and delete	
		6.1) The system updates the database follow by admin action

Table 11: UC007 - Resource Management

10) Use case documentation for Report

Use case ID	UC008	
Use case name	Report	
Actor	Admin	
Description	This use case allows the admin to generate and view reports on various aspects of the website.	
Precondition	Admin is logged into the system. Access to the report generation functionality is available.	
Basic Flow	User Action	System Response
	1) Admin navigates to the "Admin Report" section of the website. 3) Admin selects the type of report to.	2) The system displays the “Report” page. 4) System generates the requested report based on the selected parameters and data sources

	5) Admin views and analyzes the generated report.	6) System stores a record of the generated report for future reference. 7) End use case
Post condition	Admin gains insights into the requested data through the generated report.	
Alternative Flows	User Action	System Response
	8) If the admin wants to export the report for offline use.	8.1) The system provides options for exporting in different formats (e.g., PDF).

Table 12: UC008 – Report

11) Use case documentation for Ask Questions

Use case ID	UC009	
Use case name	Ask Questions	
Actor	Student	
Description	This use case enables students to ask questions on the website, seeking clarification or assistance on specific topics or assignments.	
Precondition	Student is logged into the system. Access to the "Ask Question" functionality is available.	
Basic Flow	User Action	System Response
	1) Student navigates to the "Ask Question" section of the website. 3) Student selects the category or subject for the question, and enters the question in a text field. 4) Optionally, student provides additional context	2) The system displays the “Ask Question” page. 6) System stores the question in the database with a unique question ID. 7) System notifies relevant actors (e.g., teachers, admin) about the new question. 8) End use case.

	or details such as upload resources for better understanding. 5) Student submits the question.	
Post condition	Student's question is successfully submitted for review and response.	

Table 13: UC009 - Ask questions

12) Use case documentation for Feedback

Use case ID	UC010	
Use case name	Feedback	
Actor	Student	
Description	This use case allows students to provide feedback on the performance of teachers on the Taskmaster Assignment Helper and CV Maker website. Feedback may include ratings, comments, and suggestions for improvement.	
Precondition	Student is logged into the system. Access to the "Feedback" functionality is available.	
Basic Flow	User Action	System Response
	1) Student navigates to the "Feedback" section of the website. 3) Student selects the teacher for whom they want to provide feedback. 5) Student rates the teacher's performance using a predefined scale (e.g., 1 to 5 stars). 6) Student submits the feedback.	2) The system displays the “Feedback” page. 4) The system displays the selected teacher page. 7) The system stores the feedback in the database, associating it with the respective teacher and student. 8) End use case.

Post condition	Student's feedback is successfully submitted for the specified teacher.	
Alternative flow	Detail feedback submission.	
	9) If the student provides detailed comments.	9.1) The system display “Thank you for your feedback”.

Table 14: UC010 – Feedback

13) Use case documentation for CV Maker

Use case ID	UC011	
Use case name	CV Maker	
Actor	Student, Teacher	
Description	This use case involves the process of creating, managing, and updating Curriculum Vitae (CVs) by users, specifically job seekers, using the CV Maker functionality on the website.	
Precondition	The user is registered and logged into the system. Access to the "CV Maker" functionality is available.	
Basic Flow	User Action	System Response
	1) The user navigates to the "CV Maker" section of the website. 3) The user views their existing CV and edit by entering personal information, education details, work experience, skills, etc. 4) The user customizes the CV template, choosing layouts, fonts, and styles. 5) The user previews the CV to ensure accuracy and completeness.	2) The system displays the “CV Maker” section. 6) The system previews the user CV. 8) The system saves the created CV in the database 9) End use case.

	7) The user saves the CV.	
Post condition	The user CV is successfully created or updated and stored in the system.	
Alternative flow	If the user wants to print or download.	
	10) Click print or download	10) The system displays downloadable and printable page.

Table 15: UC011 - CV Maker

14) Use case documentation for Evaluation

Use case ID	UC012	
Use case name	Evaluation	
Actor	Teacher	
Description	This use case involves the process of evaluating teachers' performance by administrators on the Taskmaster Assignment Helper and CV Maker website. The evaluation may include various criteria such as teaching effectiveness, communication skills, overall performance, and upload required documents.	
Precondition	Admin is logged into the system. Access to the "Teacher Evaluation" functionality is available.	
Basic Flow	User Action	System Response
	1) Teacher navigates to the "Evaluation" section of the website after register. 3) Teacher gives answers for listed question. 4) Upload required documents, and click submit.	2) The system displays the “Evaluation” section. 5)The system upload into database by teacher action. 6) The system display “Thank you for your submission.” message 7) Display the teacher evaluation status passed.

		9) End use case.
Post condition	Teacher's performance is evaluated, and the evaluation details are stored in the system.	
Alternative flow	If the teacher result is not pass.	
		10) The system displays “Your evaluation result is not successfully passing the requirement.”

Table 16: UC012 – Evaluation

15) Use case documentation for Assignment List

Use case ID	UC013	
Use case name	Assignment List	
Actor	Teacher	
Description	This use case involves the process of teachers submitting solutions for assignments on the website. Teachers provide detailed answers students' assignments.	
Precondition	Teacher is logged into the system. Access to the "Assignment List" functionality is available.	
Basic Flow	User Action	System Response
	1. Teacher navigates to the "Assignment List" section of the website. 3) Teacher selects the assignment for which a solution needs to be submitted filter by submitted date.	2) The system displays the “Assignment List” section. 5) System stores the submitted solution in the database and notifies the relevant students.

	4) Teacher uploads the solution document or enters detailed answers directly into the system.	
Post condition	Teachers submitted the assignment is successfully, and stored in the system. Students are notified the assignment is solved.	

Table 17: UC013 - Assignment List

16) Use case documentation for Notification

Use case ID	UC014	
Use case name	Notification	
Actor	Teachers, Students, Admin	
Description	This use case describes the process of notifying users within the Taskmaster Assignment Helper and CV Maker website. Notifications are crucial for alerting users about events, updates, or actions related to their account or activities on the platform.	
Precondition	The user is logged into the system. The system has relevant information or events to notify the user about.	
Basic Flow		
	1. Generate Notification: - The system generates a notification based on specific events or updates. 2. Determine Recipient: - The system determines the appropriate recipient(s) for the notification based on the nature of the event. 3. Deliver Notification: - The system delivers the notification to the designated recipient(s). 4. Display Notification: - The user receives and views the notification through the chosen communication channel. 5. User Interaction:	

	- The user may interact with the notification, such as clicking to view more details, acknowledging receipt, or taking specific actions prompted by the notification.
Post condition	- The user has received and interacted with the notification as necessary.

Table 18: UC0014 - Notification

3.4. Sequence diagram

A sequence diagram is a type of UML (Unified Modeling Language) diagram that illustrates the dynamic interactions between various components or actors in a system over time. It visually represents the sequence of messages exchanged between different entities, showcasing the flow of control and the order in which actions occur. Sequence diagrams are particularly useful for understanding and designing the behavior of a system in response to external stimuli or internal events. Sequence diagrams are typically associated with use case realizations in the logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.

1) Sequence Diagram for student registration

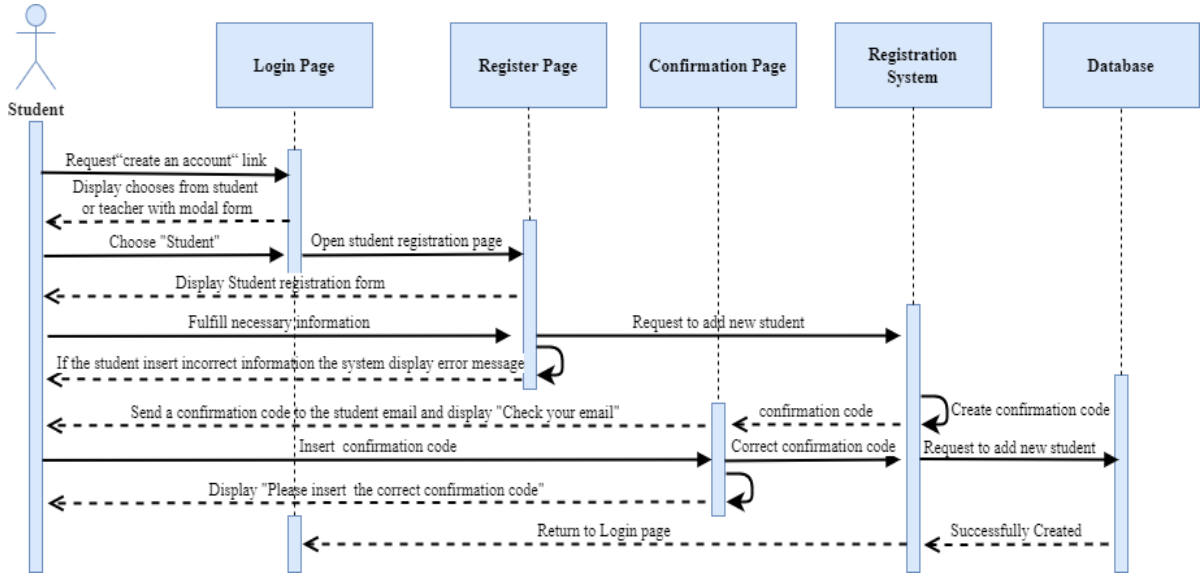

Figure 2: Sequence Diagram for student registration

2) Sequence Diagram for teacher registration

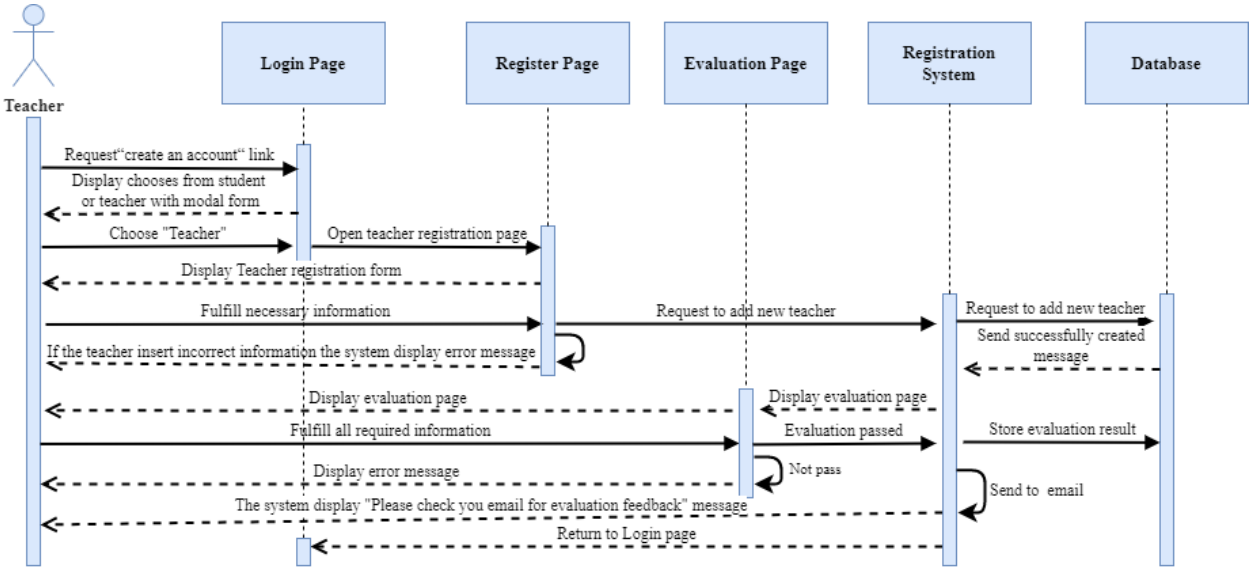

Figure 3: Sequence Diagram for teacher registration

3) Sequence Diagram for admin registration

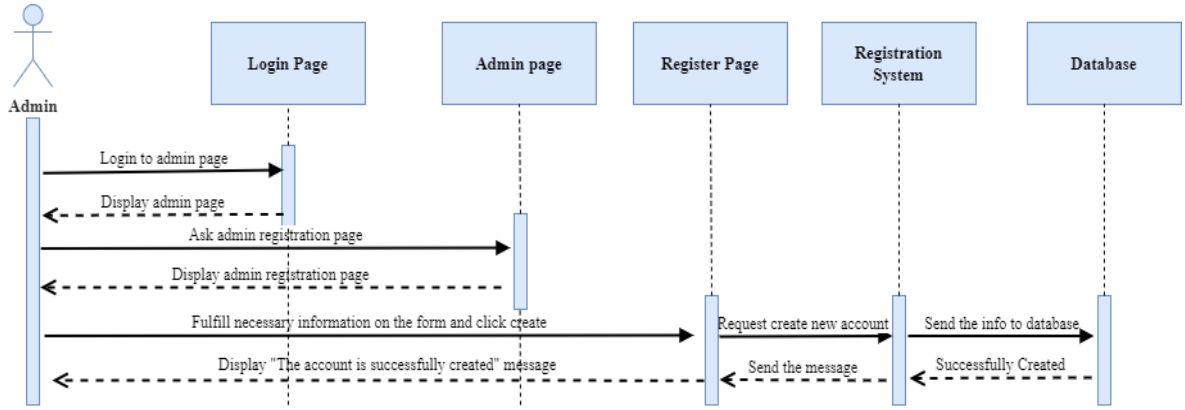

Figure 4: Sequence Diagram for admin registration

4) Sequence Diagram for login

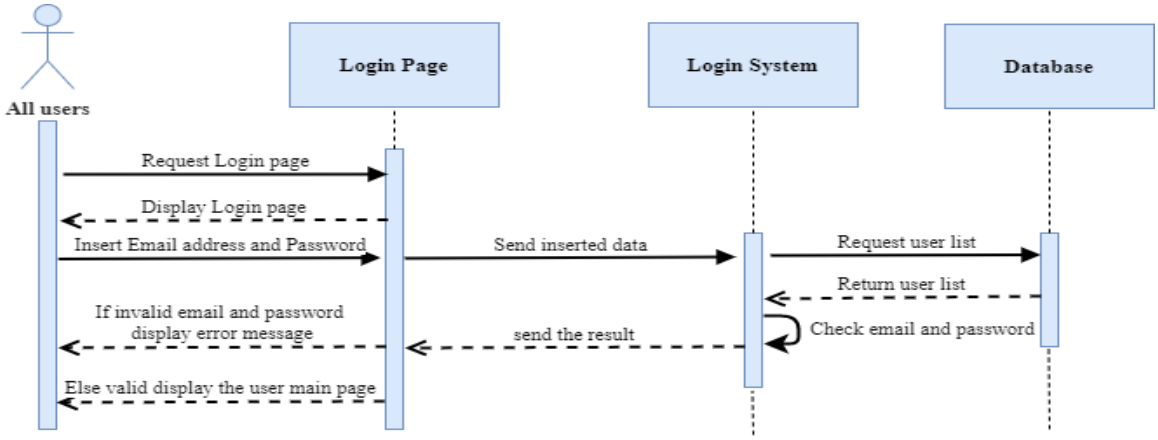

Figure 5: Sequence Diagram for login

5) Sequence Diagram for Evaluation Management

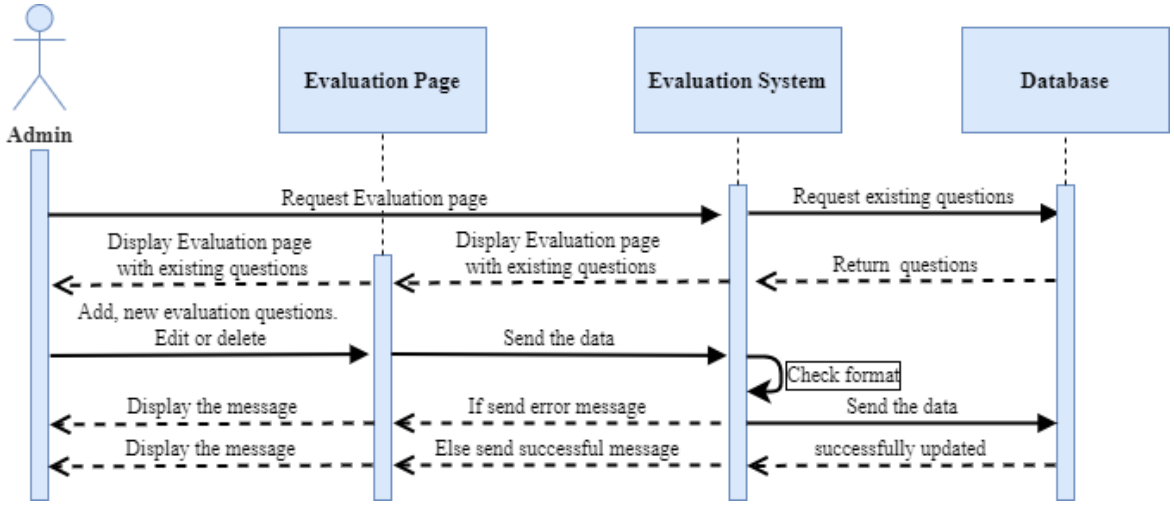

Figure 6: Sequence Diagram for Evaluation Management

6) Sequence Diagram for User Management

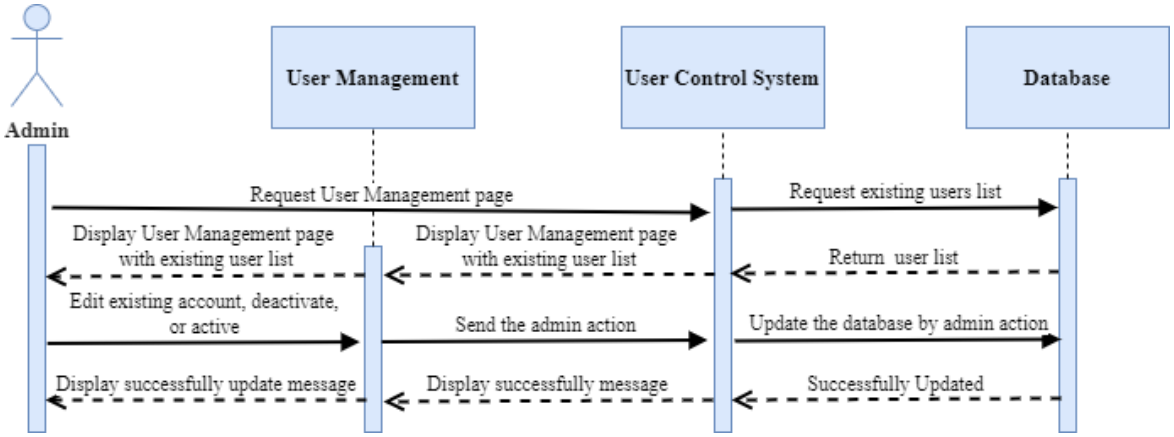

Figure 7: Sequence Diagram for User Management

7) Sequence Diagram for CV Management

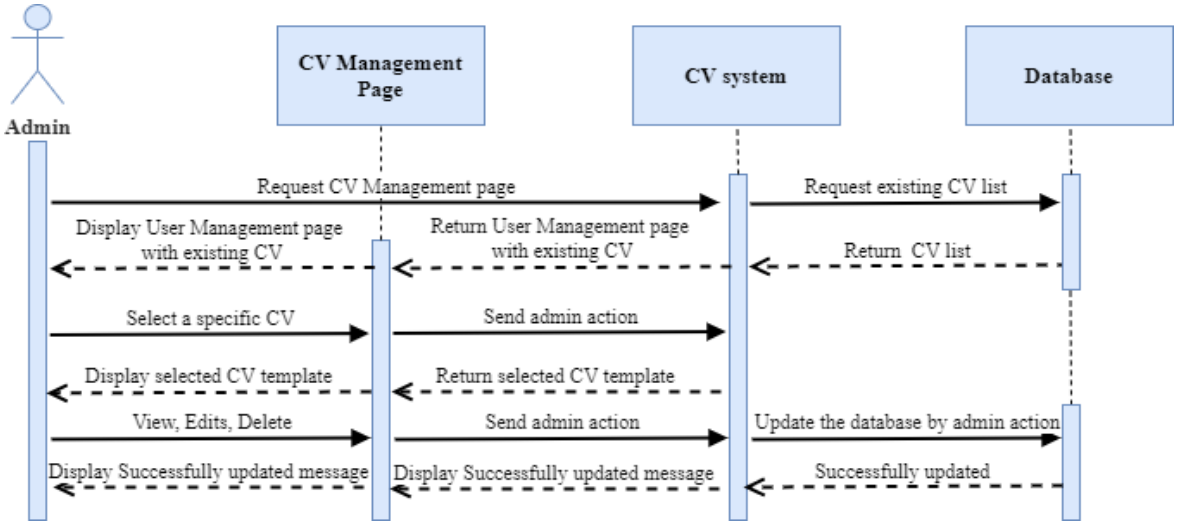

Figure 8: Sequence Diagram for CV Management

8) Sequence Diagram for Assignment Management

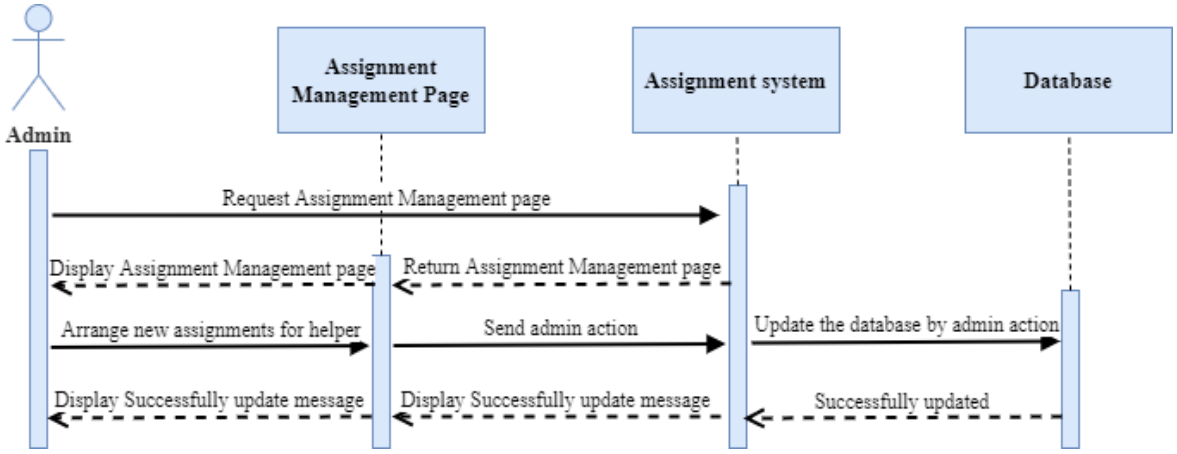

Figure 9: Sequence Diagram for Assignment Management

9) Sequence Diagram for Resource Management

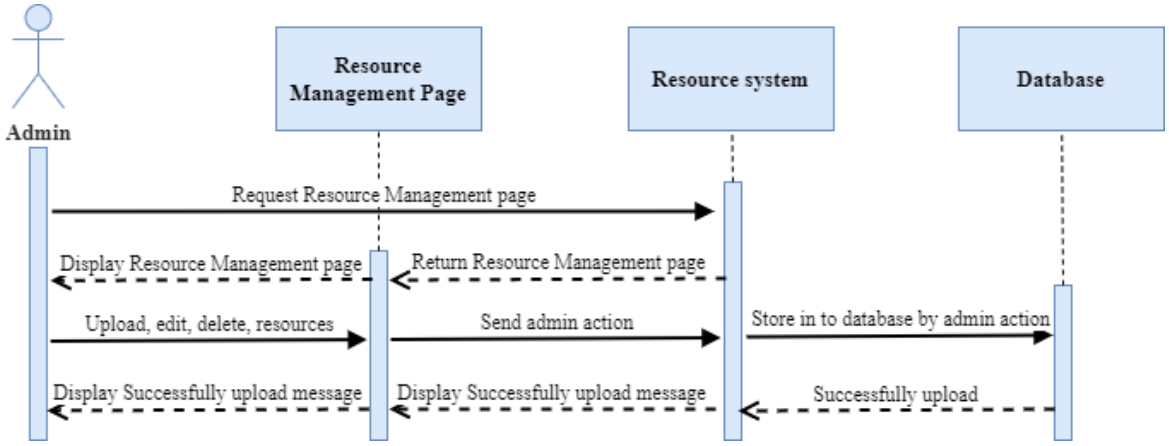

Figure 10: Sequence Diagram for Resource Management

10) Sequence Diagram for Report

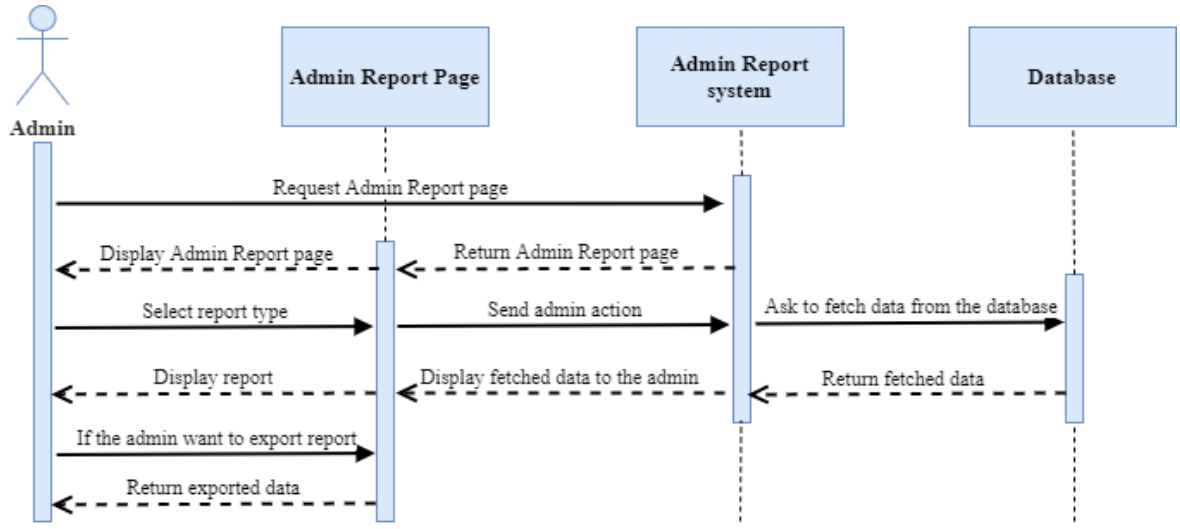

Figure 11:Sequence Diagram for Report

11) Sequence Diagram for Ask Questions

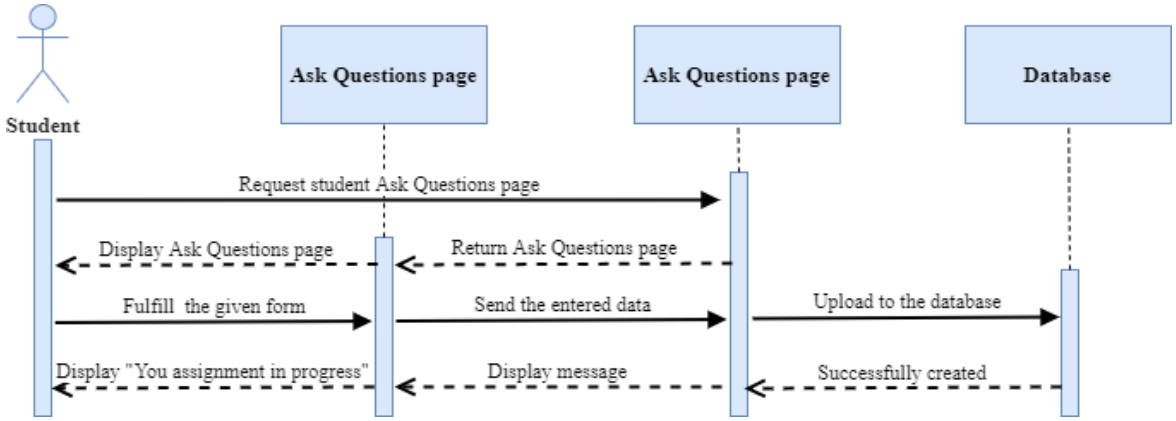

Figure 12: Sequence Diagram for Ask Questions

12) Sequence Diagram for Feedback

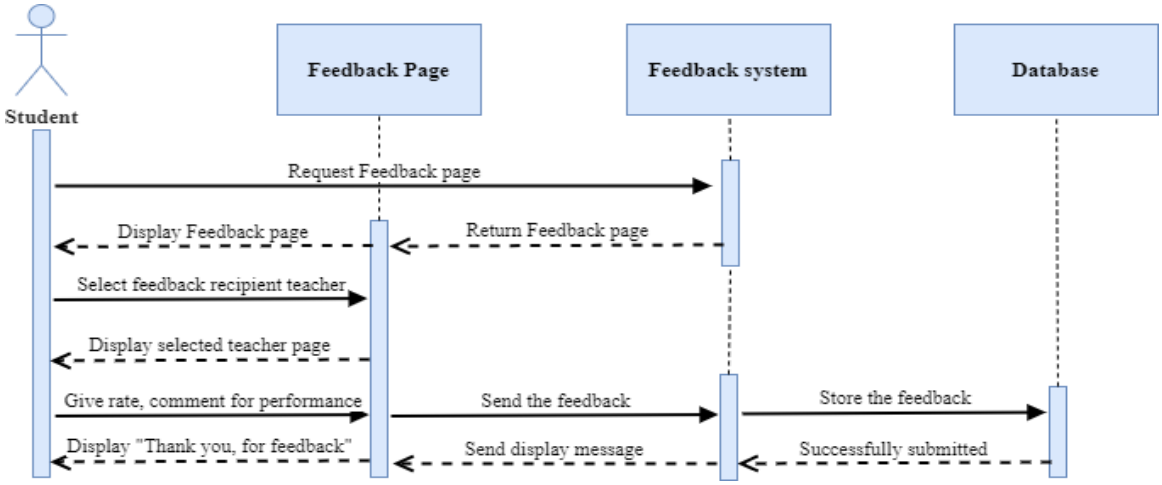

Figure 13: Sequence Diagram for Feedback

13) Sequence Diagram for CV Maker

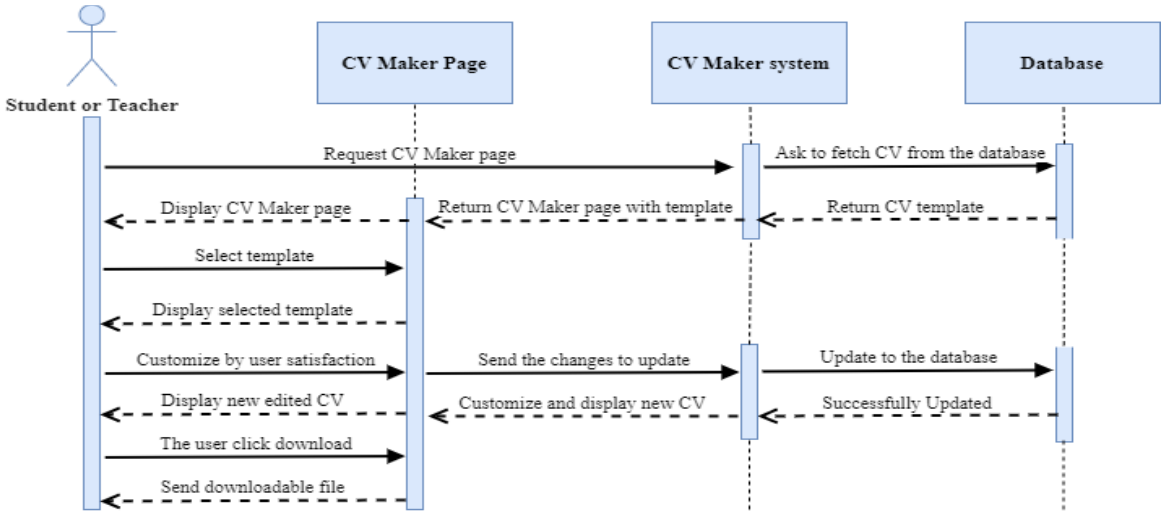

Figure 14: Sequence Diagram for CV Maker

14) Sequence Diagram for Evaluation

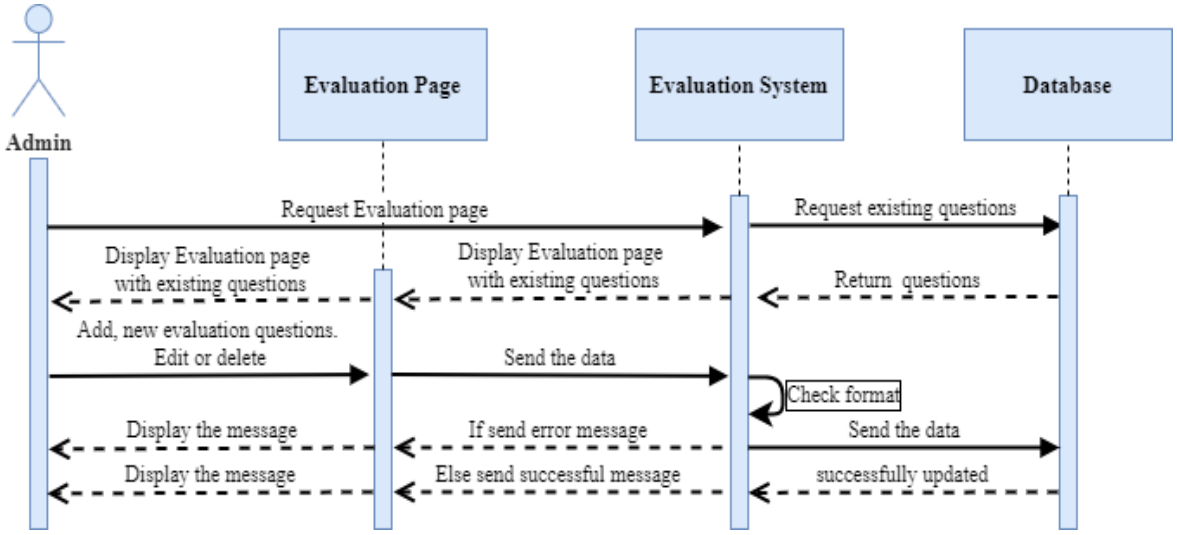

Figure 15: Sequence Diagram for Evaluation

15) Sequence Diagram for Assignment List

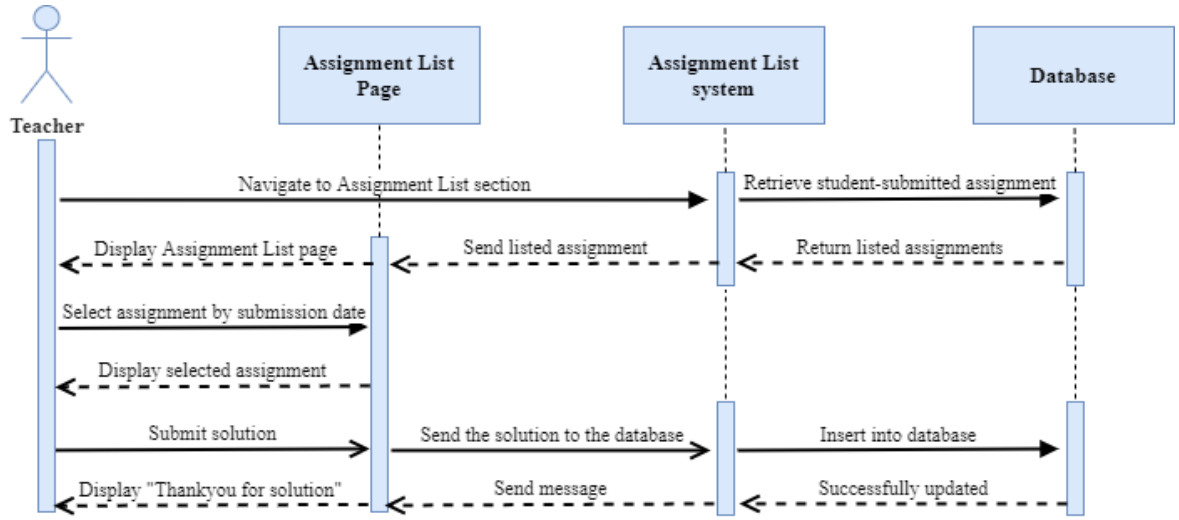

Figure 16: Sequence Diagram for Assignment List

16) Sequence Diagram for Notification

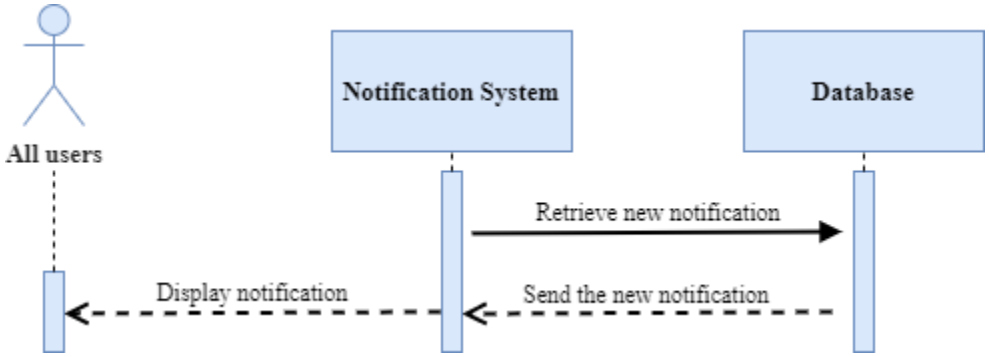

Figure 17: Sequence Diagram for Notification

3.5. Class modeling

Class modeling, an integral facet of software engineering, employs class diagrams to visually represent the structural elements of a system. In the context of our "Taskmaster Assignment Helper and CV Maker " website, class modeling serves as the blueprint for defining entities, their attributes, and the relationships between them.

Classes, the building blocks of our system, encapsulate both data and behaviors. The user, assignment, notification, CV, resource, and evaluation classes form the core entities, outlining the structure of users, assignments, notifications, CV, resources, and evaluations. Attributes capture specific properties, while relationships define how these entities interact.

Class modeling streamlines the design process, fostering clarity and modularity. It provides a visual roadmap for development, ensuring that our platform aligns seamlessly with envisioned user experiences. Through this process, we lay the foundation for an efficient and successful educational platform.

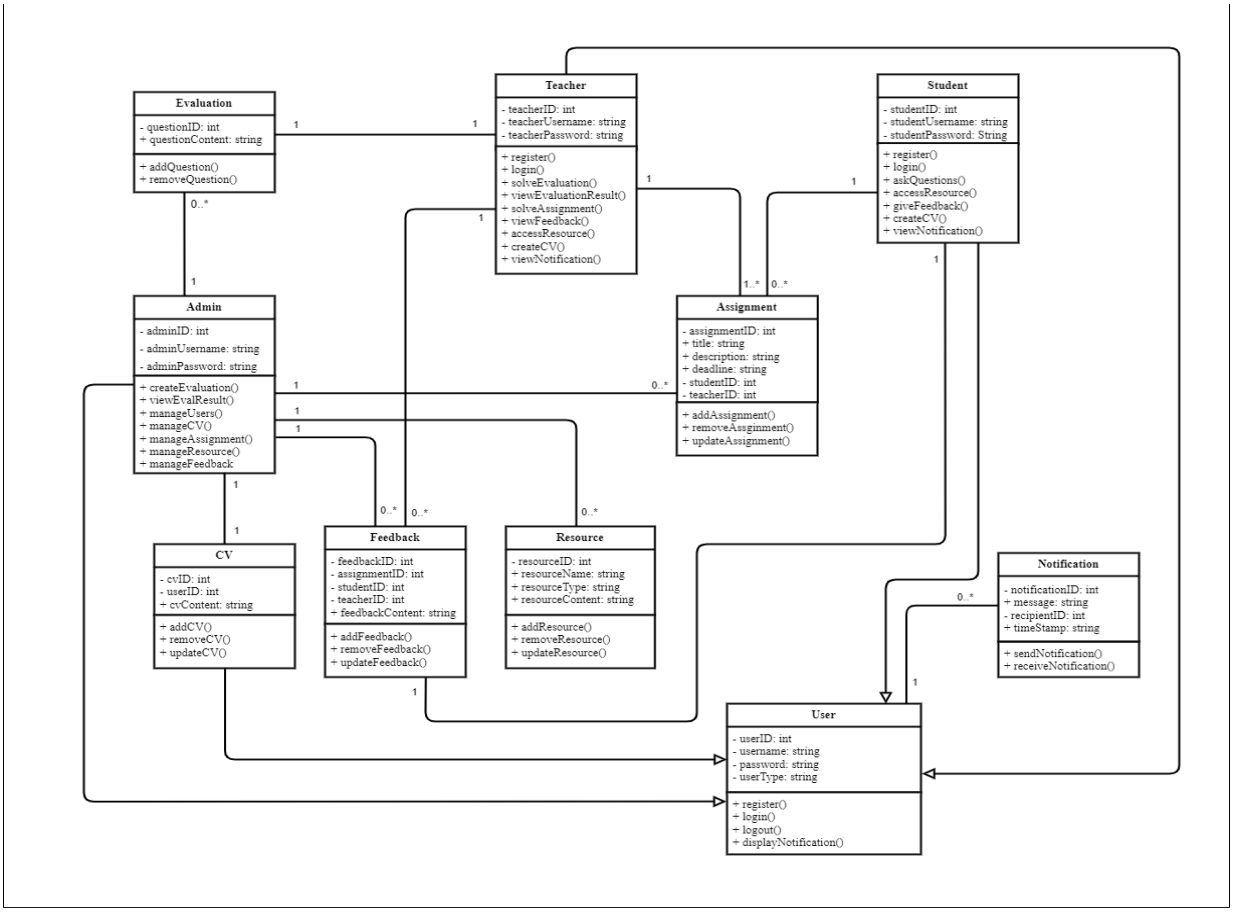

Figure 18: Class Modeling

3.6. Class diagram description

A class diagram is a static diagram. It represents the static view of an application. The class diagram is not only used for visualization, describing and documenting different aspects of a system but also for constructing executable code of the software application or website.

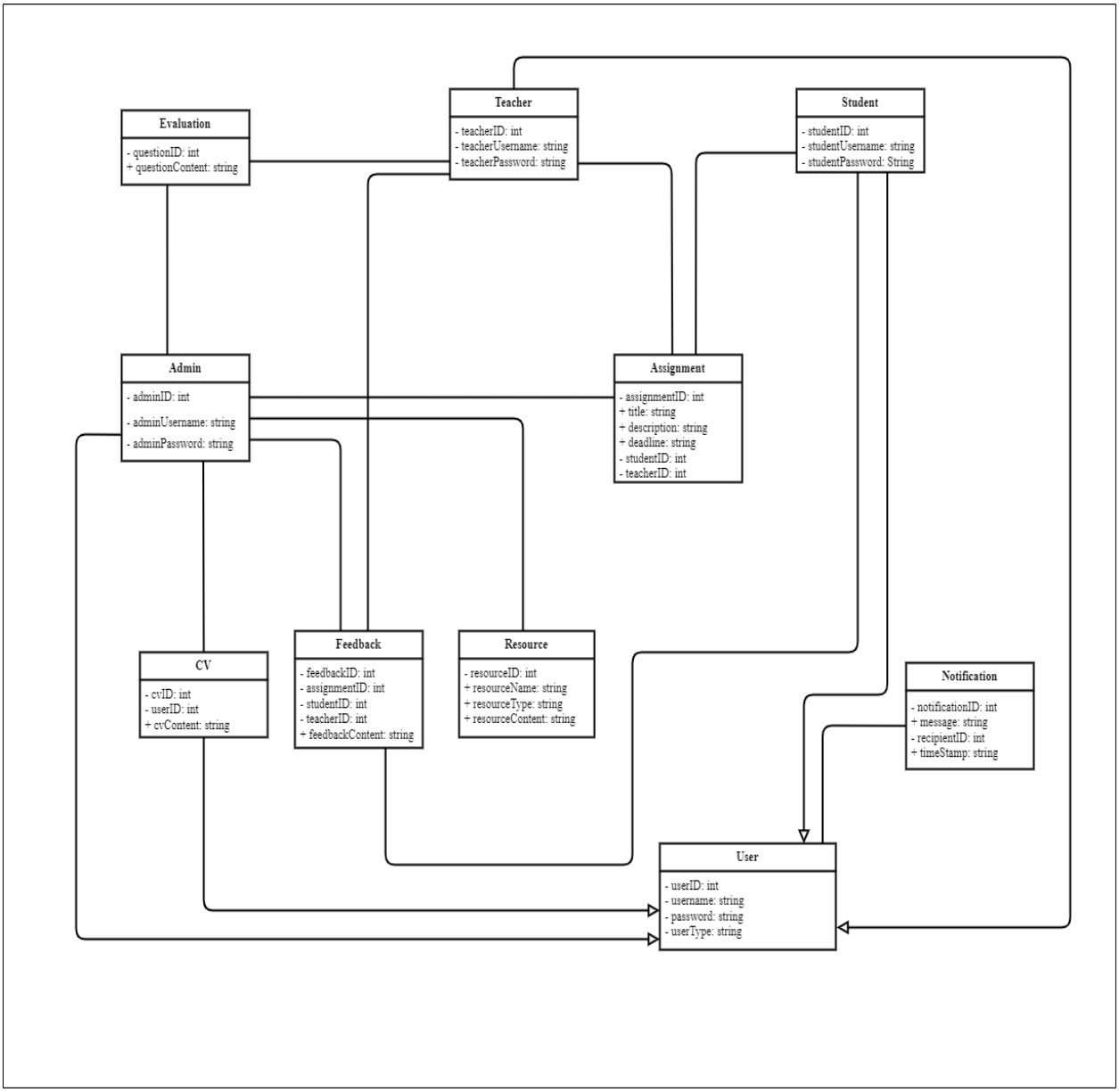

Figure 19: Class Diagram

3.7. Activity diagram

An activity diagram is a type of UML (Unified Modeling Language) diagram used to visualize the flow of activities or actions within a system or process. It represents the dynamic aspects of a system, focusing on the sequence of actions performed and the conditions governing their execution.

1) Activity diagram for student registration

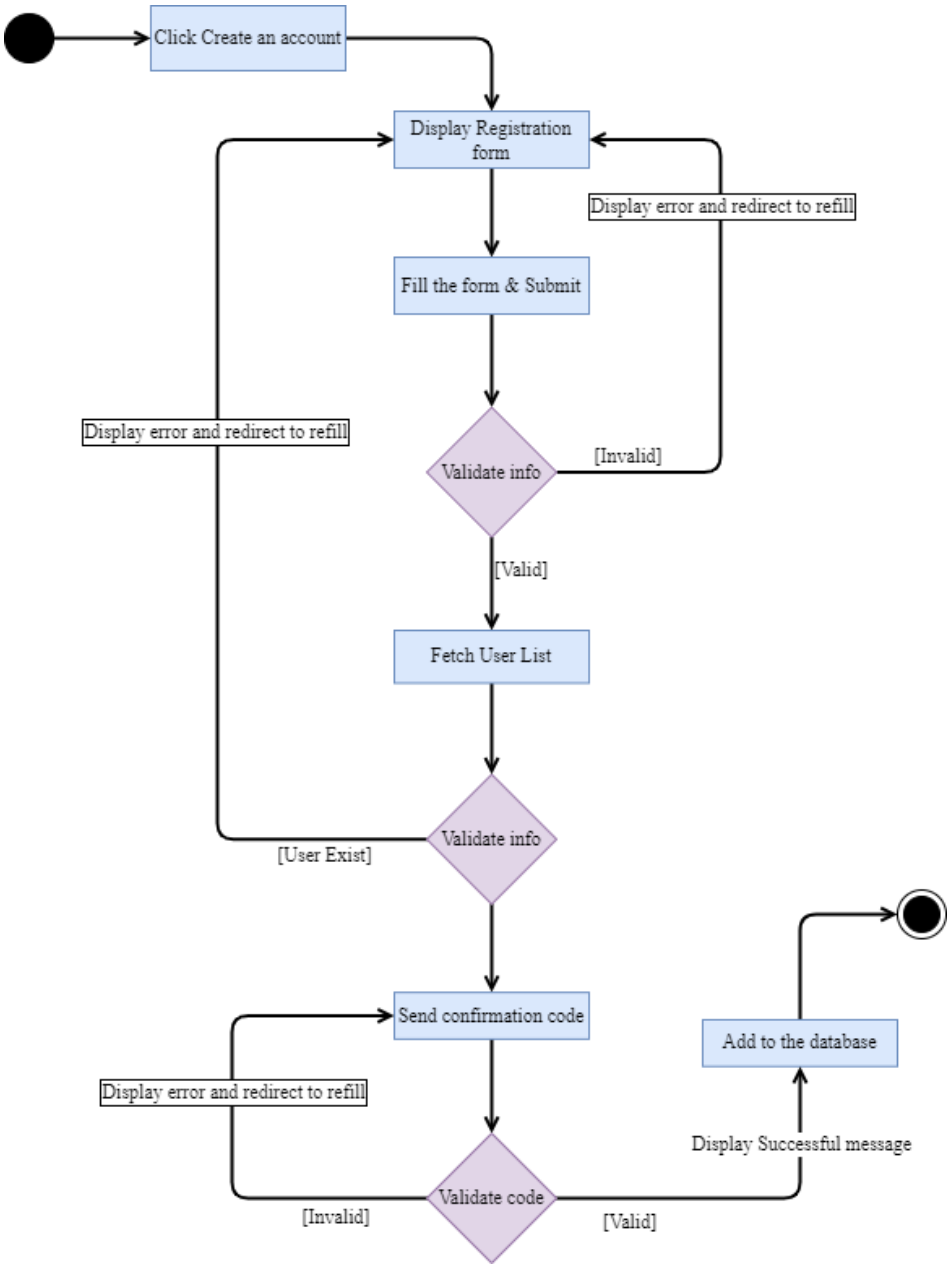

Figure 20: Activity diagram for student registration

2) Activity diagram for teacher registration

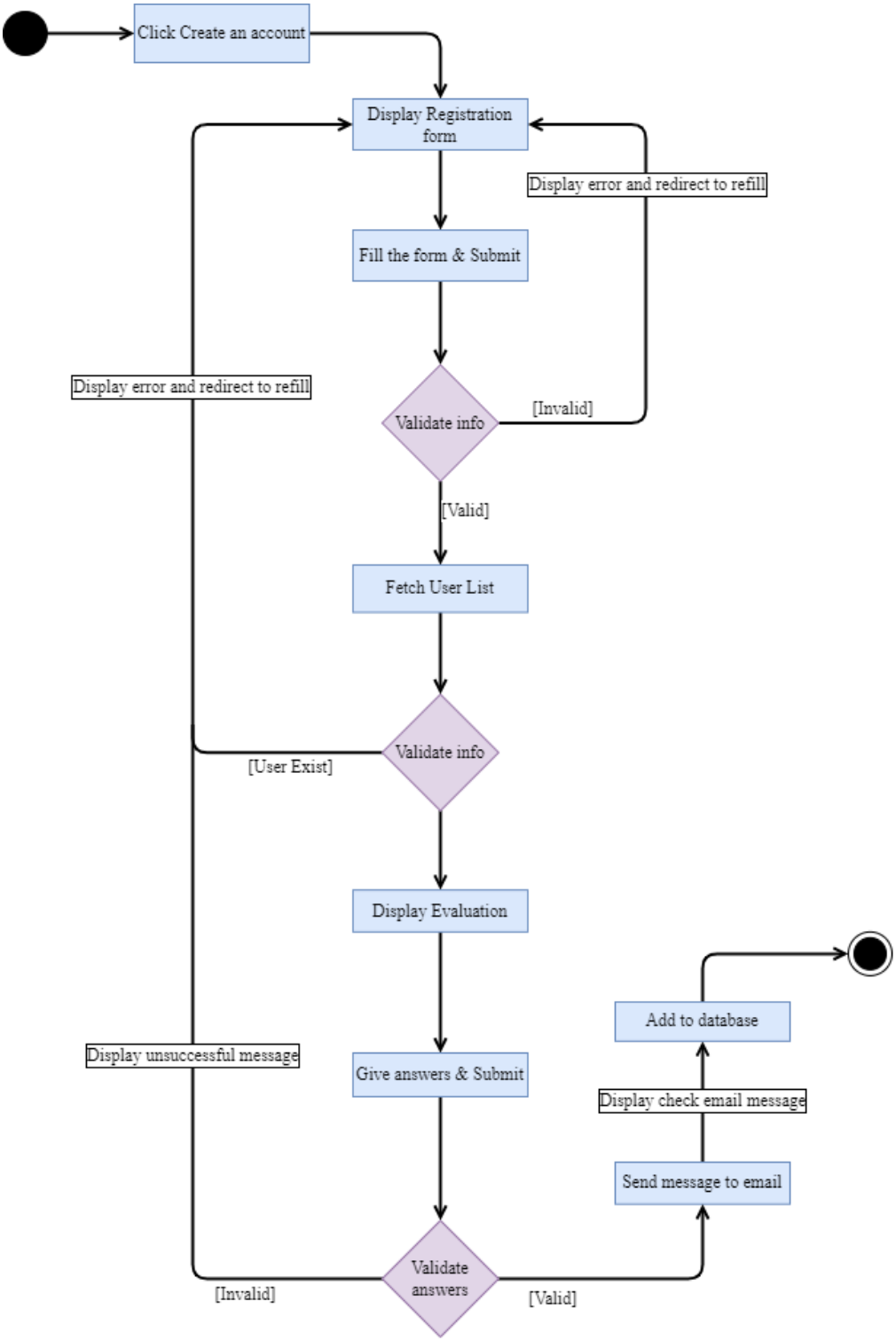

Figure 21: Activity Diagram for teacher registration

3) Activity diagram for admin registration

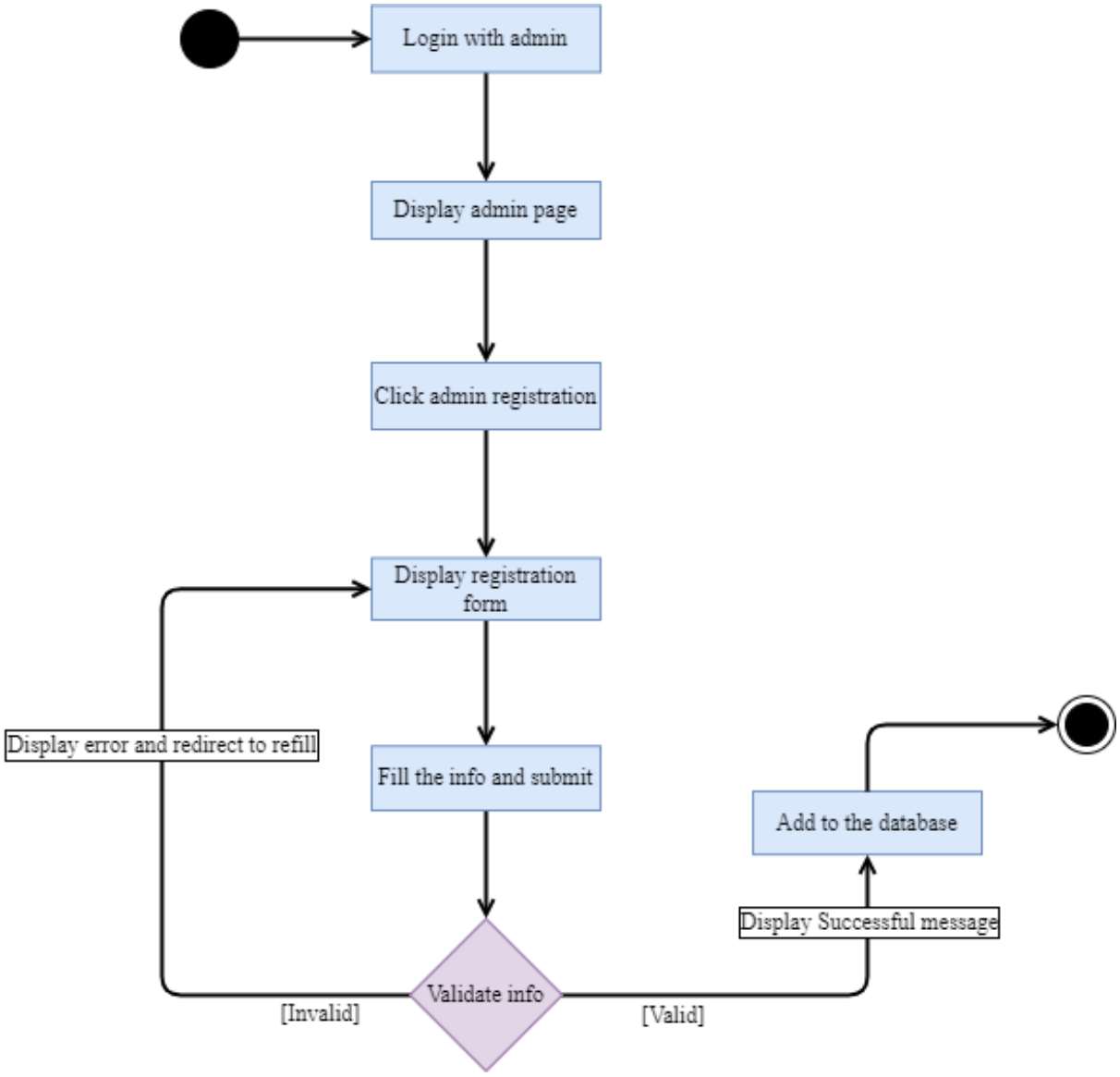

Figure 22: Activity diagram for admin registration

4) Activity diagram for login

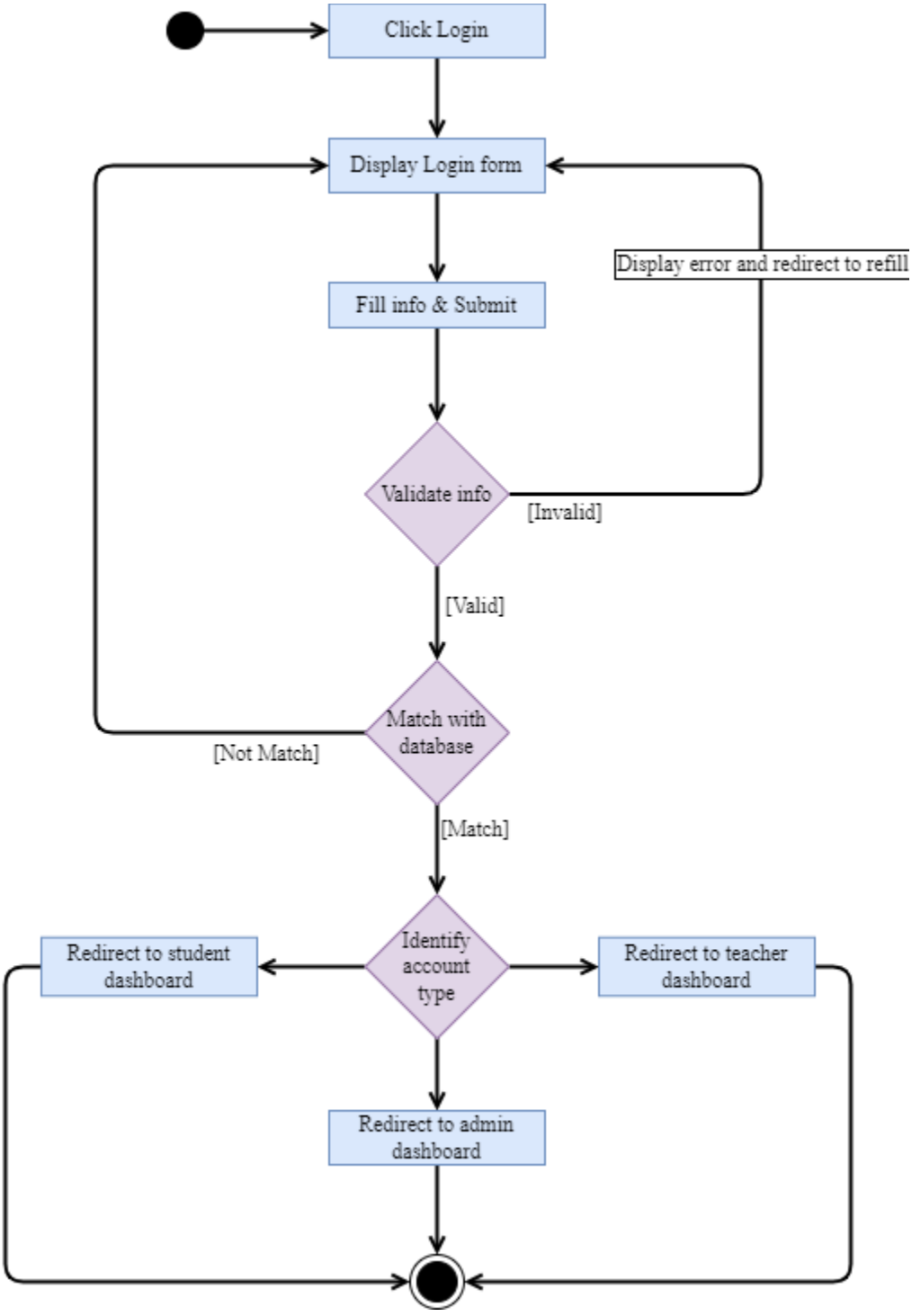

Figure 23: Activity diagram for Login

5) Activity diagram for Evaluation Management

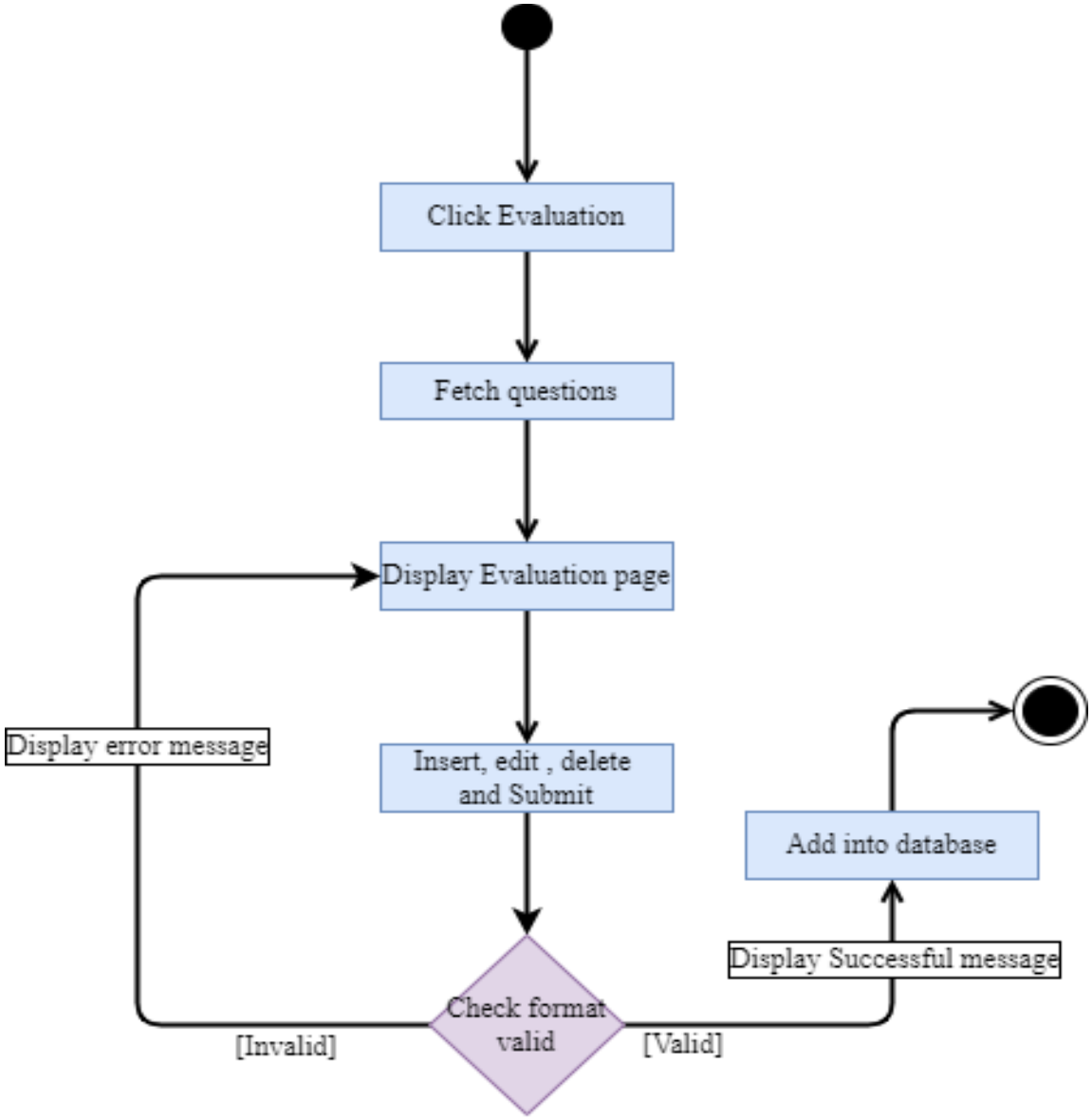

Figure 24: Activity diagram for Evaluation Management

6) Activity diagram for User Management

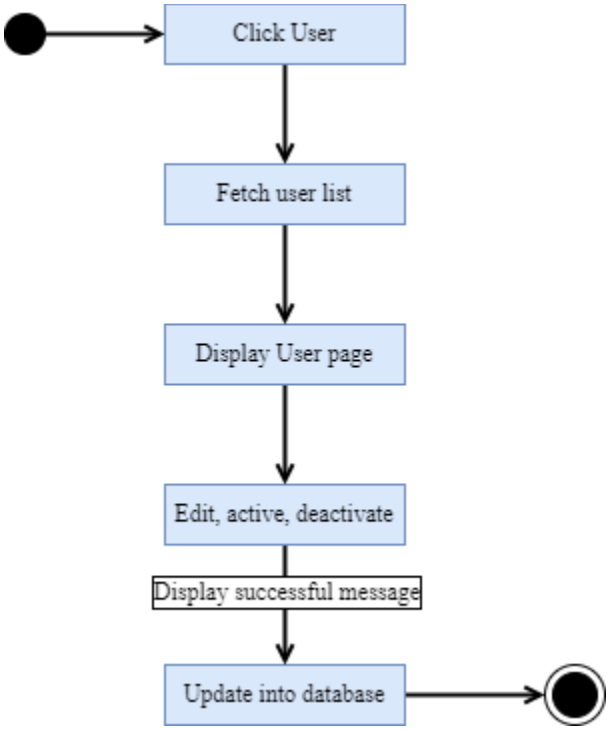

Figure 25: Activity diagram for User Management

7) Activity diagram for CV Management

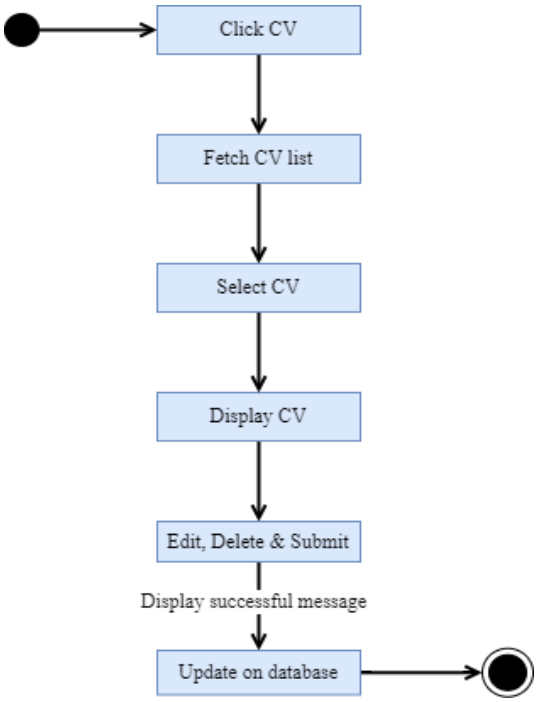

Figure 26: Activity diagram for CV Management

8) Activity diagram for Assignment Management

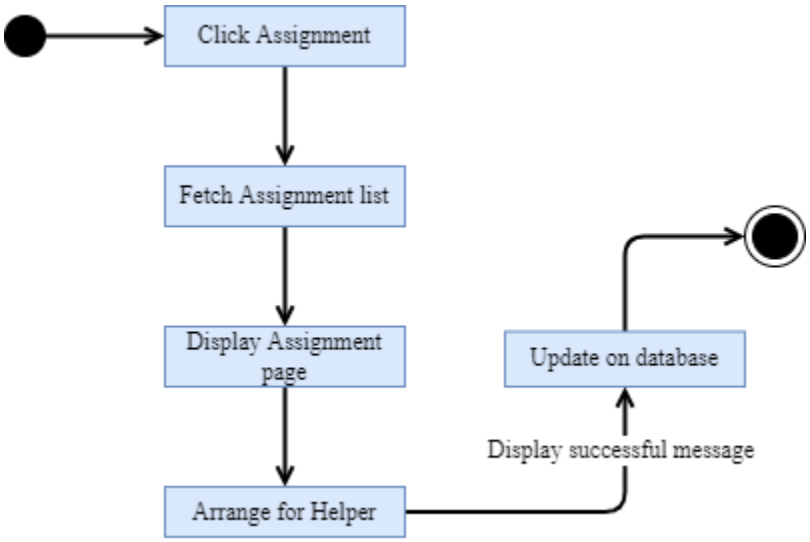

Figure 27: Activity diagram for Assignment Management

9) Activity diagram for Resource Management

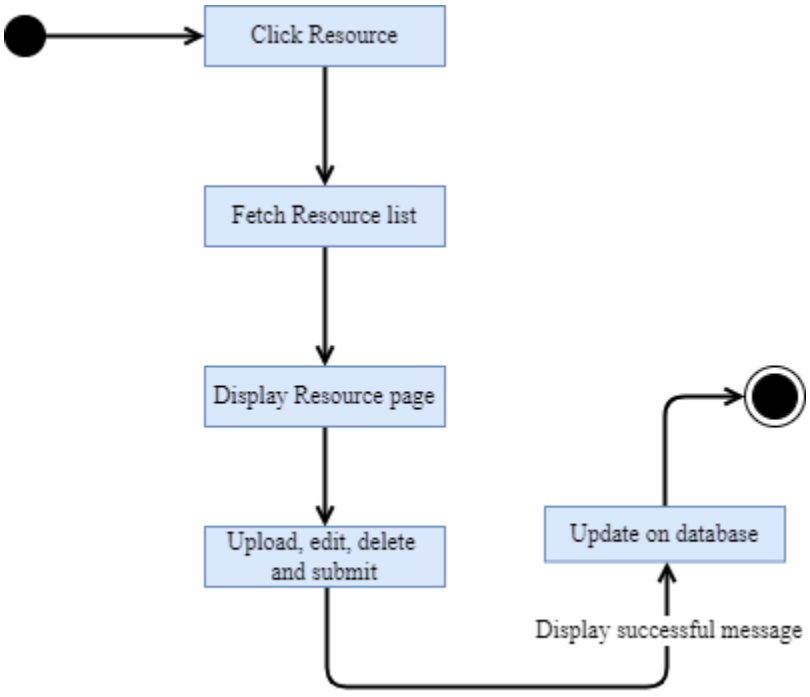

Figure 28: Activity diagram for Resource Management

10) Activity diagram for Report Generate

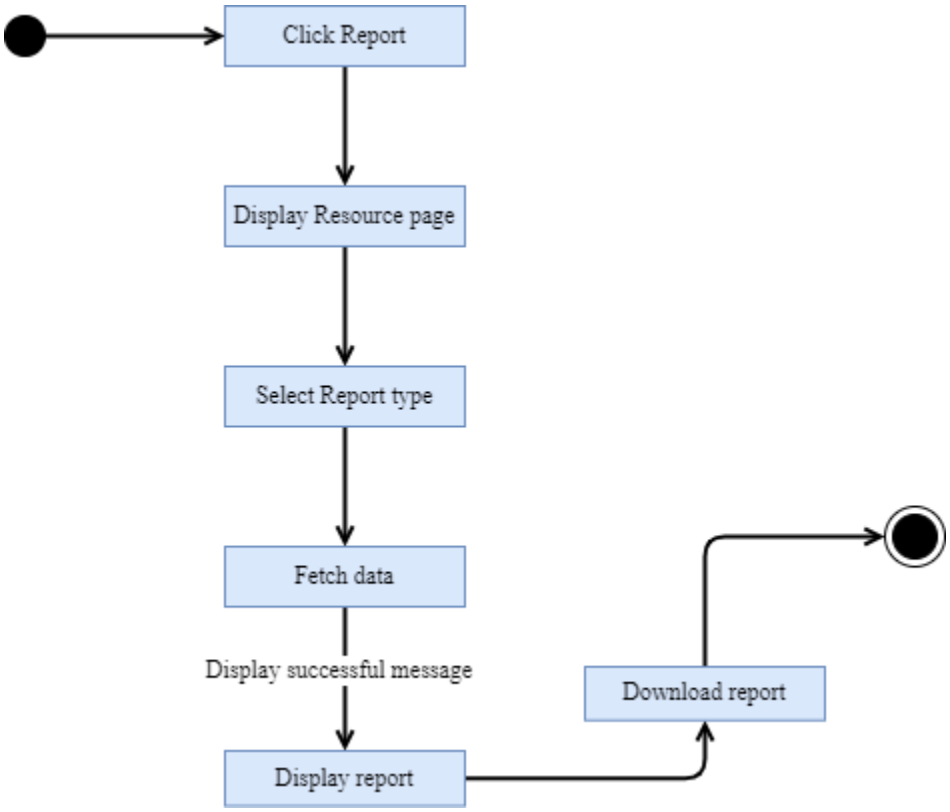

Figure 29: Activity diagram for Report Generate

11) Activity diagram for Ask Question

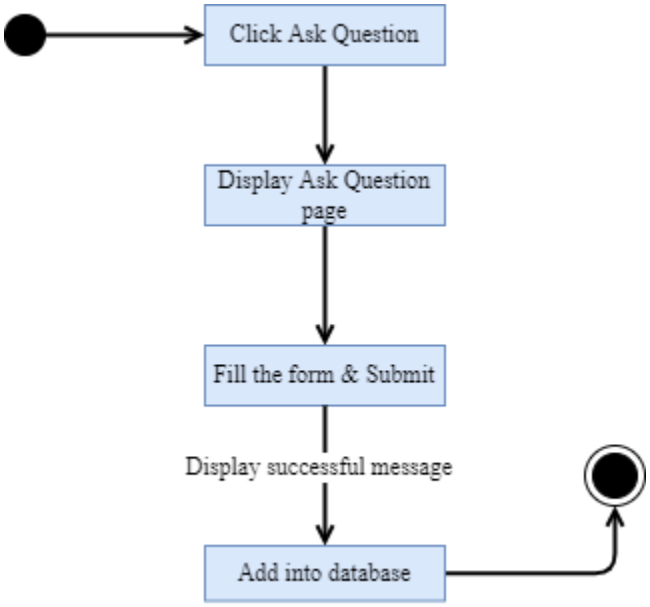

Figure 30: Activity diagram for Ask Question

12) Activity diagram for Feedback

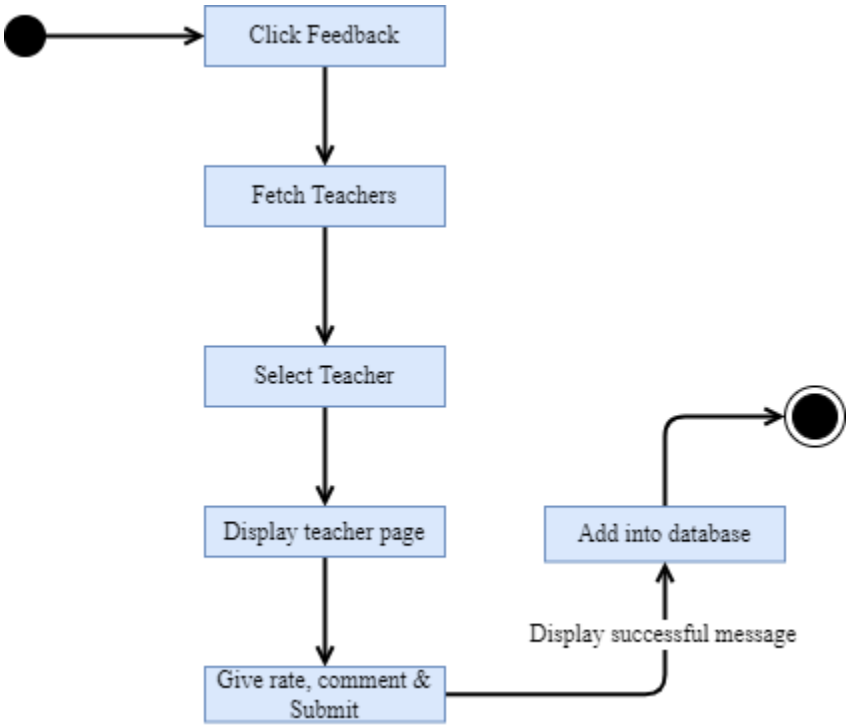

Figure 31: Activity diagram for Feedback

13) Activity diagram for CV Maker

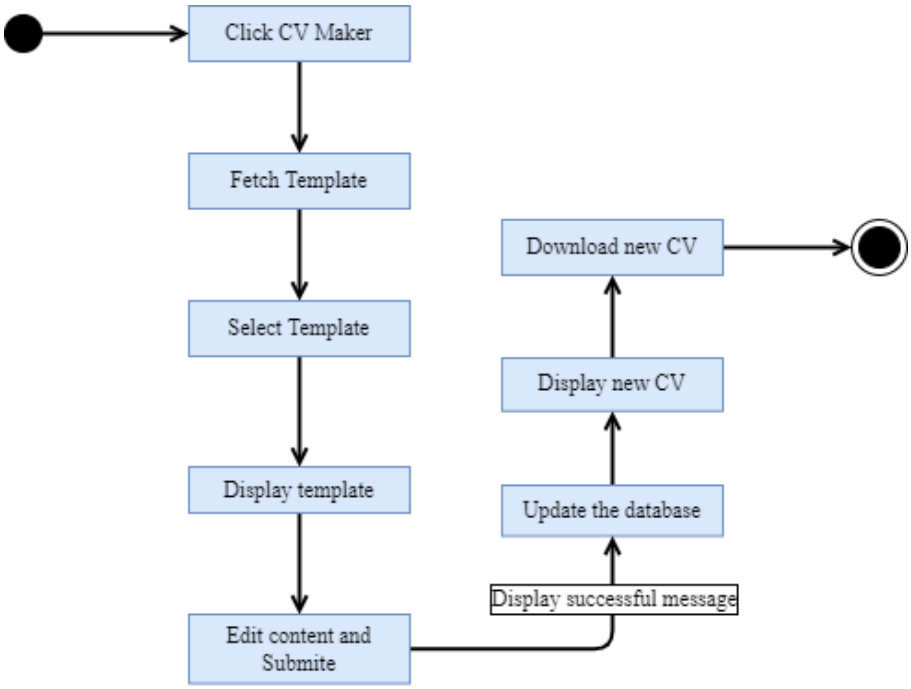

Figure 32: Activity diagram for CV Maker

14) Activity diagram for Assignment List

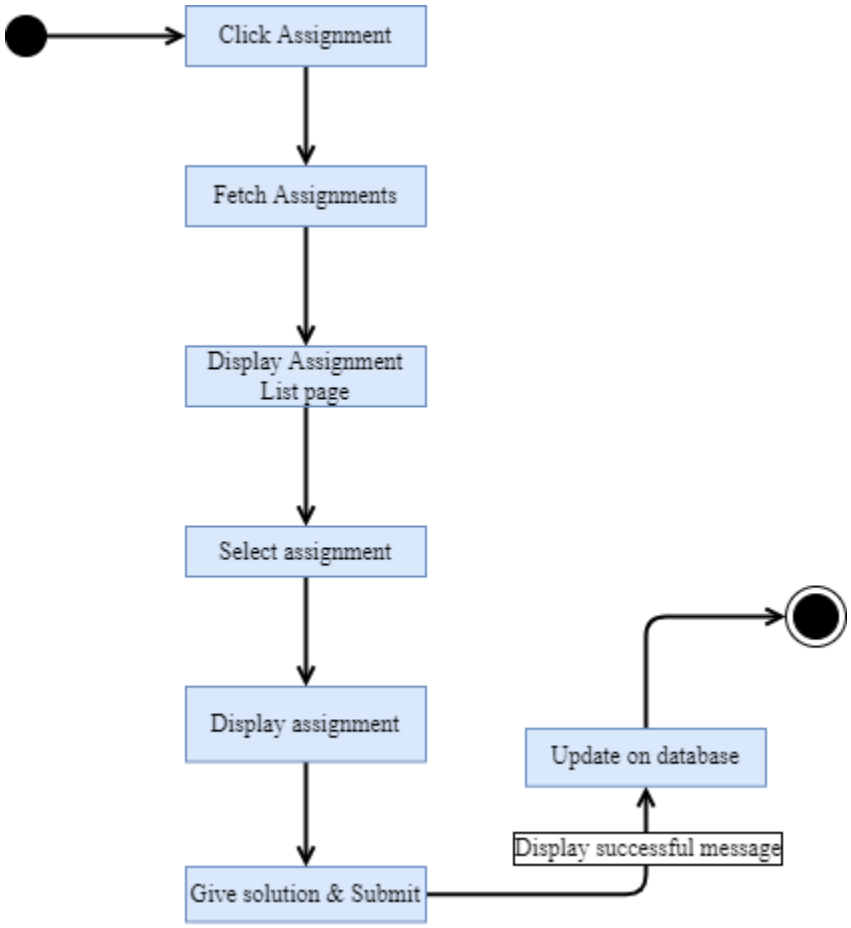

Figure 33: Activity diagram for Assignment List

15) Activity diagram for Notification

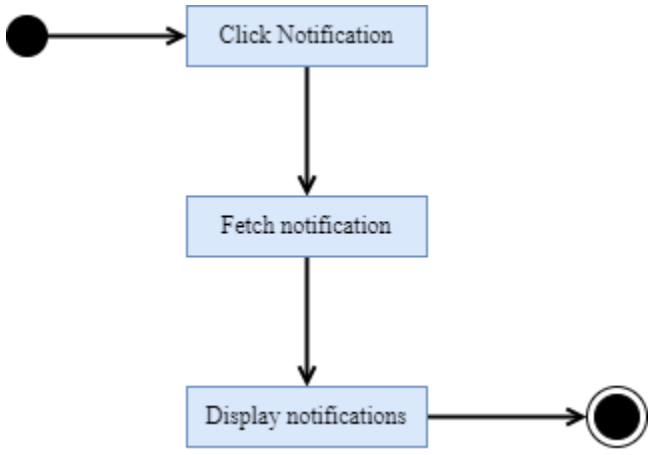

Figure 34: Activity diagram for Notification

CHAPTER FOUR
System Design

4.1. Introduction

System design is a critical phase in the software development lifecycle where the requirements gathered during the analysis phase are transformed into a comprehensive architecture. It involves defining the structure, behavior, and components of the system to meet the specified functional and non-functional requirements. In the context of Taskmaster Assignment Helper and CV Maker website, the system design phase aims to create a scalable, reliable, and user-friendly platform that fulfills the needs of students, teachers, and administrators.

This chapter provides an overview of the system design process for Taskmaster, focusing on key aspects such as design goals, performance considerations, subsystem decomposition, hardware and software mapping, access control, persistent data management, deployment diagram, and user interface design. By carefully planning and designing the system architecture, Taskmaster aims to deliver optimal performance, responsiveness, and security while providing an intuitive user experience.

Throughout this chapter, we will explore how Taskmaster addresses various design challenges and implements best practices to ensure the success of the project. From defining the system's goals and objectives to detailing the technical architecture and deployment strategy, each aspect of system design plays a crucial role in shaping the functionality and usability of Taskmaster. Through effective system design, Taskmaster endeavors to become a valuable tool for facilitating assignment assistance, CV creation, and resource provision in the educational domain.

4.2. Design Goal

Design goals in system design outline the overarching objectives and principles that guide the development of the system architecture. These goals serve as a roadmap for designing a solution that effectively addresses the needs and requirements of stakeholders. In the context of Taskmaster Assignment Helper and CV Maker website, the design goals may include:

1) **Scalability**: The system should be able to handle a growing number of users, assignments, and resources without experiencing performance degradation. It should scale seamlessly to accommodate increasing demands.

2) **Reliability**: The system should be robust and dependable, ensuring uninterrupted availability and functionality. It should minimize downtime and errors, providing users with a consistent and reliable experience.
3) **User-Friendliness**: The system should be intuitive and easy to use for students, teachers, and administrators. It should feature a clean and intuitive user interface, streamlined workflows, and helpful prompts to guide users through tasks effectively.
4) **Performance**: The system should deliver optimal performance, with fast response times and minimal latency. It should be capable of handling concurrent user interactions efficiently, ensuring a smooth and responsive user experience.
5) **Security**: The system should prioritize data security and privacy, implementing robust measures to protect sensitive information. It should enforce access controls, encryption, and authentication mechanisms to prevent unauthorized access and data breaches.
6) **Flexibility**: The system should be adaptable and flexible, allowing for customization and configuration to meet specific user requirements. It should support integration with external systems and services, enabling seamless interoperability and extensibility.
7) **Maintainability**: The system should be easy to maintain and update, with a well-organized codebase and documentation. It should facilitate modular development, code reuse, and version control, enabling developers to make changes and enhancements efficiently.
8) **Compliance**: The system should adhere to relevant laws, regulations, and industry standards governing data privacy, security, and accessibility. It should incorporate best practices for compliance and undergo regular audits and assessments to ensure adherence to standards.

4.3. Performance

Performance is a critical aspect of the Taskmaster Assignment Helper and CV Maker website, ensuring that the system operates efficiently and delivers a responsive user experience. Here are key considerations regarding performance:

- **Response Time**: The system should respond quickly to user interactions, such as logging in, accessing assignments, creating CVs, give feedback, and submitting assignments. Fast response times enhance user satisfaction and productivity.
- **Throughput**: The system should efficiently handle multiple user requests simultaneously without experiencing performance bottlenecks. This ensures that users

can access the system and perform their tasks without delays, even during peak usage periods.

- **Scalability**: As the user base and workload increase over time, the system should scale seamlessly to accommodate the growing demand. Scalability ensures that the system can handle increased traffic and workload without sacrificing performance or reliability.
- **Resource Utilization**: The system should utilize hardware resources efficiently, including CPU, memory, disk space, and network bandwidth. Optimizing resource usage minimizes overhead and maximizes system performance.
- **Database Performance**: Efficient database queries and data retrieval are crucial for system performance. Proper indexing, query optimization, and database caching techniques should be implemented to reduce latency and improve responsiveness.
- **Caching**: Caching frequently accessed data and resources can significantly improve performance by reducing the need for repetitive computations or database queries. Implementing caching mechanisms at various levels can help accelerate system response times.
- **Load Testing**: Regular load testing should be conducted to assess the system's performance under different user loads and usage scenarios. Load testing helps identify performance bottlenecks, scalability limitations, and areas for optimization.

By prioritizing performance considerations and implementing optimization strategies, Taskmaster ensures that users can efficiently access and utilize the platform's features, leading to enhanced user satisfaction and engagement.

4.4. Response Time

Response time refers to the duration between a user's action or request and the system's corresponding response. In the context of the Taskmaster Assignment Helper and CV Maker website, response time is a crucial metric that directly impacts user satisfaction and engagement. Here's how response time is addressed in the system design:

1) **Fast Login**: The login process should be swift, allowing users to access their accounts promptly. The system should authenticate user credentials and load the user interface without unnecessary delays.

2) **Quick Task Submission**: When students submit assignments or ask questions, the system should process these requests promptly. Minimizing the time taken for submission ensures that tasks are completed efficiently and deadlines are met.
3) **Rapid Resource Access**: Users should be able to access educational resources, such as study materials or CV templates, without experiencing long loading times. The system should deliver requested resources promptly to support users' learning and career development needs.
4) **Speedy CV Generation**: When users create CVs using the platform, the system should generate CVs quickly based on the provided information. Users expect immediate access to their CVs for review, editing, or download.
5) **Efficient Feedback Submission**: Students providing feedback on assignments or teachers should experience minimal delays in submitting their responses. Quick feedback submission facilitates timely communication and collaboration between students and teachers.

To achieve optimal response times, the Taskmaster system architecture prioritizes efficient data retrieval, optimized database queries, and streamlined processing workflows. Additionally, performance monitoring and optimization techniques are employed to identify and address any bottlenecks that may impact response times. By ensuring fast response times across various system interactions, Taskmaster enhances user satisfaction and fosters a productive learning and collaboration environment.

4.5. System Design Model

The system design model for the Taskmaster Assignment Helper and CV Maker website encompasses various architectural considerations and structural components essential for its development and implementation. Here's an outline of the key elements of the system design model:

The system design model serves as a roadmap for implementing the Taskmaster Assignment Helper and CV Maker website, providing guidance on architecture, infrastructure, data management, and deployment strategies. It ensures that the system is scalable, reliable, secure, and maintainable, facilitating effective development and operation of the website.

4.5.1. Sub system decomposition

Subsystem decomposition is the process of breaking down a complex system into smaller, more manageable subsystems or modules based on functional requirements and logical boundaries. In the context of the Taskmaster Assignment Helper and CV Maker website, subsystem decomposition involves identifying and defining the various components or modules that make up the system. Here's an outline of potential subsystems for the Taskmaster website:

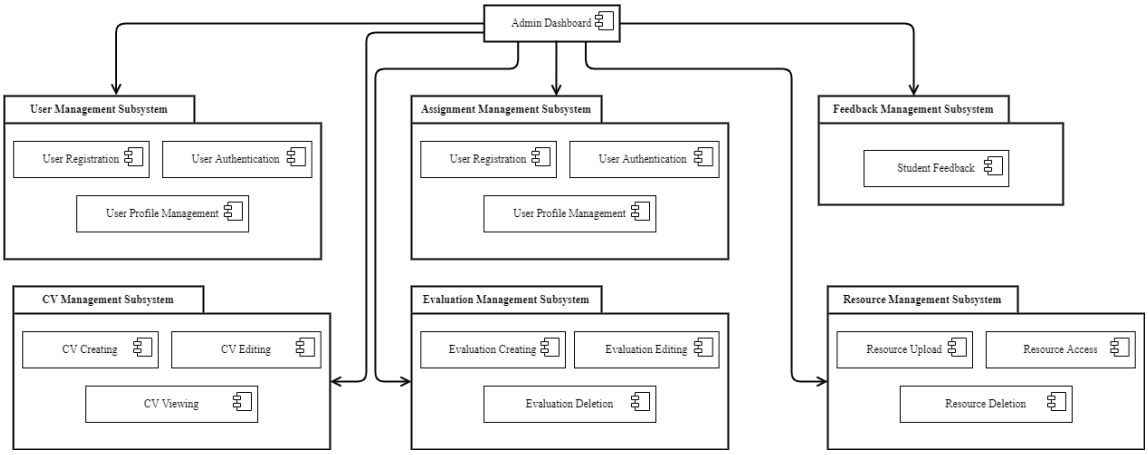

Figure 35: Sub system of Taskmaster website

1. **User Management:**
   - Responsible for user registration, authentication, and authorization.
   - Includes functionalities for creating and managing user accounts, profiles, and permissions.
   - Ensures secure access control to the system's features and resources.
2. **Assignment Management:**
   - Handles the creation, distribution, and tracking of assignments between students and teachers.
   - Manages assignment submissions, deadlines, and feedback.
   - Provides interfaces for students to ask assignments and for teachers to submit the solution.
3. **CV Management:**
   - Facilitates the creation, editing, and storage of curriculum vitae (CVs) for users.
   - Allows users to update and maintain their CVs, including adding new experiences, skills, and achievements.

4. **Resource Management:**
    - Manages educational resources such as study materials, tutorials, articles, and reference documents.
    - Provides a repository for storing and organizing resources based on categories, subjects, or topics.
    - Enables users to search, browse, and access relevant resources to support their learning and career development.
5. **Notification System:**
    - Handles the generation and delivery of notifications to users regarding important system events, updates, or reminders.
    - Supports various notification channels such as email, SMS, in-app notifications, and push notifications.
6. **Feedback Management:**
    - Manages the collection, storage, and analysis of feedback from users, including students' feedback on assignments.
    - Provides interfaces for submitting, viewing, and responding to feedback.
7. **Evaluation Question Management:**
    - Administers the creation, modification, and deletion of evaluation questions used for assessing teachers' performance.
    - Allows administrators to define evaluation criteria, questions, and rating scales for teacher evaluations.

Each subsystem encapsulates specific functionalities and interacts with other subsystems as needed to achieve the overall objectives of the Taskmaster website. Subsystem decomposition facilitates modular development, enhances system scalability, and improves maintainability by dividing the system into manageable and cohesive units.

4.5.2. Hardware and Software mapping

Hardware and software mapping in the context of the Taskmaster Assignment Helper and CV Maker website involves identifying the necessary hardware infrastructure and software components required to support the system's operation. Here's an outline of the hardware and software mapping considerations:

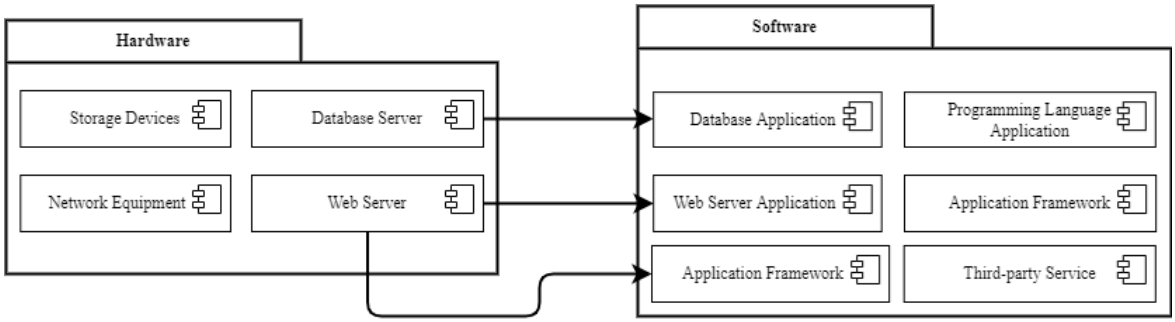

Figure 36: Hardware and Software mapping

1) **Hardware Mapping:**
   - Servers: Determine the types and specifications of servers required to host the web application, database server, and any additional servers for specific functionalities (e.g., file storage, caching).
   - Networking Equipment: Specify the networking infrastructure, including routers, switches, firewalls, and load balancers, to ensure reliable and secure communication between system components and users.
   - Storage Devices: Identify the storage solutions needed to store application data, user files, backups, and system logs. This may include hard disk drives (HDDs), solid-state drives (SSDs), and network-attached storage (NAS) devices.
2) **Software Mapping:**
   - Web Server: Select a web server software such as Apache HTTP Server, Nginx, or Microsoft Internet Information Services (IIS) to handle HTTP requests and serve web pages to users.
   - Application Framework: Choose a programming framework or platform for developing the web application, such as Django, Ruby on Rails, or ASP.NET Core.
   - Database Management System (DBMS): Decide on the DBMS software for storing and managing application data. Options include relational databases like MySQL, PostgreSQL, or Microsoft SQL Server, as well as NoSQL databases like MongoDB or Redis.
   - Programming Languages: Determine the programming languages and technologies used for frontend (HTML, CSS, JavaScript) and backend (PHP, Python, Ruby, C#, Java) development.

3) Third-Party Services:

- Evaluate and integrate third-party services and APIs for additional functionalities such as authentication (e.g., OAuth), messaging (e.g., Twilio), email delivery (e.g., SendGrid), and analytics (e.g., Google Analytics).
- Ensure compatibility and reliability of third-party services with the overall system architecture and security requirements.

By mapping out the hardware and software components required for the Taskmaster website, organizations can ensure that the system is equipped with the necessary infrastructure and tools to support its functionalities, performance, and scalability requirements. Additionally, proper hardware and software selection contribute to system reliability, security, and maintainability throughout its lifecycle.

4.5.3. Access Control

Access control in the Taskmaster Assignment Helper and CV Maker website refers to the mechanisms and policies implemented to regulate user authentication, authorization, and permissions within the system. It ensures that users can only access the features, functionalities, and data that they are authorized to use. Here's an overview of access control considerations:

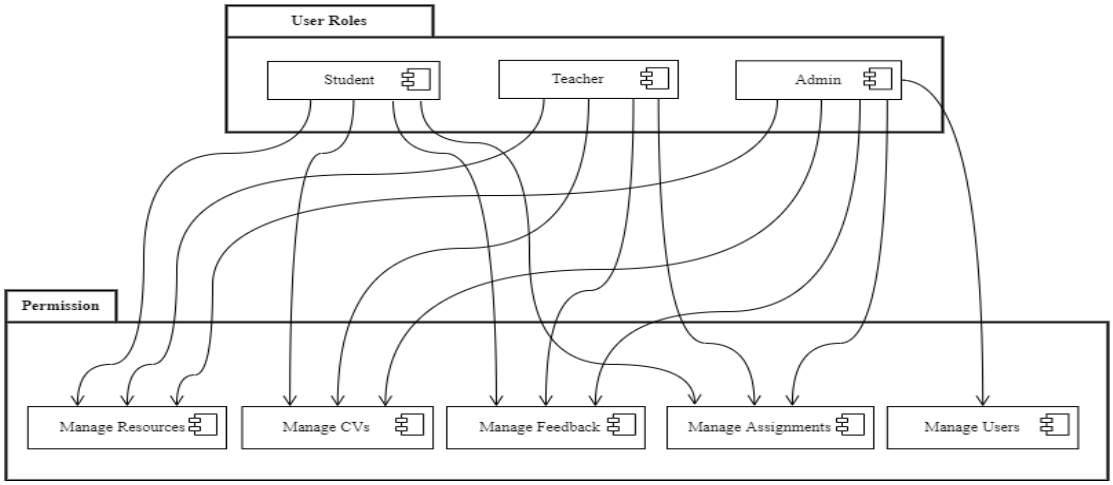

Figure 37: Access Control for Taskmaster

1. **Authentication:**
   - Authentication verifies the identity of users attempting to access the system. It ensures that users are who they claim to be before granting access.
   - Common authentication methods include username/password authentication, multi-factor authentication (MFA), single sign-on (SSO), and biometric authentication (e.g., fingerprint or facial recognition).

- The system should securely store user credentials and employ encryption techniques to protect sensitive authentication data.

2. **Authorization:**
   - Authorization determines what actions and resources users are allowed to access within the system after they have been authenticated.
   - Role-based access control (RBAC) is commonly used to assign roles (e.g., admin, student, teacher) to users and define permissions associated with each role.
   - Access control lists (ACLs) or permissions matrices may be used to specify granular permissions for individual users or user groups.
3. **Permissions Management:**
   - Administrators have the authority to manage user accounts, roles, and permissions within the system.
   - They can create, modify, or delete user accounts, assign roles to users, and define the permissions associated with each role.
   - Permissions may include read, write, create, delete, or execute privileges for specific features, functionalities, or data entities.
4. **Access Restrictions:**
   - Access control mechanisms enforce restrictions to prevent unauthorized access to sensitive or restricted areas of the system.
   - Access restrictions may be based on user roles, IP addresses, geographical locations, time-based access rules, or other contextual factors.
   - Error handling mechanisms should be in place to handle unauthorized access attempts and provide appropriate error messages or responses to users.

By implementing robust access control mechanisms, the Taskmaster website ensures that only authorized users can access its features, functionalities, and data. This helps protect sensitive information, prevent unauthorized access, and maintain the integrity and confidentiality of the system and its resources.

4.5.4. Persistent data management

Persistent data management in the Taskmaster Assignment Helper and CV Maker website involves the organization, storage, and retrieval of data in a reliable and efficient manner. Here's how it's approached:

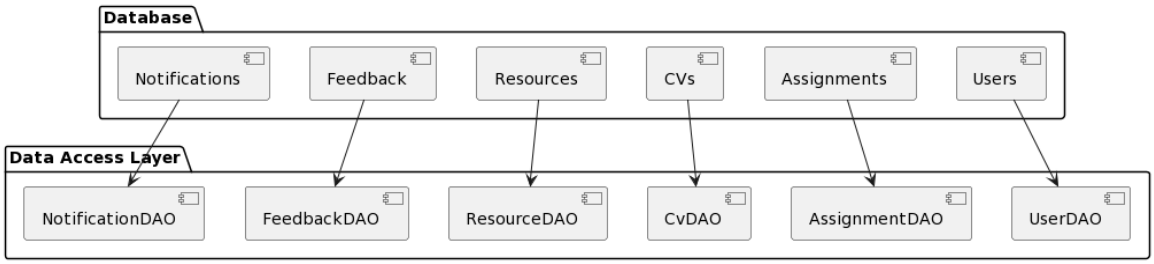

Figure 38: Data management of Taskmaster

1) **Database Selection:** Choose an appropriate database management system (DBMS) that aligns with the requirements of the website. This could be a relational database like MySQL, PostgreSQL, or a NoSQL database like MongoDB, depending on factors such as data structure, scalability, and performance needs.
2) **Data Modeling:** Design the database schema to represent the various entities and relationships within the system. This involves creating tables, defining fields, and establishing relationships between different data entities. Proper normalization techniques are applied to minimize redundancy and ensure data integrity.
3) **Data Storage:** Determine how different types of data will be stored within the database. For example, user information, assignment details, CVs, and resources may each have their own tables with specific fields to store relevant information. Consideration is given to efficient storage methods, such as using BLOBs (Binary Large Objects) for storing documents or images.
4) **Backup and Recovery:** Implement procedures for regular backups of the database to prevent data loss in the event of system failures or disasters. Backup schedules are established, and mechanisms for data recovery are put in place to ensure that data can be restored to a consistent state.
5) **Data Privacy and Security:** Apply appropriate security measures to protect sensitive data from unauthorized access or disclosure. This includes encryption of sensitive data, implementing access controls, and ensuring compliance with data protection regulations such as GDPR (General Data Protection Regulation).
6) **Scalability:** Plan for future growth by designing the database to scale efficiently as the website's user base and data volume increase. This may involve techniques such as sharding, replication, or partitioning to distribute data across multiple servers and handle increased load.

7) **Data Migration and Versioning:** Establish processes for data migration when upgrading or making changes to the system. Versioning strategies are employed to track changes to the database schema and ensure compatibility between different versions of the system.

By effectively managing persistent data, the Taskmaster Assignment Helper and CV Maker website can ensure data reliability, availability, and security, providing users with a seamless and efficient experience while interacting with the platform.

4.5.5. Mapping Class to Table

Mapping classes to tables is a fundamental aspect of designing a relational database schema for the Taskmaster Assignment Helper and CV Maker website. Here's how classes can be mapped to tables:

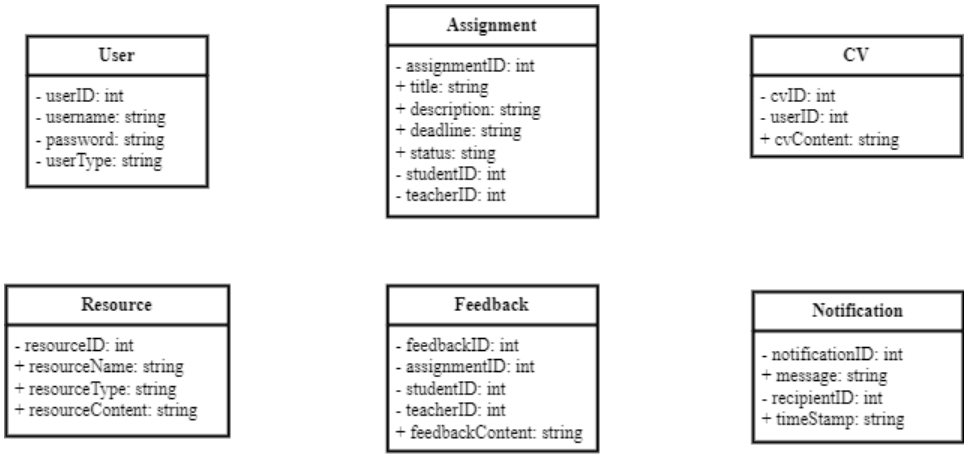

Figure 39: Mapping Class to Table

1. **User Class:**
   - This class represents users of the system, including administrators, students, and teachers.
   - Attributes such as userID, username, password, and userType can be mapped to columns in a "Users" table.
   - Each user type may have additional attributes, which can be accommodated in the same table with appropriate null values for non-applicable fields or in separate tables with relationships established using foreign keys.
2. **Assignment Class:**
   - This class represents assignments created by students and submitted the solution by teachers.

- Attributes like assignmentID, title, description, deadline, status, creatorID, and assignedTo can be mapped to columns in an "Assignments" table.
- Additional tables may be created for related entities such as assignment submissions, feedback, and grading criteria, with appropriate relationships defined between them.

3. **CV Class:**
   - This class represents curriculum vitae (CVs) created by users.
   - Attributes such as cvID, ownerID, and cvContent can be mapped to columns in a "CVs" table.
   - If CVs contain structured data (e.g., education history, work experience), additional tables may be created to store this information in a normalized format.
4. **Resource Class:**
   - This class represents educational resources uploaded to the system.
   - Attributes like resourceID, resourceName, resourceType, and resourceContent can be mapped to columns in a "Resources" table.
   - Depending on the nature of resources (e.g., documents, videos, links), additional tables may be created to store metadata and manage file storage.
5. **Feedback Class:**
   - This class represents feedback provided by students for assignments and teachers.
   - Attributes like feedbackID, assignmentID, studentID, teacherID, and feedbackContent can be mapped to columns in a "Feedback" table.
   - Relationships can be established between the Feedback table and other relevant tables (e.g., Assignments, Users) using foreign keys.
6. **Notification Class:**
   - This class represents notifications sent to users.
   - Attributes such as notificationID, message, recipientID, and timestamp can be mapped to columns in a "Notifications" table.
   - The table may include additional fields to track notification status and delivery methods.

By mapping classes to tables in this manner, the database schema for the Taskmaster Assignment Helper and CV Maker website can effectively capture the structure and relationships of the

underlying data, facilitating efficient storage, retrieval, and manipulation of information within the system.

4.5.5.1. Relationship mapping

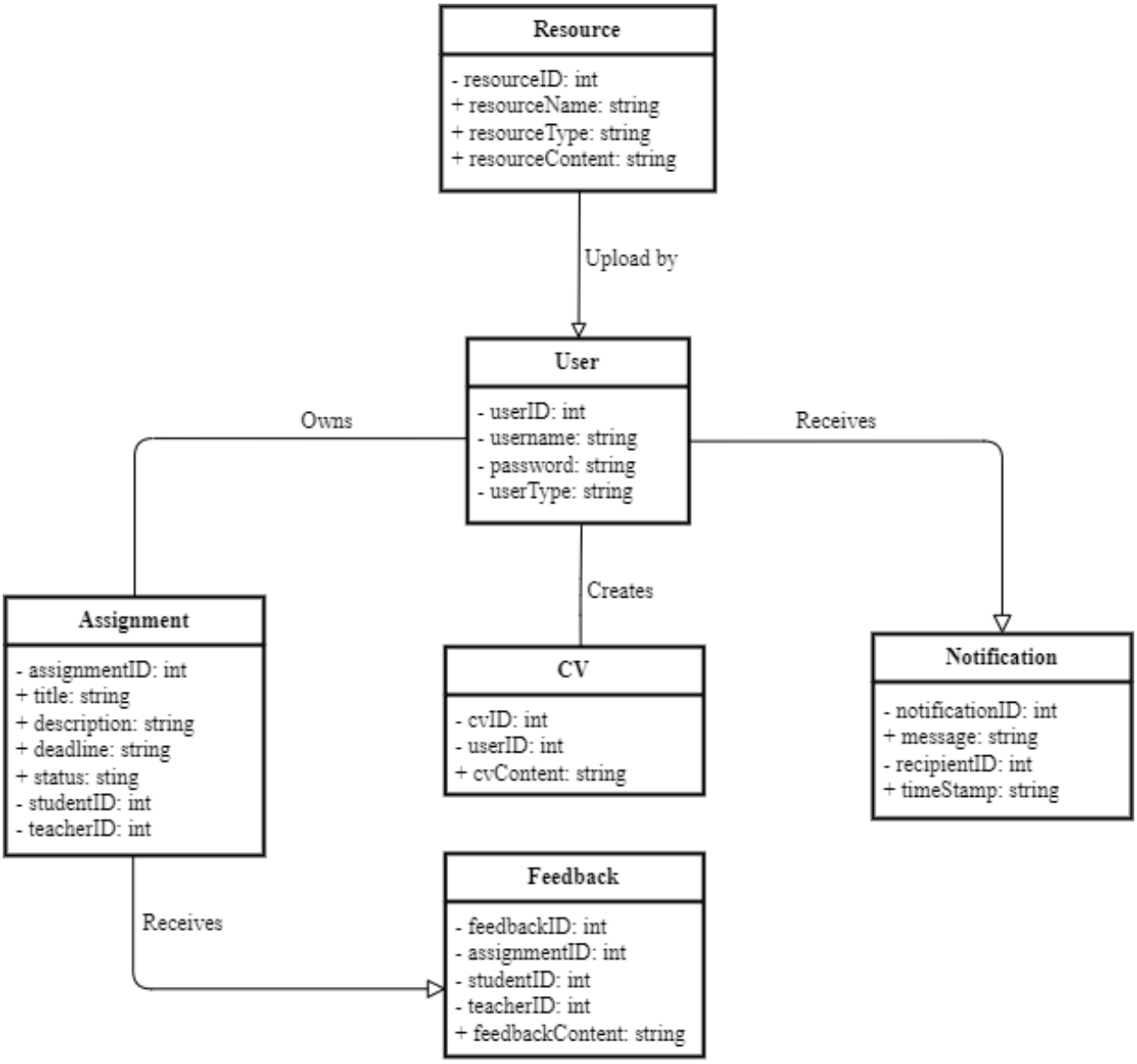

Figure 40: Relationship Mapping

4.5.6. Deployment Diagram

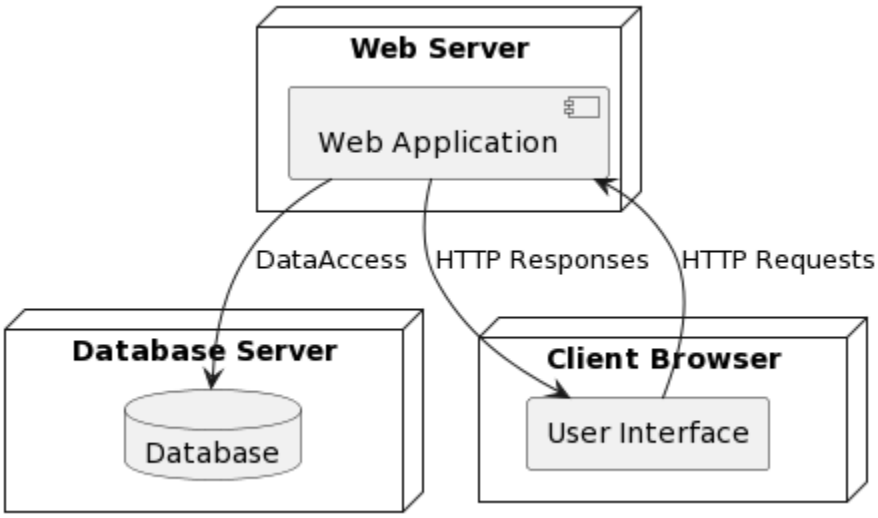

Figure 41: Deployment Diagram

4.5.7. User Interface

The User Interface (UI) is the component of software that users interact with directly. In a software system, UI design embodies the user interface requirements. Below are examples of the UIs we will develop. The UI is the visual representation that facilitates data entry from the user for execution in the database.

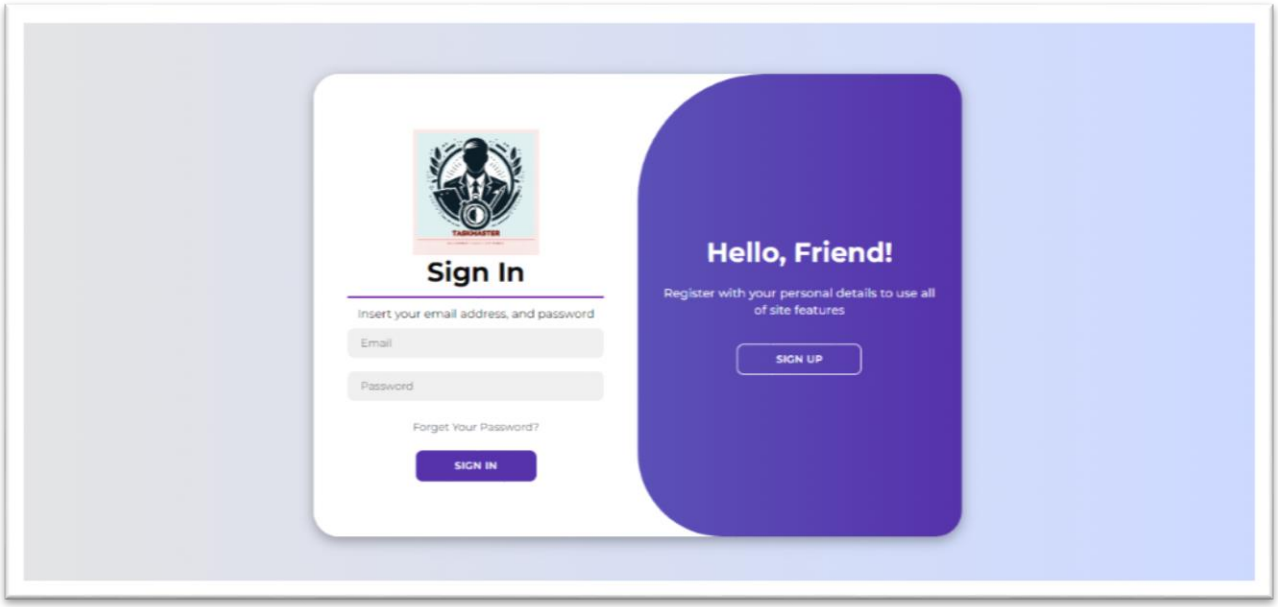

Figure 42: Graphical User Interface for all user login page

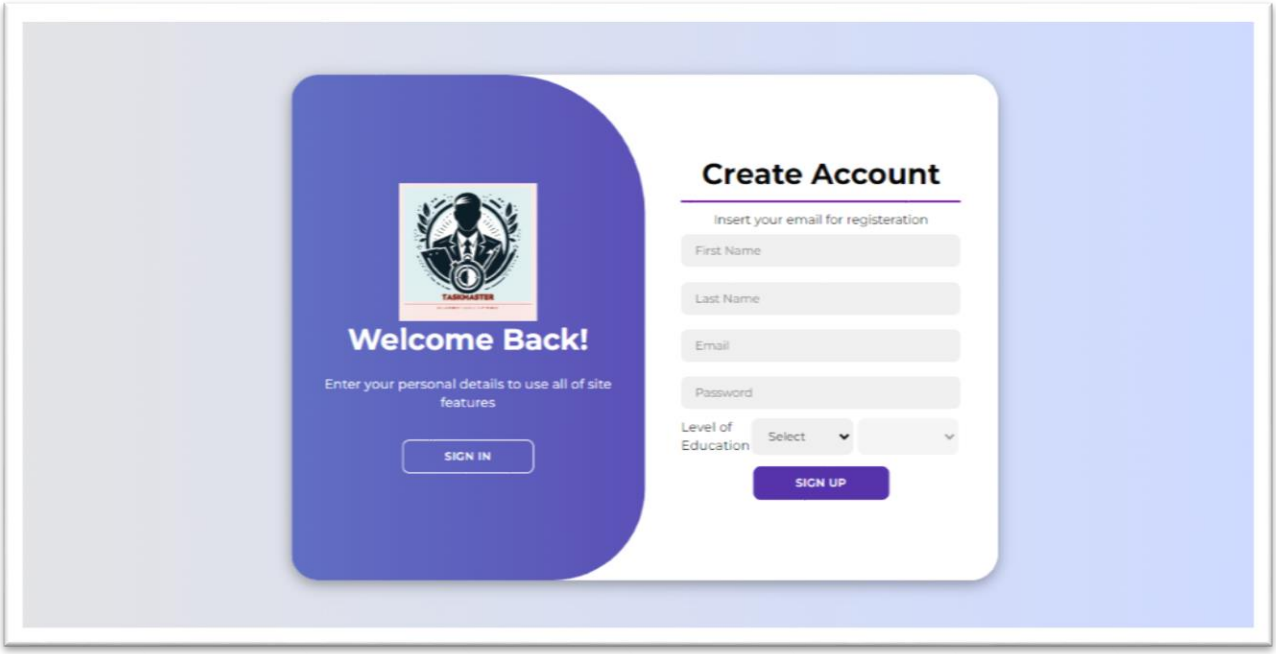

Figure 43: Graphical User Interface for Student create account

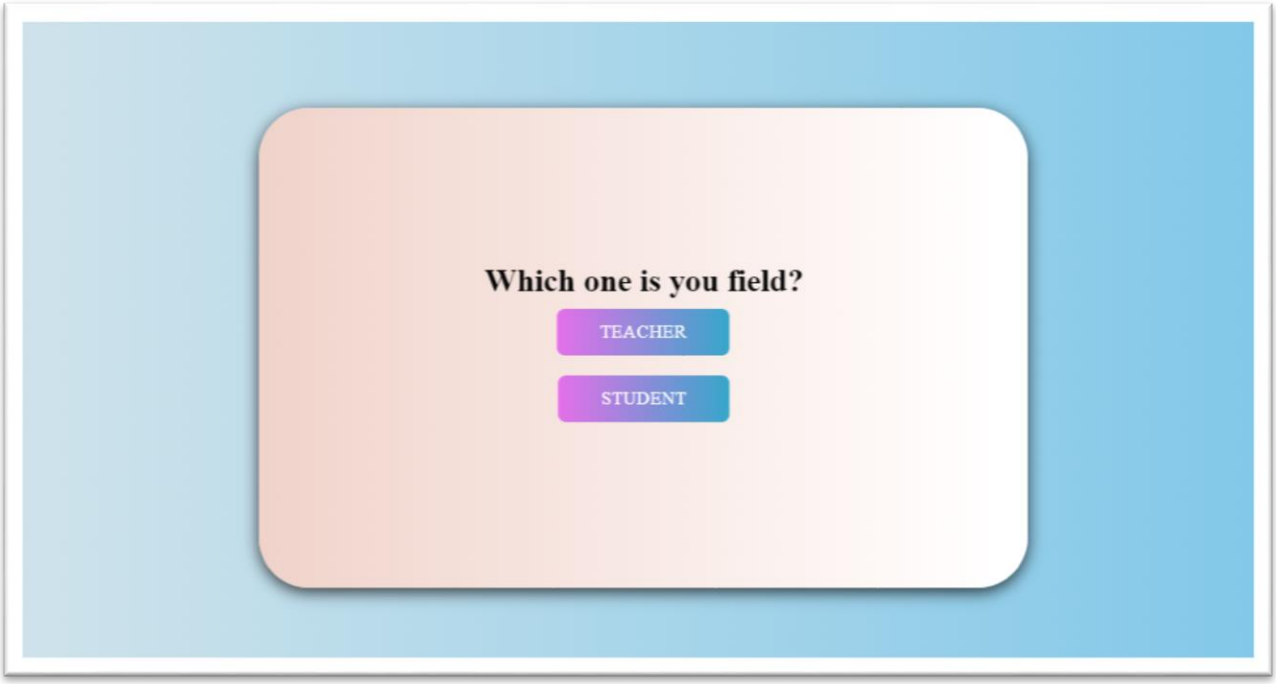

Figure 44: Graphical User Interface to choose account type for sign up

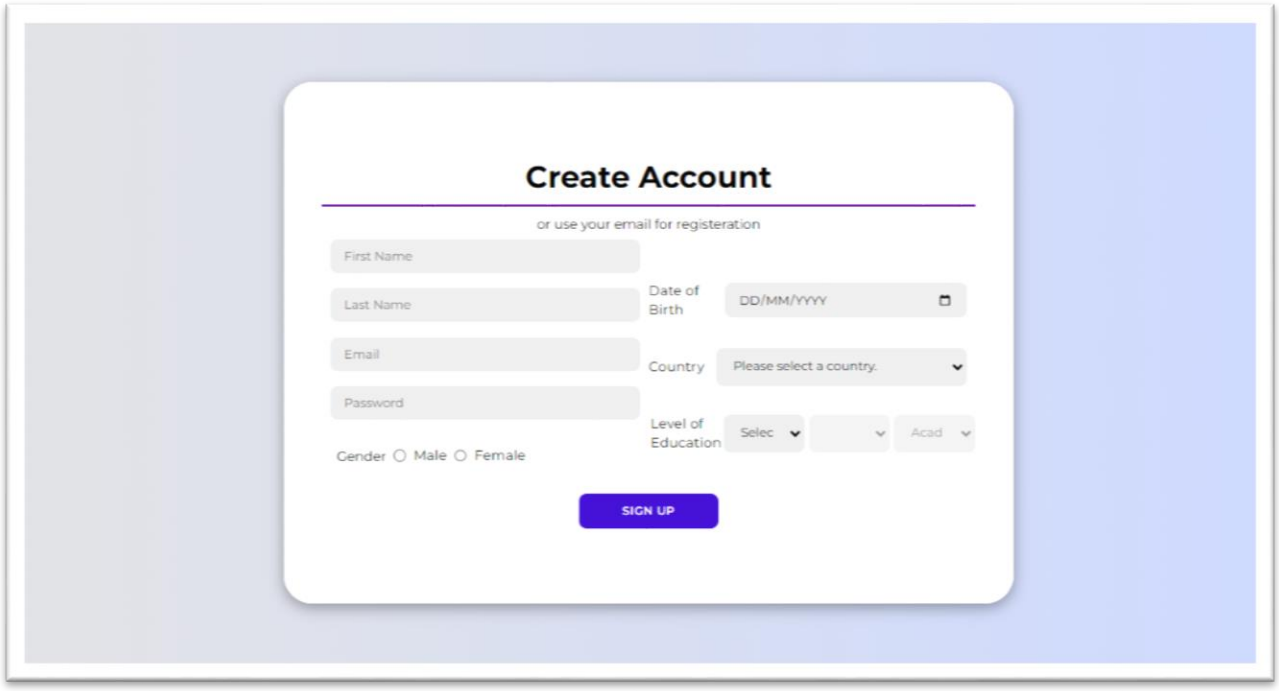

Figure 45: Graphical User Interface for create Teacher account

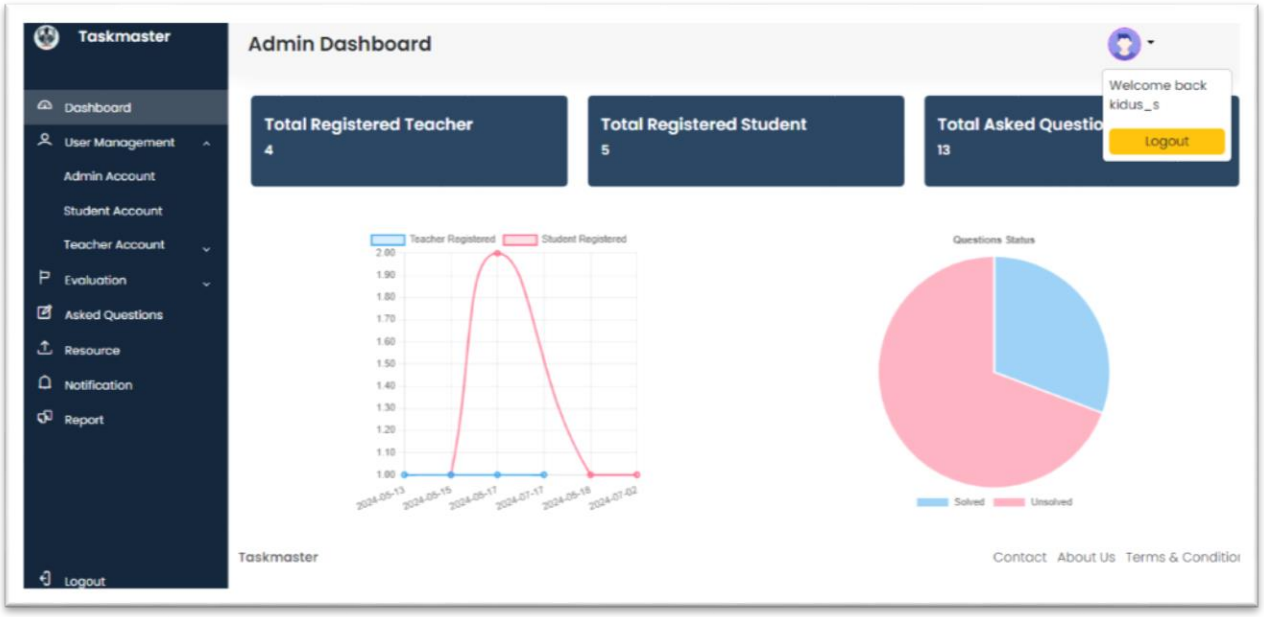

Figure 46: Graphical User Interface Admin Dashboard

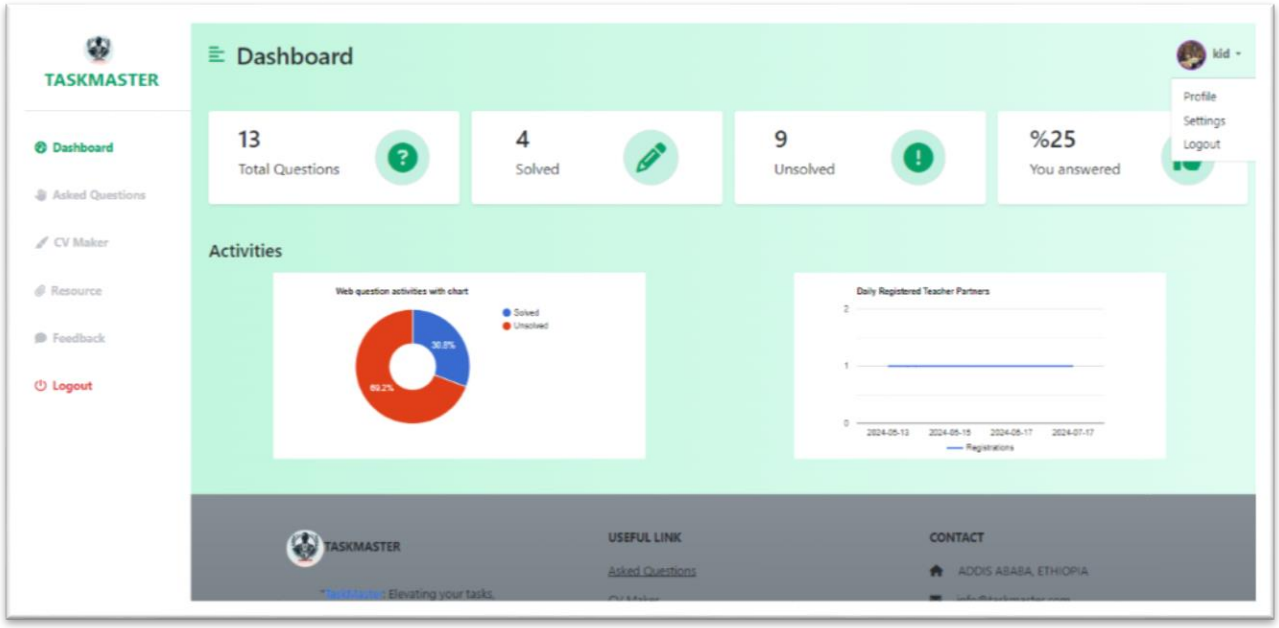

Figure 47: Graphical User Interface Teacher Dashboard

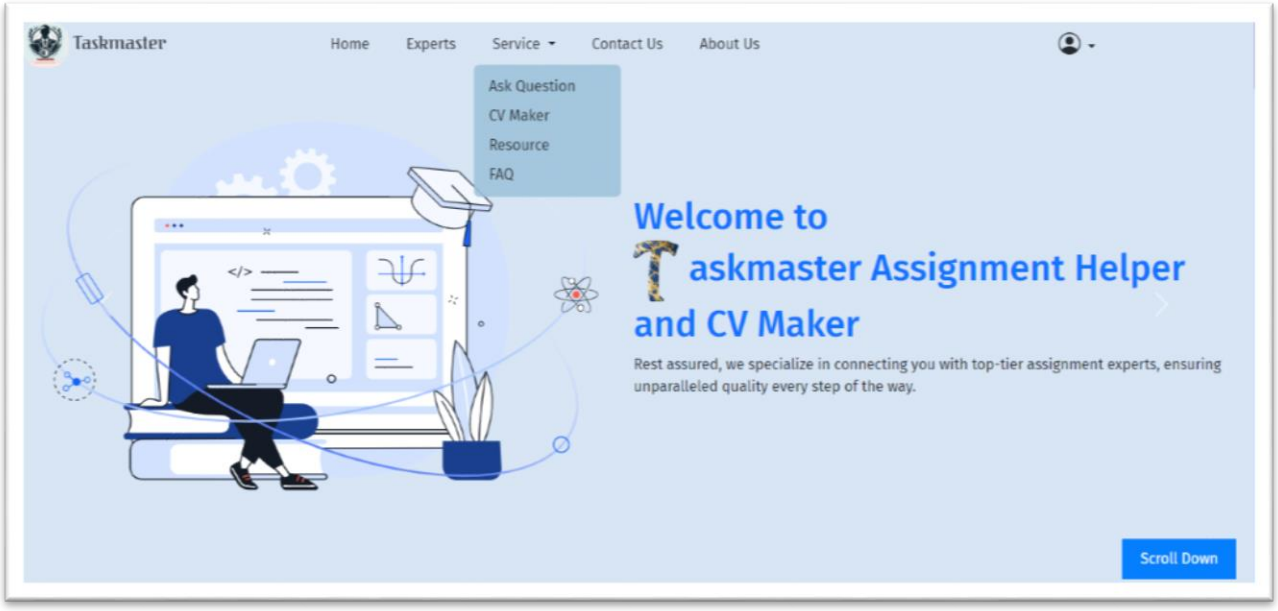

Figure 48: Graphical User Interface Student Dashboard

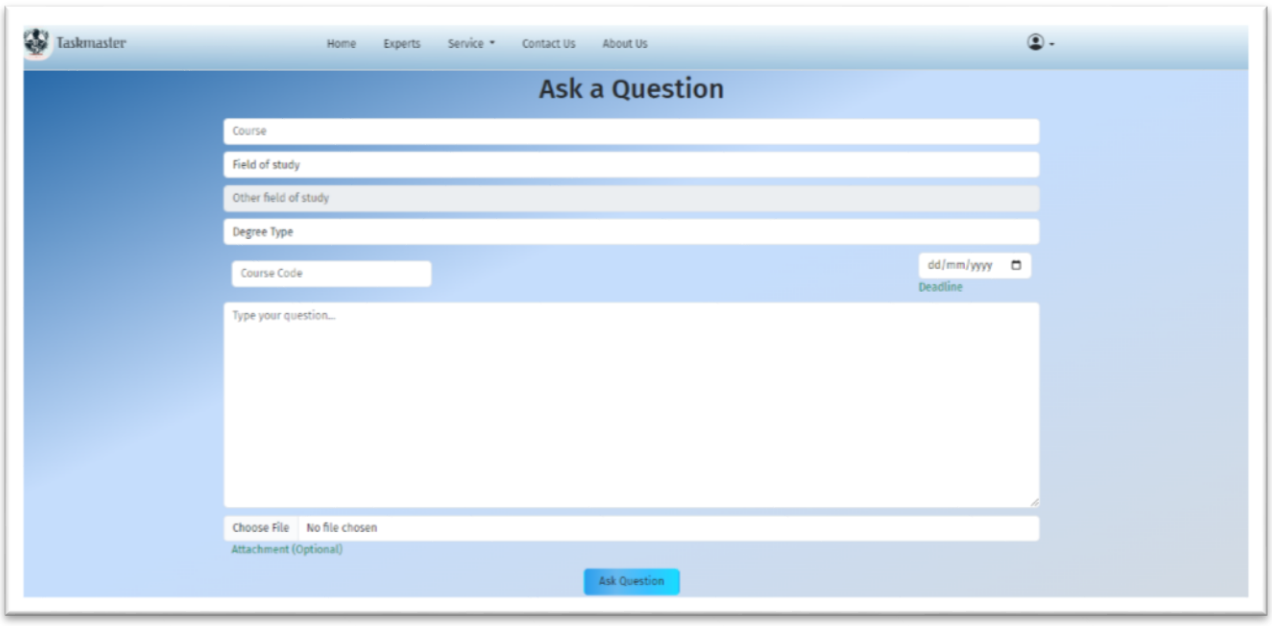

Figure 49: Graphical User Interface Student ask question page

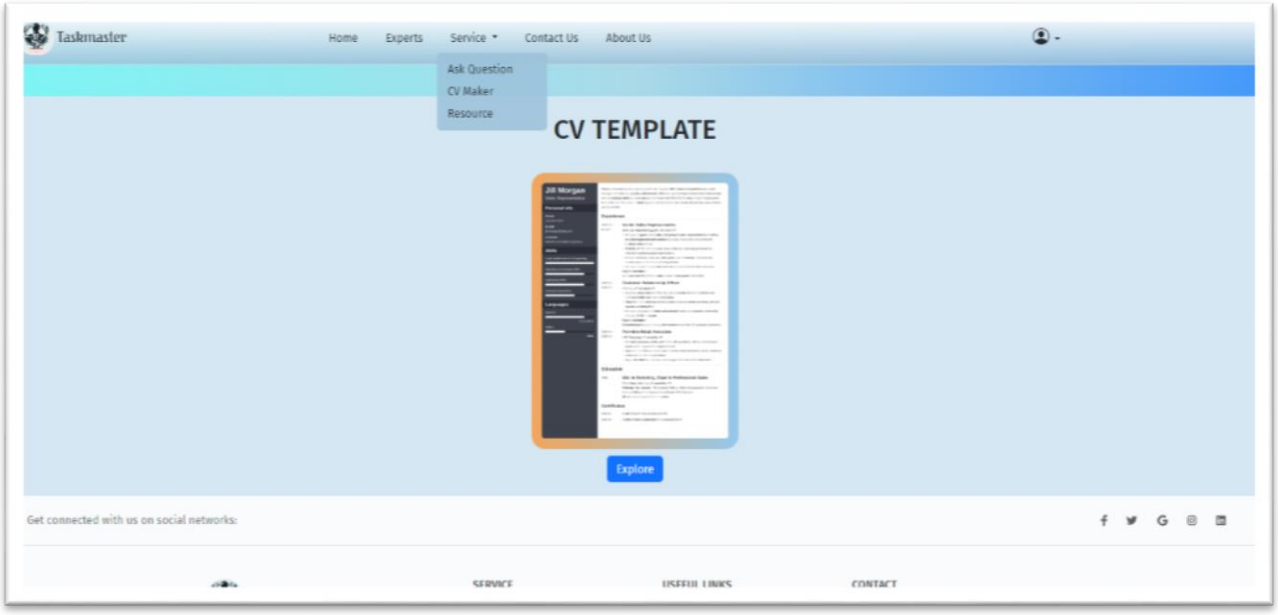

Figure 50: Graphical User Interface CV Template choosing

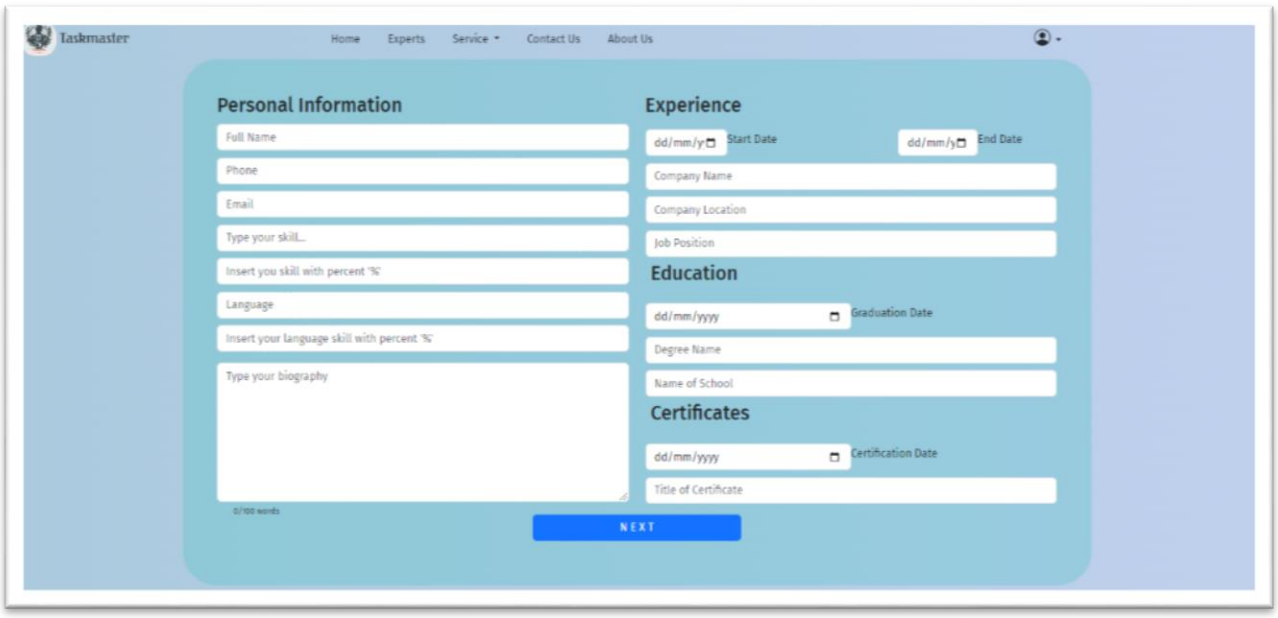

Figure 51: Graphical User Interface for insert information to create new CV

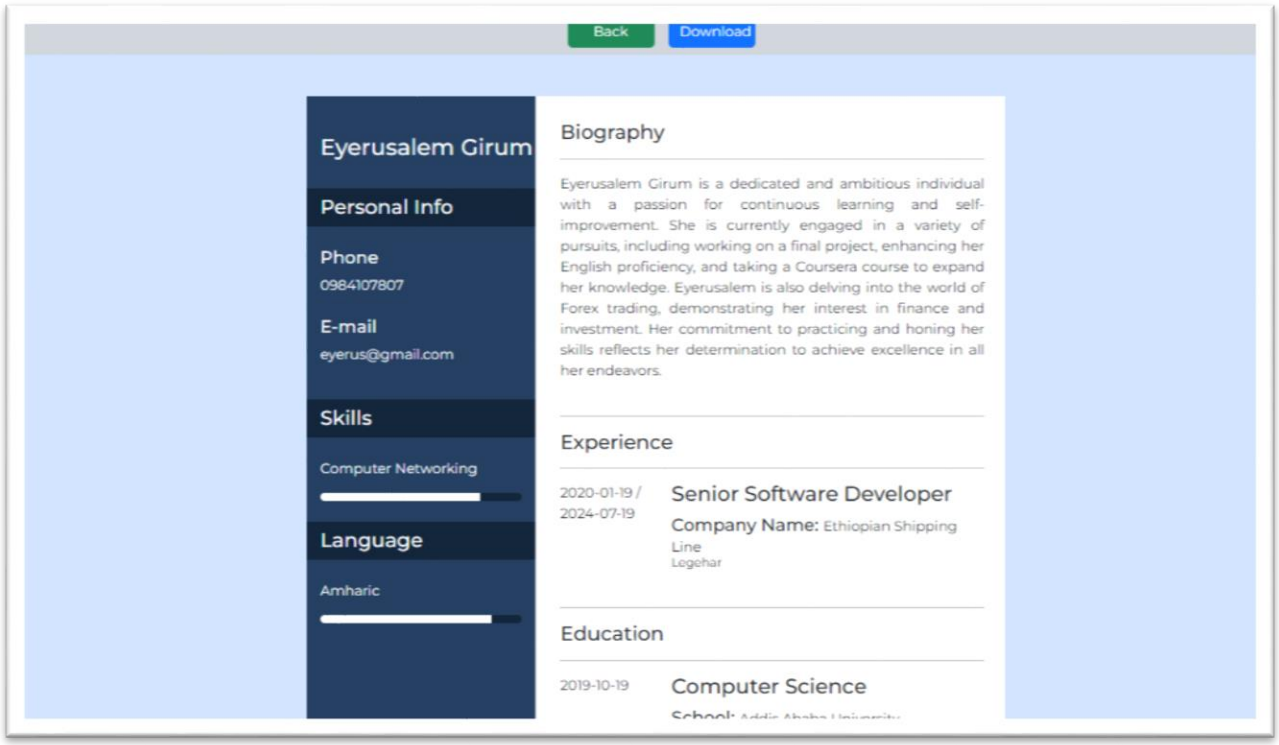

Figure 52: Graphical User Interface Output of CV Template after insertion the form

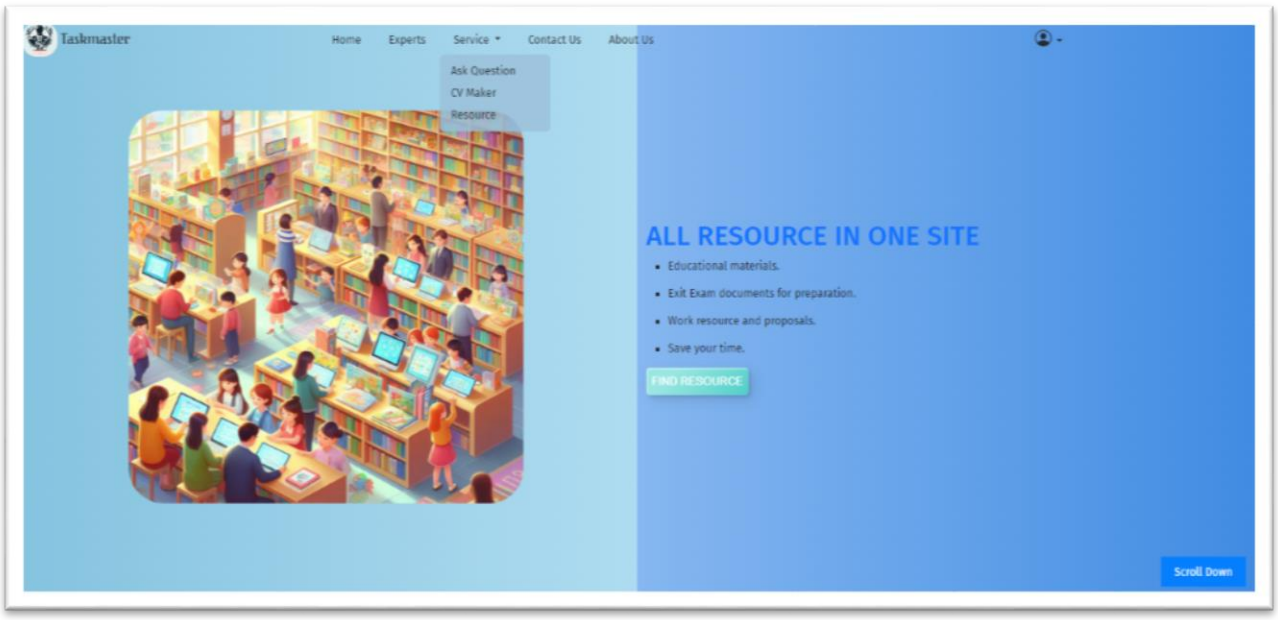

Figure 53: Graphical User Interface Resource Gather page

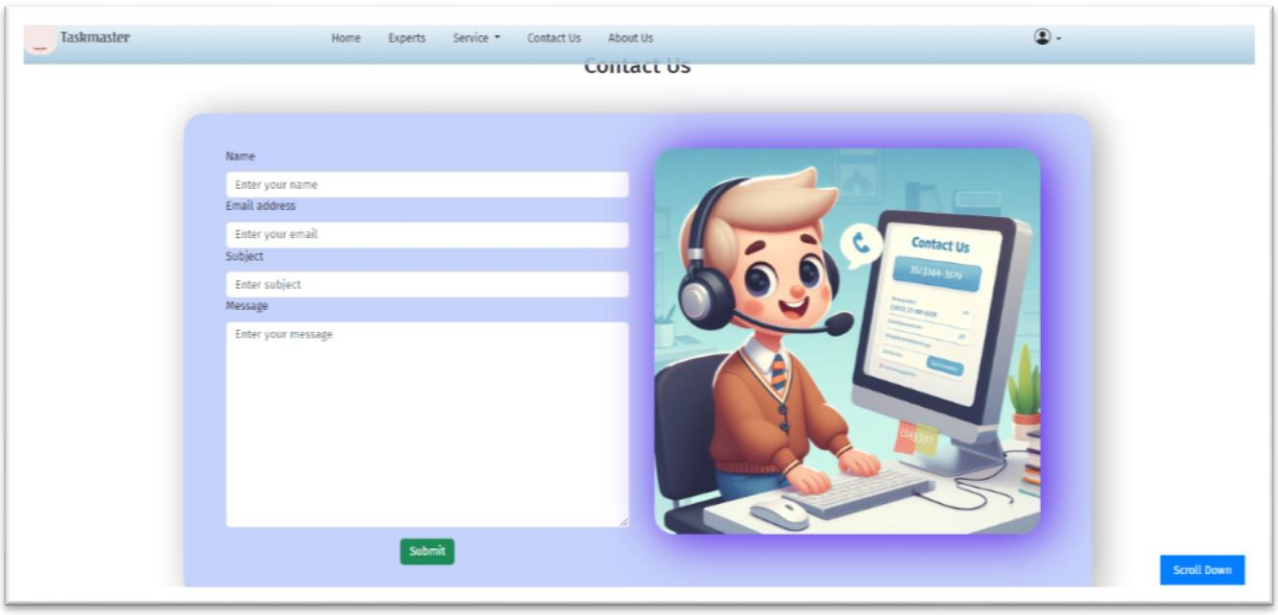

Figure 54: Graphical User Interface of Contact Us page

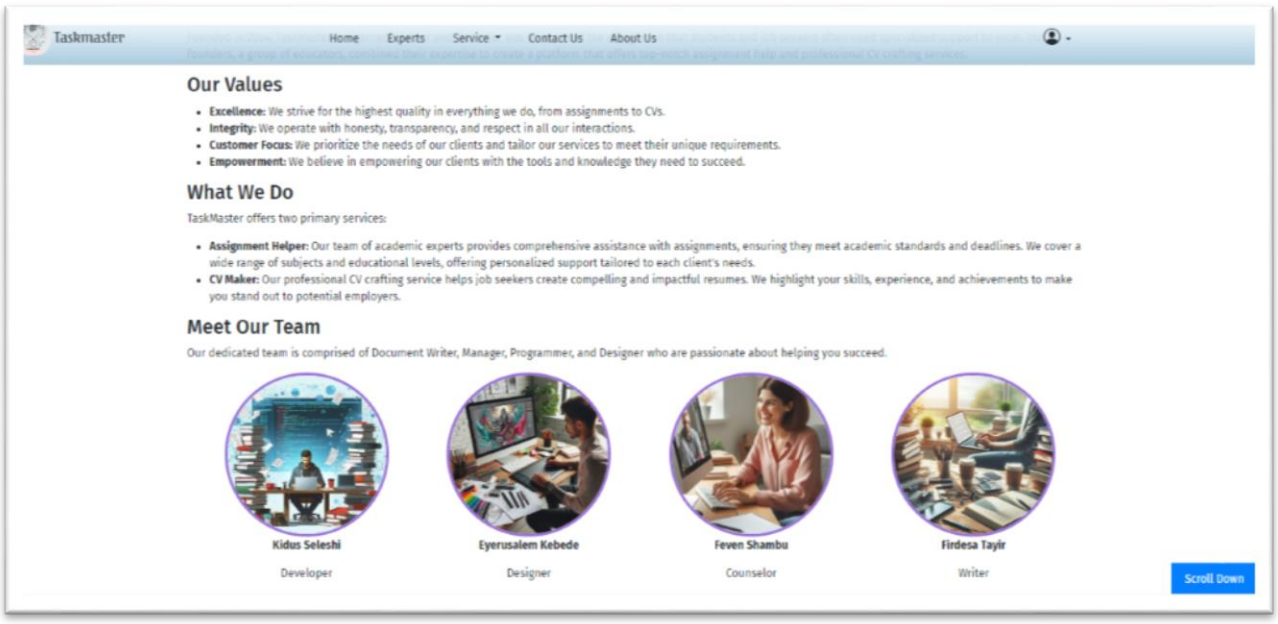

Figure 55: Graphical User Interface of About Us page

CHAPTER FIVE

Conclusion and Recommendation

5.1. Conclusion

In conclusion, the Taskmaster Assignment Helper and CV Maker website is designed to revolutionize the way students manage their assignments and create their resumes. Through a comprehensive analysis, planning, and design phase, the system aims to provide a user-friendly platform that caters to the diverse needs of students, teachers, and administrators.

Throughout this project, we have delved into various aspects including project planning, analysis, system requirements, user experience design, system modeling, and system design. We have meticulously crafted use cases, class diagrams, activity diagrams, and deployment diagrams to ensure a clear understanding of the system's functionality, architecture, and deployment strategy.

With a robust system design model, efficient data management, and responsive user interface, the Taskmaster website promises to offer seamless interaction, reliable performance, and enhanced productivity for its users. Whether it's managing assignments, creating CVs, accessing educational resources, or providing feedback, the system is geared towards facilitating a streamlined workflow and fostering academic and professional growth.

As technology continues to evolve, the Taskmaster website stands as a testament to innovation in education and career development. It is poised to make a significant impact by empowering students to excel academically and professionally, while also providing valuable tools and resources for teachers and administrators to support their educational initiatives.

In essence, the Taskmaster Assignment Helper and CV Maker website represent a milestone in the realm of educational technology, embodying the vision of creating a smarter, more efficient, and more connected learning environment for all stakeholders involved.

5.2. Recommendation

Based on the development and analysis of the Taskmaster Assignment Helper and CV Maker website, several recommendations can be made to further enhance its functionality, usability, and effectiveness:

1) **Continuous Improvement:** Implement a feedback mechanism to gather user feedback and suggestions for improvement. Regularly review and iterate on the system based on user input to ensure it meets evolving needs and expectations.
2) **Enhanced Collaboration Tools:** Introduce features that facilitate collaboration between students and teachers, such as real-time messaging, discussion forums, or group project management capabilities. This can foster a more interactive and engaging learning environment.
3) **Intelligent Recommendation System:** Implement an intelligent recommendation system that suggests relevant assignments, resources, or career opportunities based on user preferences, academic performance, and career goals.
4) **Integration with Learning Management Systems (LMS):** Explore integration options with existing learning management systems used by educational institutions to streamline data exchange, assignment submission, and grading processes.
5) **Accessibility and Inclusivity:** Ensure the website is accessible to users with disabilities by following web accessibility guidelines (e.g., WCAG). Provide alternative formats for content and features to accommodate diverse user needs.
6) **Security Measures:** Strengthen security measures to safeguard user data and privacy. Implement encryption, secure authentication mechanisms, and regular security audits to mitigate cybersecurity risks.
7) **Scalability and Performance Optimization:** Design the system architecture to scale effectively to accommodate growing user traffic and data volumes. Optimize performance to minimize response times and ensure a smooth user experience, even during peak usage periods.
8) **User Training and Support:** Provide comprehensive user training materials, tutorials, and customer support channels to assist users in maximizing the benefits of the website. Offer timely assistance and troubleshooting guidance to address user inquiries and issues effectively.
9) **Promotion and Adoption Strategies:** Develop marketing and promotional strategies to increase awareness and adoption of the Taskmaster website among target users. Collaborate with educational institutions, student organizations, and industry partners to promote the platform effectively.

10) **Regular Maintenance and Updates:** Establish a maintenance schedule to perform regular updates, bug fixes, and performance optimizations. Stay abreast of technological advancements and user trends to keep the website relevant and competitive in the long term.

By implementing these recommendations, the Taskmaster Assignment Helper and CV Maker website can evolve into a comprehensive and indispensable tool for students, teachers, and educational institutions, empowering users to achieve their academic and professional goals effectively.

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Academic papers and articles on user experience design, system modeling, and database management

Official documentation and guidelines for web development technologies (e.g., HTML, CSS, JavaScript)