GAMIFY US

Final Year Project

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*The candidates confirm that the work submitted is their own and appropriate credit has been given where reference has been made to work of others

Plagiarism Free Certificate

This is to certify that, I **Ahmad Imran** S/D of **Imran Mehmood**, group leader of FYP under registration no FYP-**BCSM-F22-009** at Computer Science Department, The Superior University, Lahore. I declare that my FYP report is checked by my supervisor.

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Project Report

GAMIFY US

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
	1.0		<Original Draft>	
			<Changes Based on Feedback from Supervisor>	
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			<Added Project Plan>	
			<Changes Based on Feedback from Supervisor>	

APPROVAL

PROJECT SUPERVISOR

Comments: _____

_____

Name:_____

Date:_____ Signature:_____

PROJECT MANAGER

Comments: _____

_____

Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments: _____

_____

Date:_____ Signature:_____

Dedication

This project is dedicated to our parents who have never failed to give us financial and moral support, for giving all our needs during the time we developed our system and for teaching us that even the largest task can be accomplished if it is done one step as a time. We dedicate this Project to all the people who have worked hard to help us complete this project.

Acknowledgements

I thank Allah SWT for his blessings, keeping me safe and in good health throughout my development period. I am deeply grateful to my supervisor Hafiza Maria Iqbal of the Superior University Lahore for their valuable guidance, cooperation and assistance throughout the whole period I have been engaged in this development. It is my pleasure to appreciate my team members for their useful academic interaction and devoted time they put in the completion of this project. Finally, with great pleasure, I thank my loving parents for their love and prayers.

Executive Summary

The Concept of Gamification in education says that students learn best when they are having fun at the same time. They also learn best when they have goals, objectives and achievements to achieve, rewards, that makes the student still perceives as fun. Gaming is supported by the following features which studying doesn’t have which are interest in the game, immediate performance feedback, and team work. When you're learning while having fun, you feel like you're not really learning. A platform where teachers can make its lectures video into game for students/listener that will help students to memorize concept more easily.

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Chapter 1

Introduction

Chapter 1: Introduction

Gamification is the use of game elements such as competition, rewards for achievements, and level difficulty to drive engagement. Gamification simply brings the game-based elements that make these platforms popular and integrate them with other activities within education. We are developing a platform that allows instructors to put educational videos into their games. This is what keeps the leaderboards like a video where the teacher adds questions at various points and the students answer them and get rewarded for each correct answer.

1.1. Background

The concept of gamification in education states that students learn best when they are having fun at the same time. They also learn best when there are goals, targets, outcomes to achieve, and rewards that the student still finds enjoyable. Play is supported by the following features that learning does not: interest in play, immediate feedback on performance, and teamwork. When you learn while having fun, you feel like you're not really learning. A platform that allows teachers to turn lectures into games for students/audiences helps students memorize concepts more easily.

1.2. Motivations and Challenges

Gamification not only adds a game element to video training, it inherently motivates learners to perform desired behaviors and complete required tasks. Most gamification systems use reinforcement elements (points, levels, badges, leaderboards, etc.) to increase user engagement and motivation. The system employs a behavioral approach as it influences people's behavior through rewards, reinforcement and immediate and timely feedback. Gamification also creates a dynamic environment where people can feel progress through leveling up. The idea of progress is self-efficacy in his theory of social learning. According to his construction, perceived self-efficacy reflects people's beliefs about their ability to perform and the consequences of their actions. In this sense, positive outcomes such as self-actualization and a sense of accomplishment can increase and sustain intrinsic motivation.

Whether students can benefit from gamification (the use of game mechanics and design to complement learning) depends on the context in which it is used. But before applying this teaching method, educators need to understand that handing student's technology or simply teaching them will not help them achieve their educational goals.

Despite skepticism about technology and game-based learning environments, the Speak Up report shows that digital and interactive education is becoming more ubiquitous. The survey found that 82% of his district administrators indicate that their school district incorporates some form of digital content and online his resources into their curriculum. Given the risks to learning outcomes of technology and gamification, administrators need to understand how teachers can use these tools effectively and derive benefit from learning outcomes.

An interactive video that takes time and effort to complete something, but doesn't hurt if you go wrong or do it wrong. Challenges may involve learning strategies such as problem-solving, requiring individuals to think outside the box to develop solutions.

1.3. Goals and Objectives

Gamification adds game mechanics to non-gaming environments such as websites, online communities, learning management systems, and corporate intranets to increase participation. The goal of gamification is to connect, facilitate collaboration, sharing and interaction with consumers, employees and partners. When an educator incorporates features such as those listed into a lesson, the lesson becomes gamified, even if the result is not actually a game. Some features are frequently tried. Points, badges, etc., but educators should also pay attention to less structured features such as: Imagine a college student who doesn't want to leave the educational world. Gamification is the application of game strategies to enhance learning and make it more engaging for individuals. Gamification for learning is beneficial because games teach lifelong skills such as problem solving, critical thinking, social awareness, cooperation and collaboration. Games also increase individual motivation, increase interest in specific subjects, reduce learner turnover, improve grades, and enhance cognitive skills.

As teachers introduce new approaches to the learning process, it is important to define student characteristics to determine if a new interactive video is appropriate. Student motivation to

engage with learning content and participate in competitive learning events is critical and important. It is important for teachers to identify and consider what skills participants need to achieve their goals. That is, whether the task or activity requires a specific skill from the learner. If the task is too easy or too difficult, learners will be demotivated and negative outcomes may result.

1.4. Literature Review/Existing Solutions

Many organizations are working on the concept of gamification in their field. This creates interest, employee and user engagement, and competition between them, which has a significant impact on employee productivity and user retention in the system. Many software systems work in educational gamification learning such as Hoopla, Gamitize, Archy Learning, and Funifier. Competitions, leaderboards, rewards and real-time recognition. Funifier is a learning platform that integrates game technology into functionality to increase employee engagement. Archy Learning is an all-in-one gamification training software that can be used to host global classrooms for remote teams around the world. Gametize is enterprise-grade gamification training software that enhances the employee training experience. Operating in different areas such as sales, education, and business, the platform brings competition, rewards, and productivity gains just to implement elements of the game in each area. There are still some loopholes in the education system, which is why gamification is not 100% implemented in the field. Gamification using artificial intelligence and machine learning in education could revolutionize the field.

These companies use gamification strategies to make healthy profits. This is because the intent of gamification is to keep users interested in spending time on the company's platform. The company also works to learn what products customers are interested in. But our gamification strategy is a little different. Because we are trying to create some kind of platform that interacts with users and makes them come alive. Things become clearer when the user asks some questions and those notes engage the user. Other companies are promoting their products, but we're digitizing the education system in clever ways.

1.5. Gap Analysis

We have identified a growing number of studies that provide empirical evidence for the effectiveness of gamification in educational contexts. At the same time, it is surprising to see an increasing number of reports of results supported by conclusive and insufficient evidence to make valid claims about the effectiveness of gamification in education. One possible reason for this is the publication hype around gamification on the one hand, and the treatment of an overly broad research question based on limited supporting evidence on the other. Whether gamification motivates students, improves learning or increases participation is a broad question. Instead, we should narrow our focus to the issue of type. Whether game design element G is effective for Type L learners engaged in Type A activities. All of this points to the need for a systematic program of experimental research that maps game elements to the details of learning and motivation in individual (group) learners. The area of is to avoid gamification scenarios that can harm learning.

1.6. Proposed Solution

Given the addictive ability of video games to engage and engage people, it is not surprising that similar engagement results are seen when these game elements are used in educational materials. Gamification is very popular in all fields, including education. In education, using game elements to solve problems makes everything easier, interactive, challenging, and fun and makes learning more effective. Using games while learning can make it more engaging and interactive, help you retain information, and help you understand more difficult concepts.

Gamification can reward many academic problems, not just knowledge acquisition. Gamification helps you educate users and help users self-learn. In self-study, especially when done online or digitally, gamification creates interactivity between the student and the 'teacher'. It can also help teachers by offloading responsibility for student motivation and participation and providing a welcome change in pace and style. Gamification can also increase awareness by placing students in scenarios that force them to perform and comprehend things that would otherwise be “blank” in regular computer-based training.

1.7. Project Plan

For our project Planning, we will divide some of the parts individually to each other while major tasks will be done together such as front-end, back-end, Database as well as Web, design/Development/testing and documentation etc. The first part is the requirement gathering which can be done by all members. The user interface design is a major task as well as storing the relevant data for our selected grades. Ul is the part our users can see and will be interacting with. Ul will be user friendly. As we will start doing back-end code this part usually takes some time but our motive is to complete this part in about 90 days. The last phase is testing and implementation which will be done in about 30 days. The platform will be handed over to students and teachers for testing and feedback will be gathered timely. All this will be done under the time span of FYP-1 and FYP-2.

1.7.1. Work Breakdown Structure

2. Preparation

2.1. Questionnaire

2.2. Requirement Analysis

2.3. Feasibility study

3. Planning

3.1. Documentation

3.2. Finalizing of deliverables

3.3. Scheduling of project

4. Design

4.1. Front end design of both web and mobile.

5. Development

5.1. Create database.

5.2. Convert html design into Vue JavaScript.

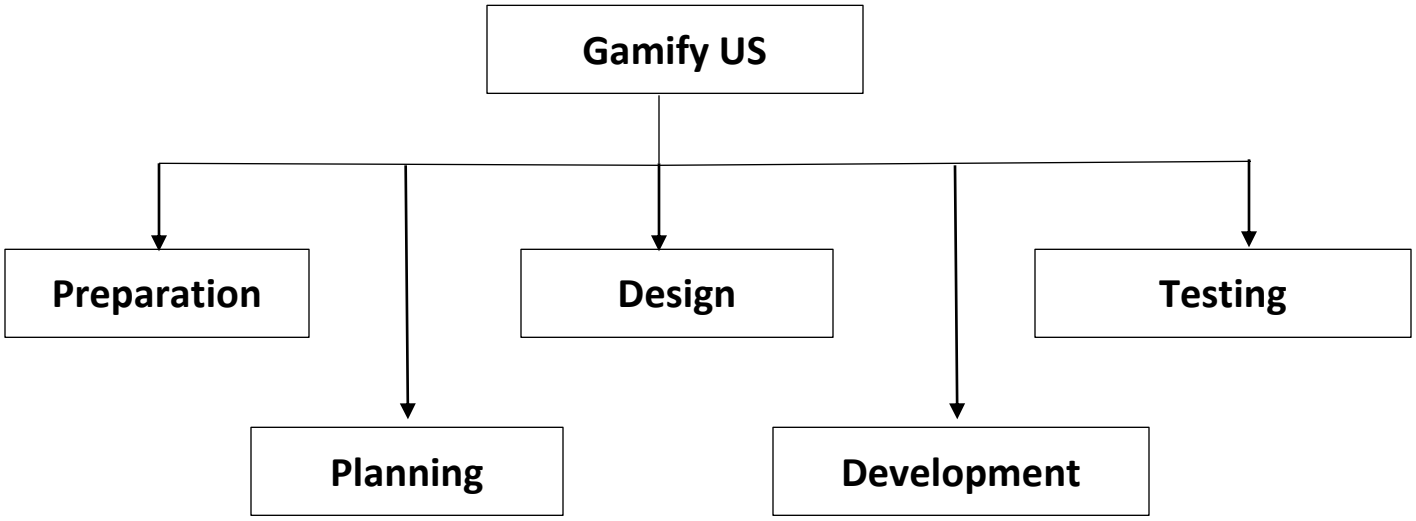
5.3. Create backend in Laravel.

5.4. Integration backend with front end.

6. Testing

6.1. Functional testing

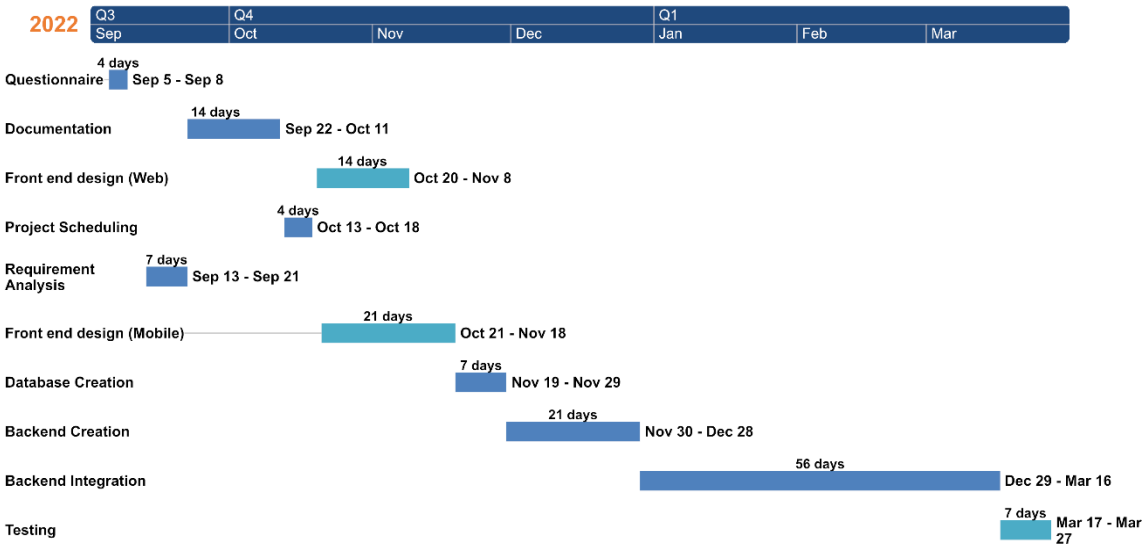
6.2. Non Functional Testing.



6.2.1. Roles & Responsibility Matrix

Deliverable	Activity to complete the deliverable	Duration (# of days)	Responsible members
Questionnaire	Questionnaire design and response time.	4	Farhan Tariq Ahmad Imran Hamza Shah
Requirement analysis	Analyze requirements	7	Farhan Tariq Ahmad Imran Hamza Shah
Documentation	Document all the requirements, goals and actions need to be taken to achieve those goals	10	Farhan Tariq Ahmad Imran Hamza Shah
Scheduling of project	Create a schedule to keep the process fluid and to track progress	4	Farhan Tariq Ahmad Imran Hamza Shah
Front end design (Instructor Dashboard)	Design a front end design in html and then convert it into Vue JavaScript and Blade Files.	14	Farhan Tariq Ahmad Imran
Front end design (Student Application)	Design a front end design in	21	Hamza Shah
Create a Database	Create database for string and syncing project data	7	Ahmad Imran
Create a backend	Creating backend using Laravel	21	Farhan Tariq Ahmad Imran
Integration with backend	Integrate frontend and backend for complete experience	56	Farhan Tariq Ahmad Imran Hamza Shah
Testing	Test for the functional and nonfunctional requirement of the project	7	Farhan Tariq Ahmad Imran Hamza Shah

6.2.2. Gantt Chart



Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

7.1. Introduction

7.1.1. Purpose

The purpose of this document is to build a platform where a teacher can convert its lecturer video into a gamify video. When a student will watch that video and gives answer on every particular point, he will get points on every answer and a leader board will show the students who have highest points while watching video.

7.1.2. Document Conventions

This document uses the following conventions.

Conventions	**Meaning**
DB	Database
ER	Entity Relationship database.
UI	User Interface
SRS	Software requirement specification
SI	System Interface
AI	Artificial Intelligence

7.1.3. Intended Audience and Reading Suggestions

The document is intended for, such as developers, project managers, users, testers, and documentation writers. This SRS document contains the complete set of functionalities of the project, the various requirements to make use of it. It is suggested that the individuals referring it to go through the introduction and overall description before studying various aspects of it.

7.1.4. Product Scope

We are developing a platform where a teacher can convert its lecturer video into an interactive video. When a student will watch that video and gives answer on every particular point, he will get points on every answer and a leader board will show the students who have highest points while watching video. A platform that can make a simple video to an interactive to engage students and make it competitive so that listener take more interest and remember things more.

7.2. Overall Description

7.2.1. Product Perspective

Given the addictive ability of video games to engage and engage people, it is not surprising that similar engagement results are seen when these game elements are used in educational materials. Gamification can reward many academic disciplines, not just knowledge acquisition. Gamification helps you educate users and help them self-learn. It can also help teachers by reducing their responsibility for student motivation and participation, and by providing a welcome change in pace and style. Gamification can also increase awareness by placing students in scenarios that force them to perform and comprehend things that would otherwise be “blank” in regular computer-based training.

7.2.2. User Classes and Characteristics

For Student:

- Create Account.
- View / Take Courses.
- Check leaderboards.
- Profile Management.
- Chat with the instructor.
- Filter courses.
- Give reviews to the instructor.
- View notifications.

For Instructor:

- Create Account.
- Create interactive courses.
- View all courses.
- Course detail (all reviews, leaderboard scores of student).
- Profile management.
- Chat with the students.
- View all his reviews.
- View notifications.

For Admin:

- View and manage all users (Students and Instructor).
- View and reply all quires related to platform.
- Manage FAQ's of site.
- Admin profile management.

7.2.3. Operating Environment

Operating environment for the Gamify US is as listed below.

- Operating system: Android, IOS and Web.
- MySQL Database
- Platform: PHP / Android 10+ / IOS 10+

7.2.4. Design and Implementation Constraints

7.2.4.1. Technology Constraints

The proposed instructor web application will be implemented with Vue.js for web front end design purpose, Laravel Framework for the backend and for the database purpose we will use MySQL. The proposed student mobile application will be implemented in React Native.

7.2.4.2. Interface Constraints

As this is a web and mobile based application it will work on major browsers like Internet Explorer, Microsoft, Google Chrome, Opera, and Mozilla Firefox etc. and on mobile Operating System like IOS and Android.

7.2.4.3. Safety & Security Constraints

This application is intended for authorized users only, anonymous users will not be able to access and operate over the user data.

7.2.5. Assumptions and Dependencies

Gamify US app function is available for everyone the data is only accessible through the Internet, it is assumed that the end user has a connection to the Internet. It is also assumed that the user has Web browser and App Store/ Play Store to download the application. The application is OS dependent.

7.3. External Interface Requirements

7.3.1. User Interfaces

The User interface provide communication between users and system. Our User interface are easy to understand. All Parts of user interface is well-organized. When users use the application, they can easily understand which panel is used for which purpose. Each Module of an interface is specified clearly and users use them correctly. When user's press to any button on interface, they can know which operations are done by pressing this button.

7.3.2. Hardware Interfaces

The hardware requirements at the user end are very simple. The web application can run on the hardware that can run a basic simple browser, although the hardware should be good enough to run the web application during the peak times for the web servers. The mobile hardware interface for the user would be any smart phone having android OS and IOS with

minimum 3 GB ram and minimum space of 100 MB for this application and Internet connection for data so that users can interact with the system without any problem.

7.3.3. Software Interfaces

Web application is an easy to use platform designed and developed for native usage. It is developed in Vue.js for designing interfaces. Website's running scripts are coded with JavaScript and design is managed by CSS and bootstrap. The application should support all major web browsers that will make it convenient for the instructors to access the Dashboard with ease. The student mobile application uses the React Native and JavaScript development framework libraries and classes. The backend of the application is done in Laravel Framework and the MySQL database will be used to a great extent and hence it will be quite efficiently designed.

7.3.4. Communications Interfaces

MySQL and Rest API is used to establish connection. When user send request the system establishes connection to the database, once the connection is created the client program can communicate with the database through the Rest API.

7.4. System Features

7.4.1. User Registration

7.4.1.1. Description and Priority

Instructor can register himself through web by providing its information and can also register through Google and Facebook account. Student can register himself through mobile application and can also use social accounts such as Facebook and Google.

7.4.1.2. Stimulus/Response Sequences

Users will need to enter information or allow us to use their social account information after validation they will be registered and now they can use Gamify US.

7.4.1.3. Functional Requirements

REQ-SF1-1: There will be multiple inputs like Email, Password, Category and Biography.

REQ-SF1-2: Information will be saved in the DB.

REQ-SF1-3: In case of social registration, user have to allow platform to read its information.

7.4.2. User login

7.4.2.1. Description and Priority

Instructor can login through web and Students can login through mobile application by using email and password.

7.4.2.2. Stimulus/Response Sequences

After login, User will enter into the dashboard where he see stats and list of interactive video.

7.4.2.3. Functional Requirements

REQ-SF2-1: Multiple Inputs fields like Email and Password.

REQ-SF2-2: Valid email and password.

7.4.3. Interactive course creation.

7.4.3.1. Description and Priority

Instructor can create course by going into the “create new course” page. Instructor have to provide video. This will create new interactive course and will be listed in the student’s mobile application.

7.4.3.2. Stimulus/Response Sequences

Instructor will have to go through four steps to create course. After completing all steps, course will be created.

7.4.3.3. Functional Requirements

REQ-SF2-1: Multiple inputs like name, description, category, quiz question etc.

REQ-SF2-2: Must have a video can upload or provide link of the video.

7.4.4. Chat Module

7.4.4.1. Description and Priority

Student can chat with the instructor the chat module of the platform only when instructor have accepted its chat request.

7.4.4.2. Stimulus/Response Sequences

When chat request has accepted both of the user can communicate with each other.

7.4.4.3. Functional Requirements

REQ-SF2-1: Student chat must be approved by instructor.

REQ-SF2-3: Both users must have an internet connection to have smooth conversation.

7.4.5. Interactive Videos

7.4.5.1. Description and Priority

Student can select and watch interactive videos from the course listing. Student have to give answer to the question added by instructor in the course and on each answer he will have gain/loss score.

7.4.5.2. Stimulus/Response Sequences

After completion of the video, a leaderboard will be shown to the student which will show his standing among the students who have watched this video and a review for the instructor.

7.4.5.3. Functional Requirements

REQ-SF2-1: Student have given access to speaker in the mobile application.

7.4.6. Course Module

7.4.6.1. Description and Priority

Instructor can see all its course listing and can we detail by going into the course detail section and where all reviews and leaderboards are listed.

7.4.6.2. Stimulus/Response Sequences

Instructor can go through all its course and detail by going its section.

7.4.6.3. Functional Requirements

REQ-SF2-1: Must have created its own course.

7.4.7. Profile Module

7.4.7.1. Description and Priority

User can maintain its profile from the profile module. Can update password, its category, biography etc.

7.4.7.2. Stimulus/Response Sequences

Student need to provide valid information and its profile will be updated in the DB.

7.4.7.3. Functional Requirements

REQ-SF2-1: Multiple Inputs fields for name, email, password, category etc.

7.4.8. Admin Panel

7.4.8.1. Description and Priority

Admin can manage all users, interactive courses, manage terms & condition and privacy policy, manage platform FAQ's dynamically from the admin panel and can view and reply to all user queries.

7.4.8.2. Stimulus/Response Sequences

Admin can login to panel to manage all the modules by going into each module section.

7.4.8.3. Functional Requirements

REQ-SF2-1: Must have credentials to have access to panel.

REQ-SF2-2: Should allow users to misuse the platform.

7.5. Nonfunctional Requirements

7.5.1. Performance Requirements

The operating system must be fast and must not cause any errors within the system. The application shall take initial load time depending on internet connection strength. The performance shall depend upon hardware components of the users.

7.5.2. Safety Requirements

The system should store and retrieve data in an efficient manner in the database. Data and records must be kept securely. Unwanted access would not be allowed.

7.5.3. Security Requirements

The security requirement of our application is as followed:

- Authentication.
- Authorization.
- Data Protection.
- Nonrepudiation.

7.5.4. Usability Requirements

The system is intended to develop as user friendly as it is easily usable for the user who has basic knowledge to use the smartphone applications and web application. The system shall be very helpful who have awareness of technology and use similar systems before. The users doesn’t need high level knowledge to use this application

7.5.5. Reliability Requirements

The system is reliable the user can use the application 24/7 the response time and the result will always accurate the system design in the way that it can't hang or crash the application.

7.5.6. Maintainability/Supportability Requirements

The **GAMIFY US** development team will follow best practices for clean code and software modularity in order to make the application as maintainable as possible. The application will not crash if the user gives unexpected input and not get hanged for few seconds if the user sends request multiple times.

7.5.7. Portability Requirements

Users will be able to access this application anytime and anywhere on their mobile and computer device just need an internet connection.

7.5.8. Efficiency Requirements

The system is efficient as it requires minimum space in device and does not give a heavy load to RAM to run and it will not take unnecessary memory allocation. It takes minimum response time to respond user's request.

Chapter 3

Use Case Analysis

Chapter 3: Use Case Analysis

The use-case diagram tells us the high-level functions, users and scope of a system. The use-case diagrams also figure out the interactions between the system and its actors. These diagrams define the context and requirements of entire system.

3.1. Use Case Model

3.2. Use Cases Description

1)

Use Case	**Register**
Scope	To allow users to login the system
Primary Actors	Instructor and Students
Stake Holders	Admin, Instructor and Students
Pre-conditions	Must have valid user's name, email, password, categories and biography.
Post-conditions	Enter in system without any problem.
Main Success Scenario	1. The system allows a non-registered user to create a new account. 2. The system requires the following information from the users: user's name, email, password, categories and biography 3. The system shall store the information in the database
Extensions	If information is not valid then user will not registered.

2)

Use Case	**Login**
Scope	To allow users to login the system
Primary Actors	Instructor and Students
Stake Holders	Admin, Instructor and Students
Pre-conditions	Must have valid user's email and password.

Post-conditions	Enter in system without any problem.
Main Success Scenario	1. The system allows a registered user to log-in to the system. 2. The system requires email and password from the user. 3. The system verifies the email and password and the user logged-in to the system.
Extensions	If email and password are wrong then system stops the login process.

3)

Use Case	**Create interactive course**
Scope	To allow instructor to create interactive courses.
Primary Actors	Instructor.
Stake Holders	Admin and Instructor.
Pre-conditions	Must have video.
Post-conditions	Enter in system without any problem.
Main Success Scenario	1. The system allows an instructor to create courses for the students with gamification in it. 2. The system requires video, quiz questions at particular time and course information. 3. The system verifies all the data about the course is valid and then creates the course and then it will be listed in the

	student mobile app.
Extensions	If user didn't provide valid information then it will be stop from creating the course.

4)

Use Case	**Take interactive course**
Scope	To allow students to take interactive course.
Primary Actors	Student
Stake Holders	Admin and Student.
Pre-conditions	Student must belongs to same category or have access code to take the course.
Post-conditions	Student will receive points in his scoreboard.
Main Success Scenario	1. The system allows a student to take interactive course which will be like playing a game while watching video. 2. The system requires answers on each question every time a question shown to the student. 3. The system validate all the answer and give point to the student based on the answers.
Extensions	If student didn't give answer then he can't watch all the video.

5)

Use Case	**Chat between student and instructor**
Scope	To allow students to chat with the instructor to resolve their queries.
Primary Actors	Instructor and Student
Stake Holders	Admin, Instructor and Student.
Pre-conditions	Student must send request to instructor for chat.
Post-conditions	Instructor and student can send communicate after accepting the request.
Main Success Scenario	1. The system allows a student to send request to the instructor for chat. 2. Instructor after accepting the chat request can communicate with the student.
Extensions	If instructor didn't accept the chat request then user can't communicate with each other.

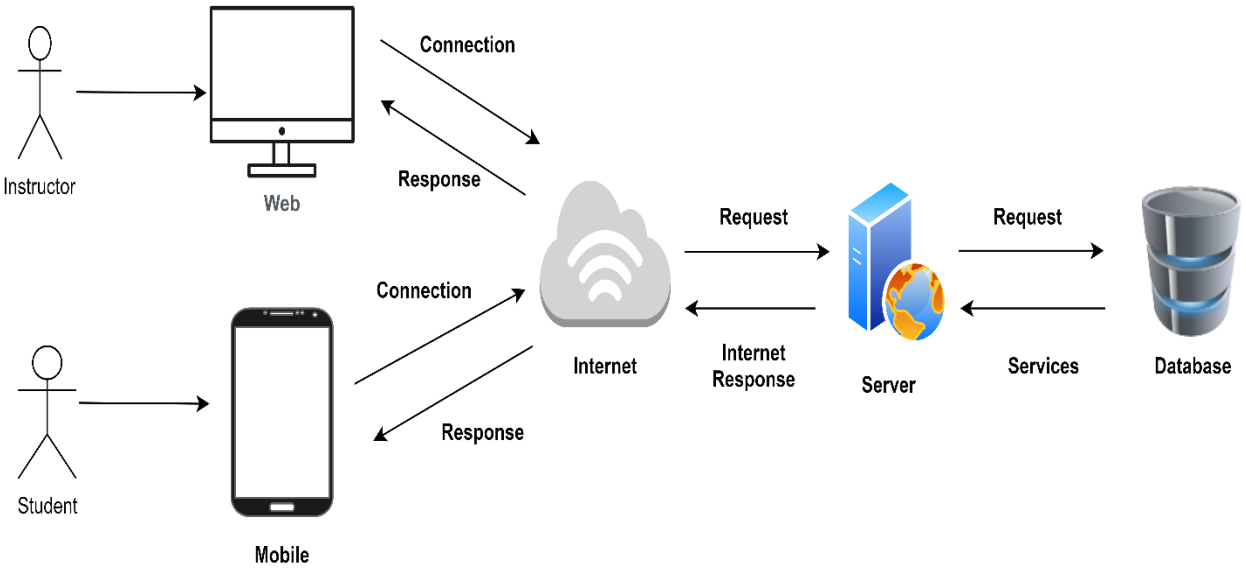
Chapter 4

System Design

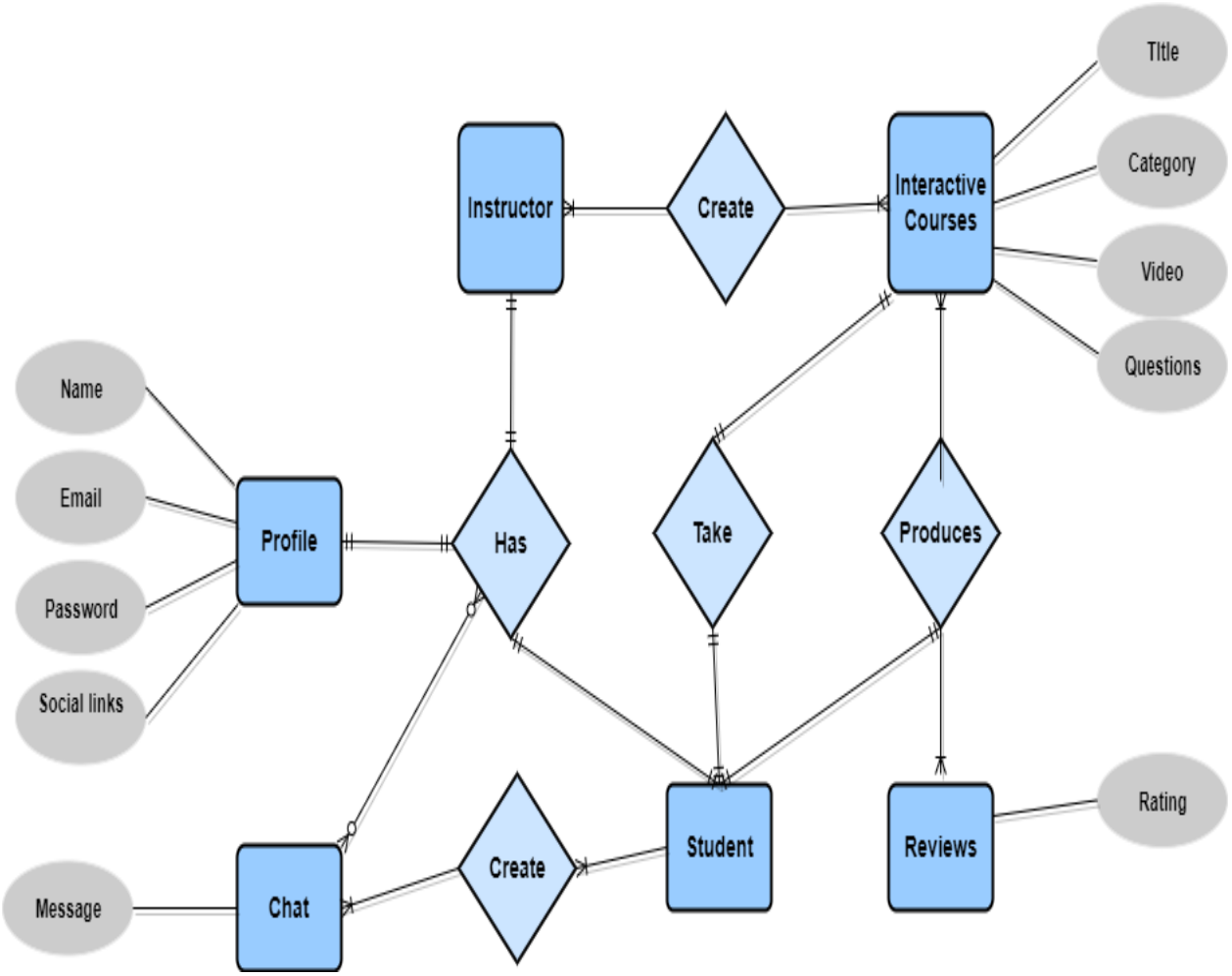
Chapter 4: System Design

System Design is the process to provide detailed data and information about the entire system and its system elements. System Design process to enable the implementation with the architectural entities as defined in models and requirements.

4.1. Architecture Diagram

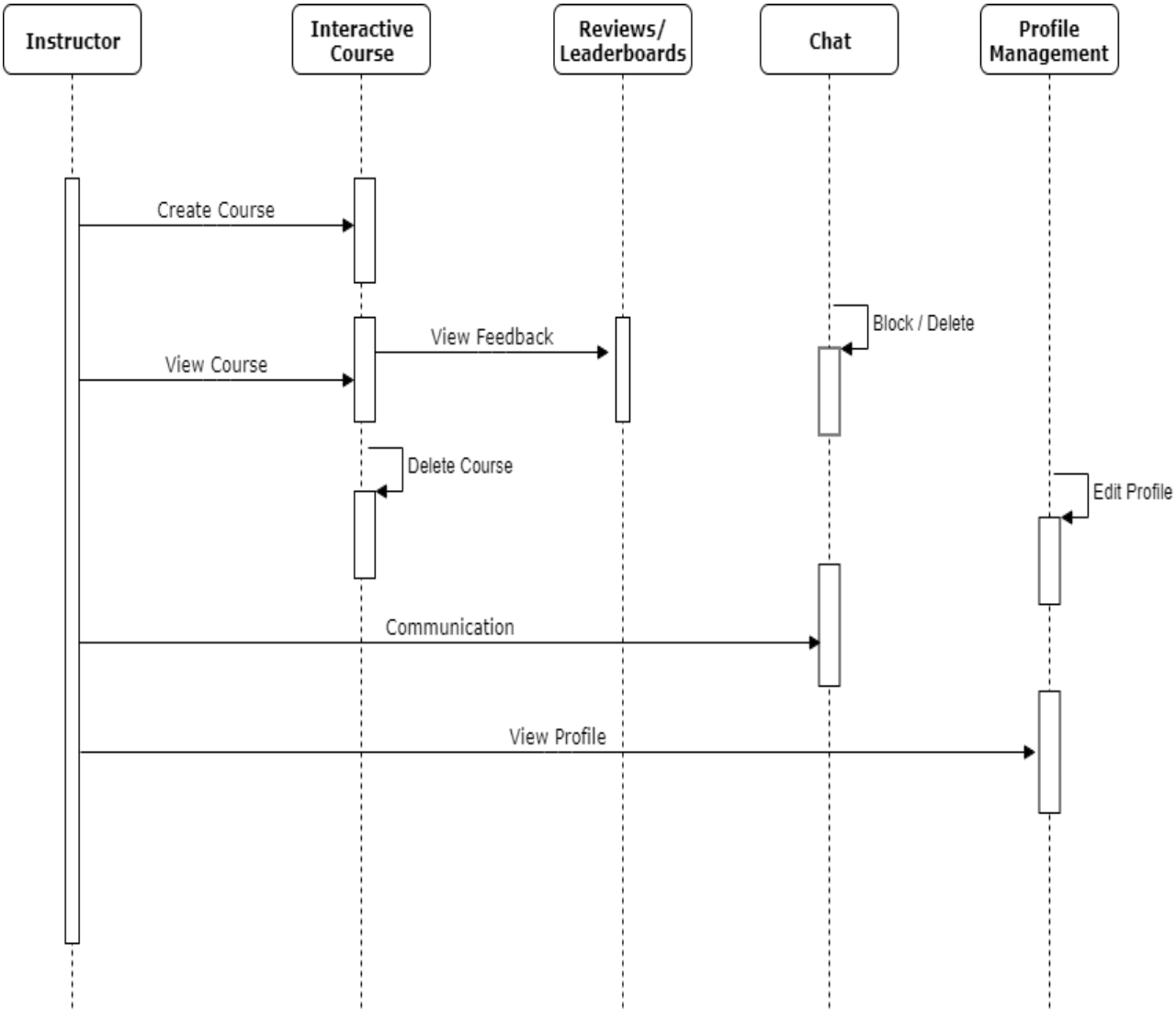


4.2. Entity Relationship Diagram with data dictionary

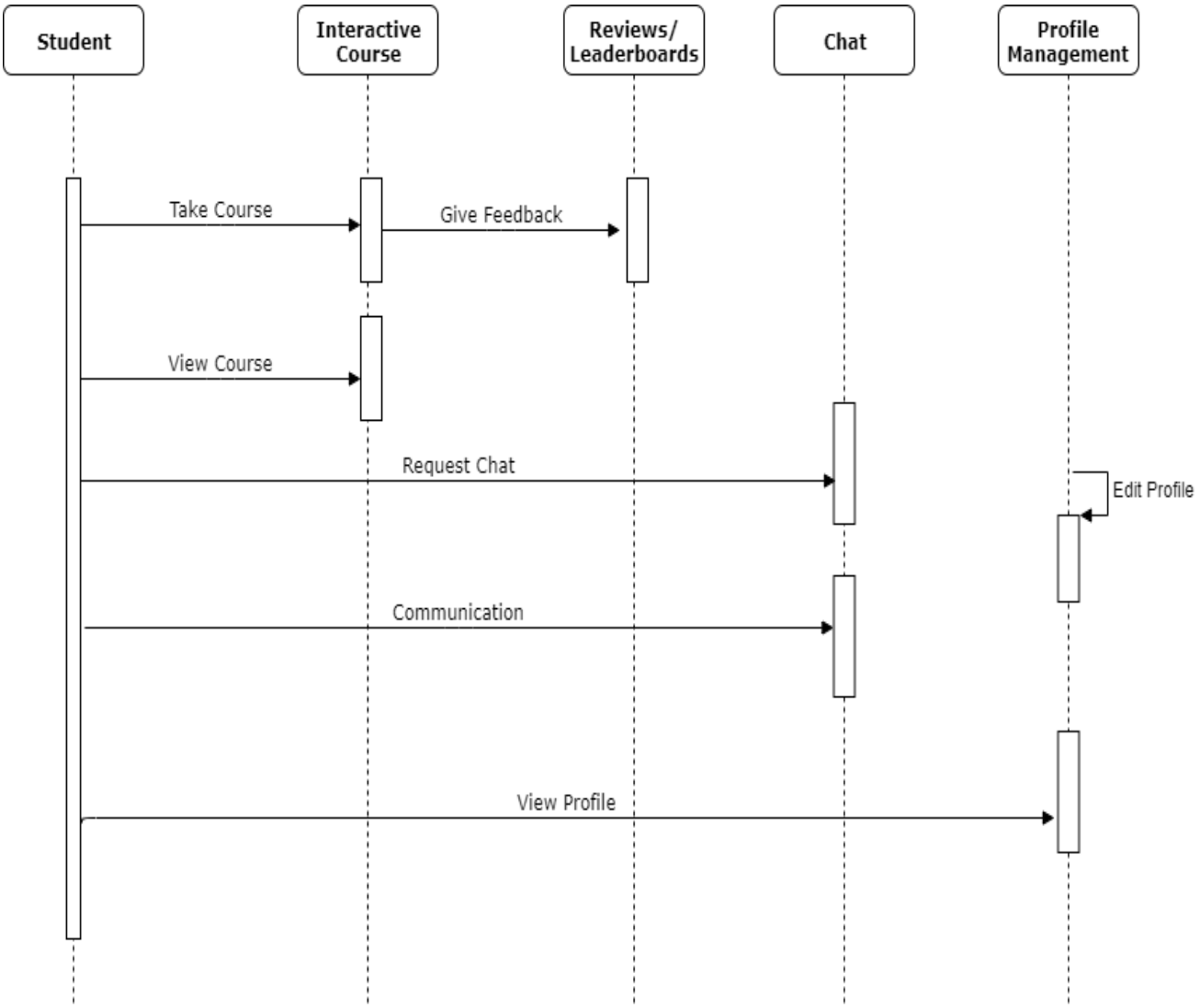


4.3. Sequence / Collaboration Diagram

4.3.1 Instructor Sequence Diagram

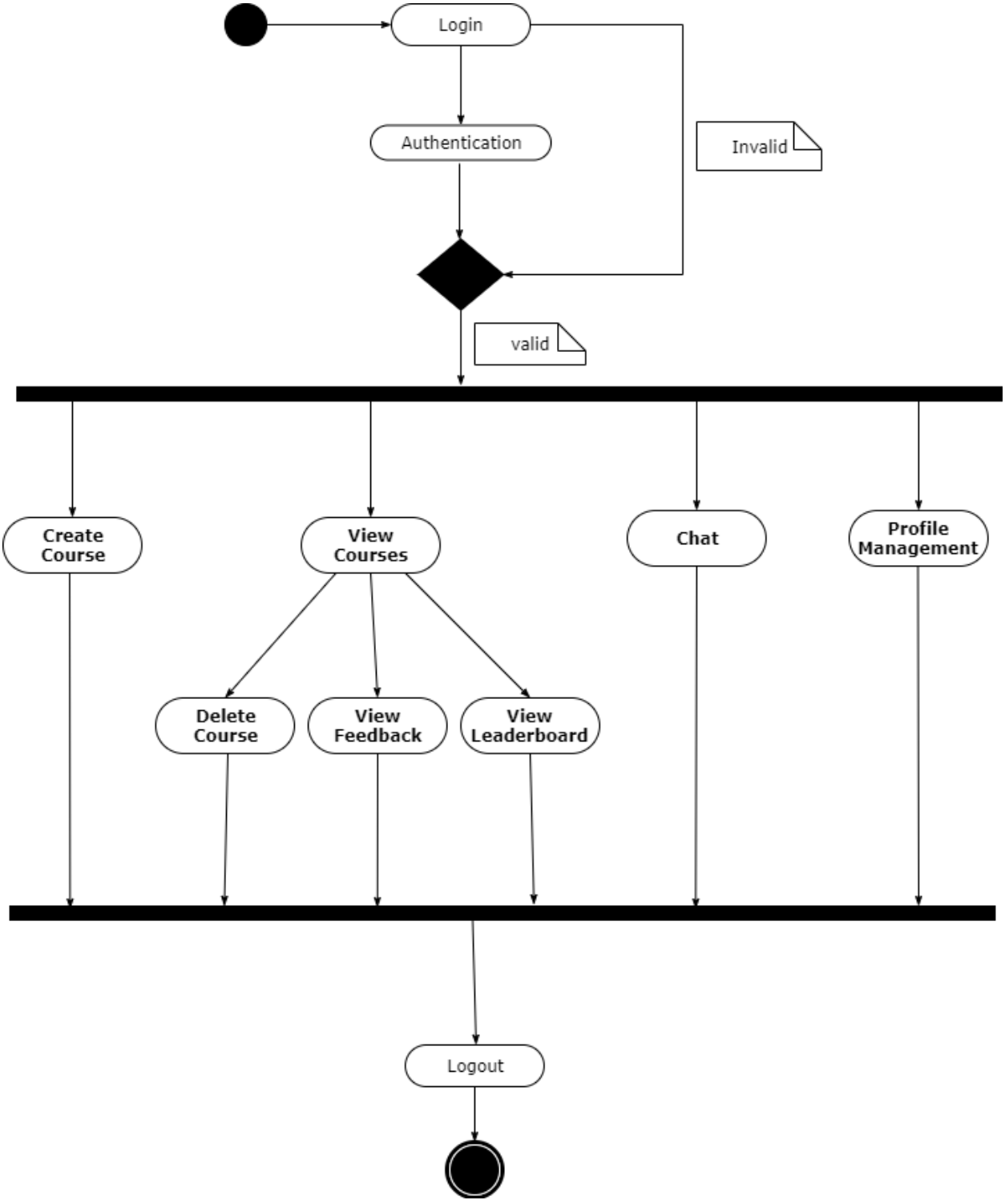


4.3.2 Student Sequence Diagram

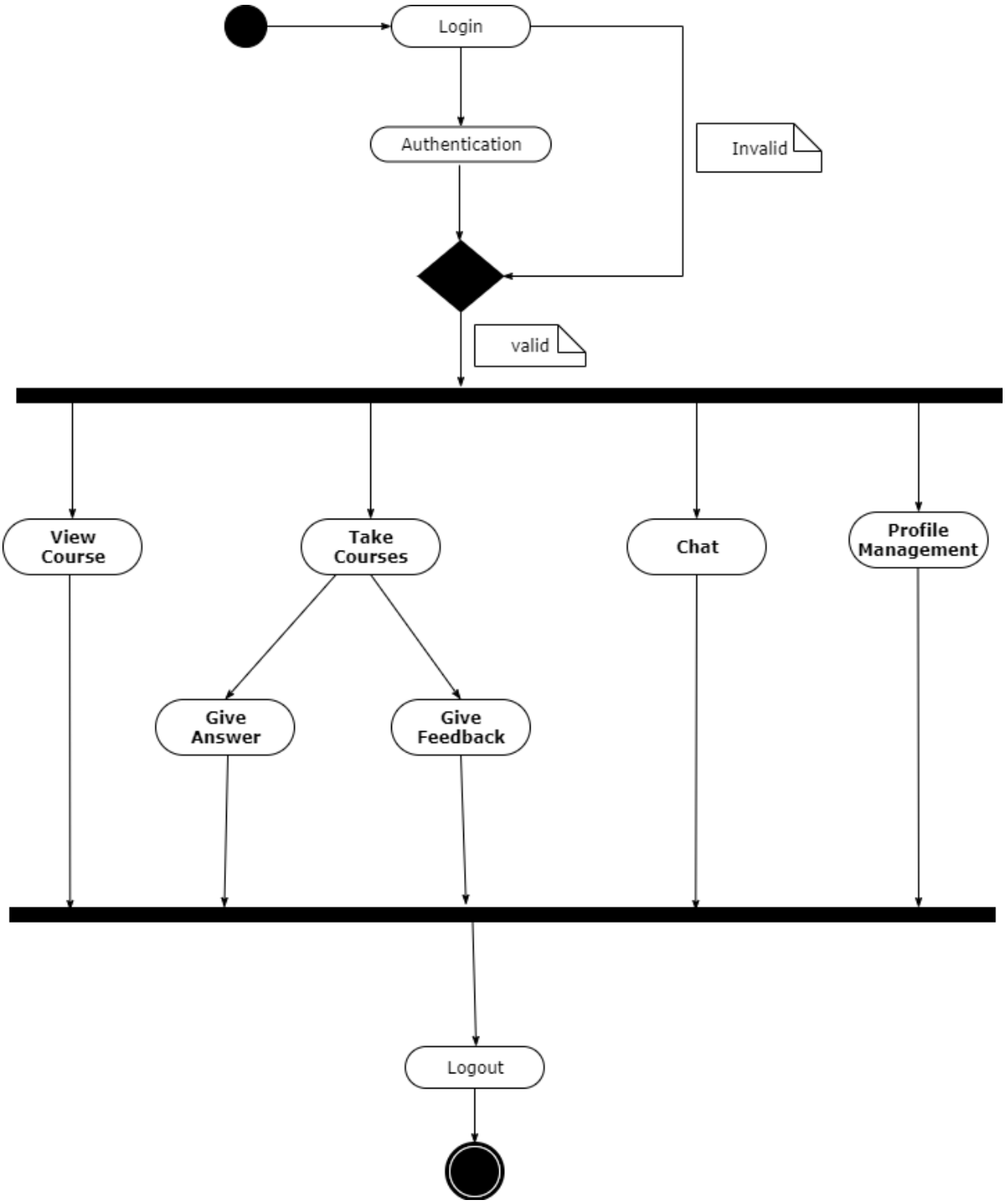


4.4. Activity Diagram

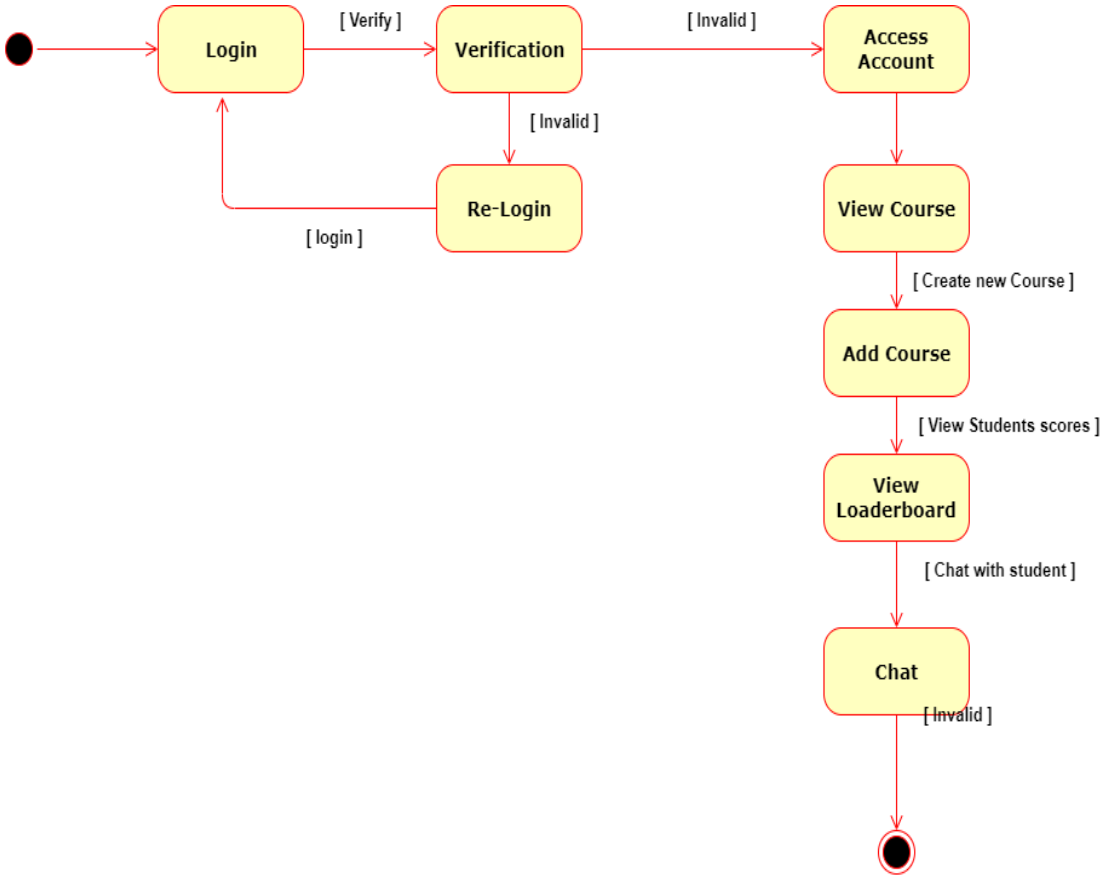
4.4.1 Instructor Activity Diagram



4.4.2 Student Activity Diagram

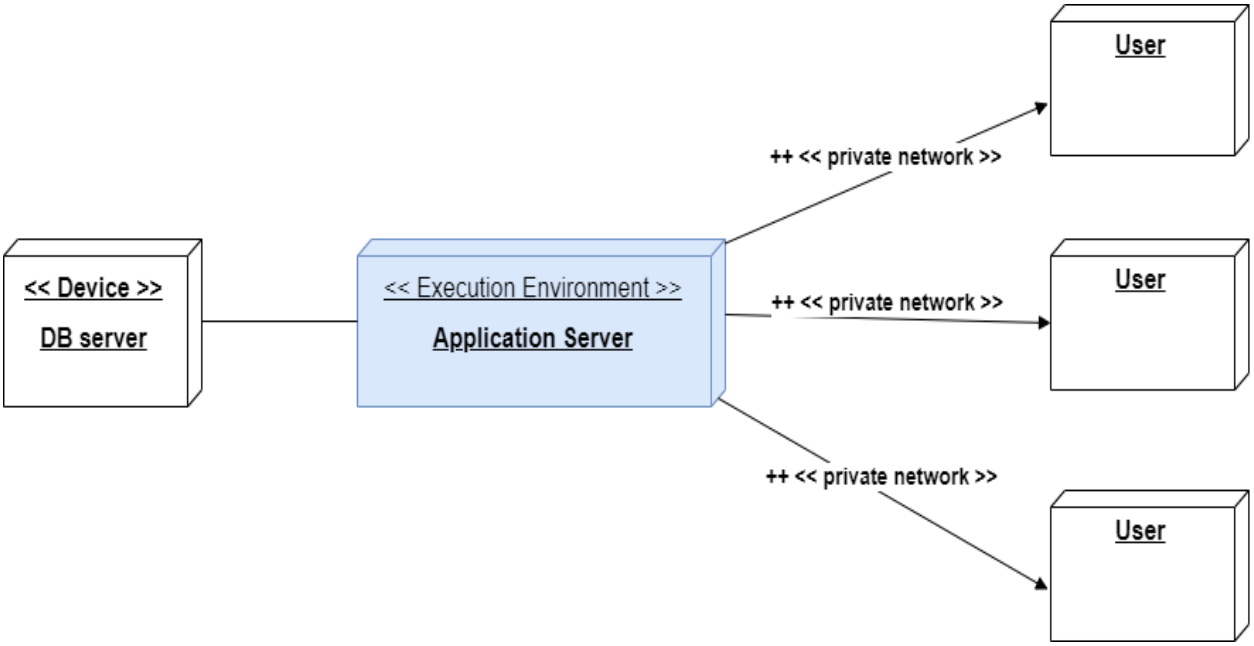


4.5. State Transition Diagram



Text

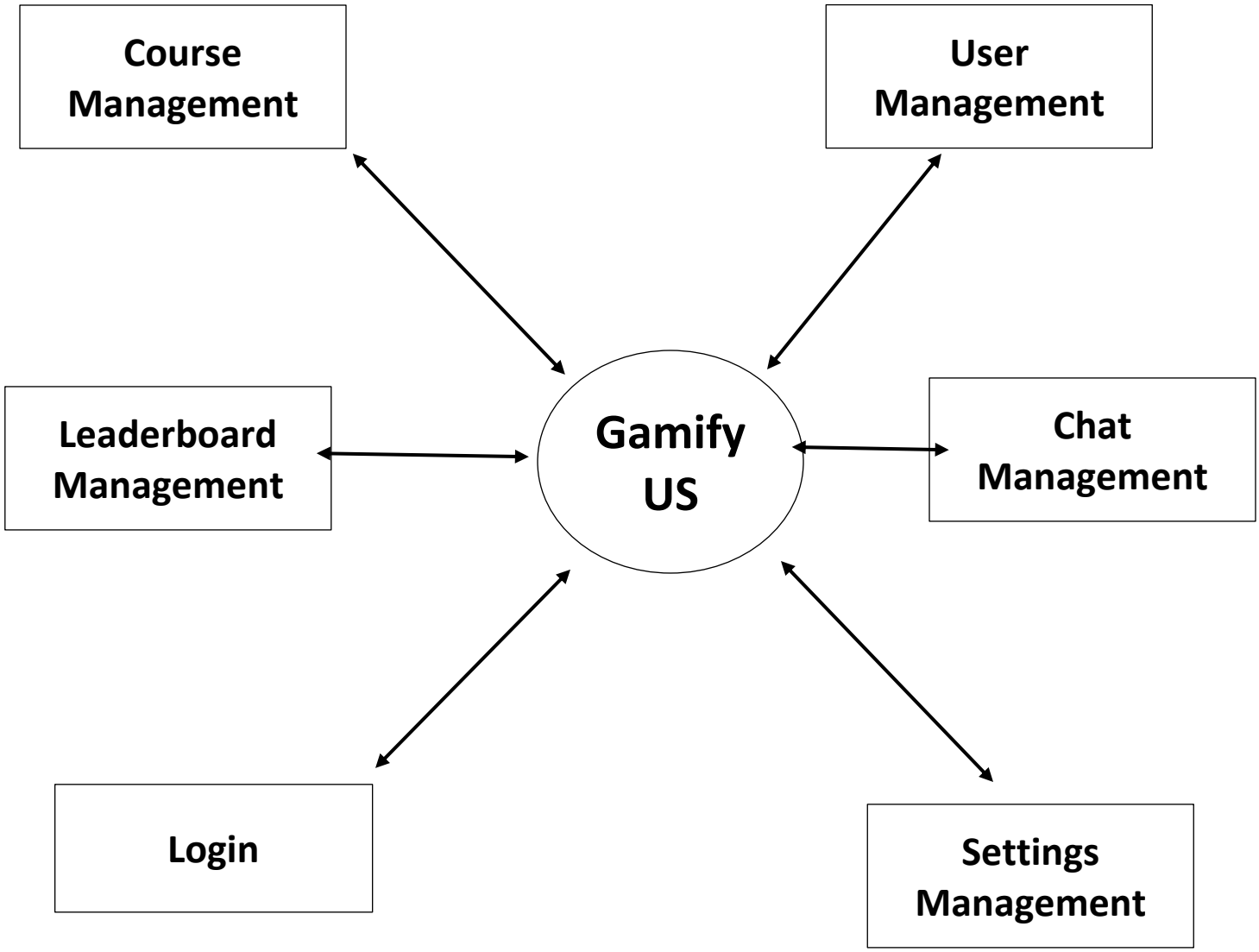
4.6. Deployment Diagram



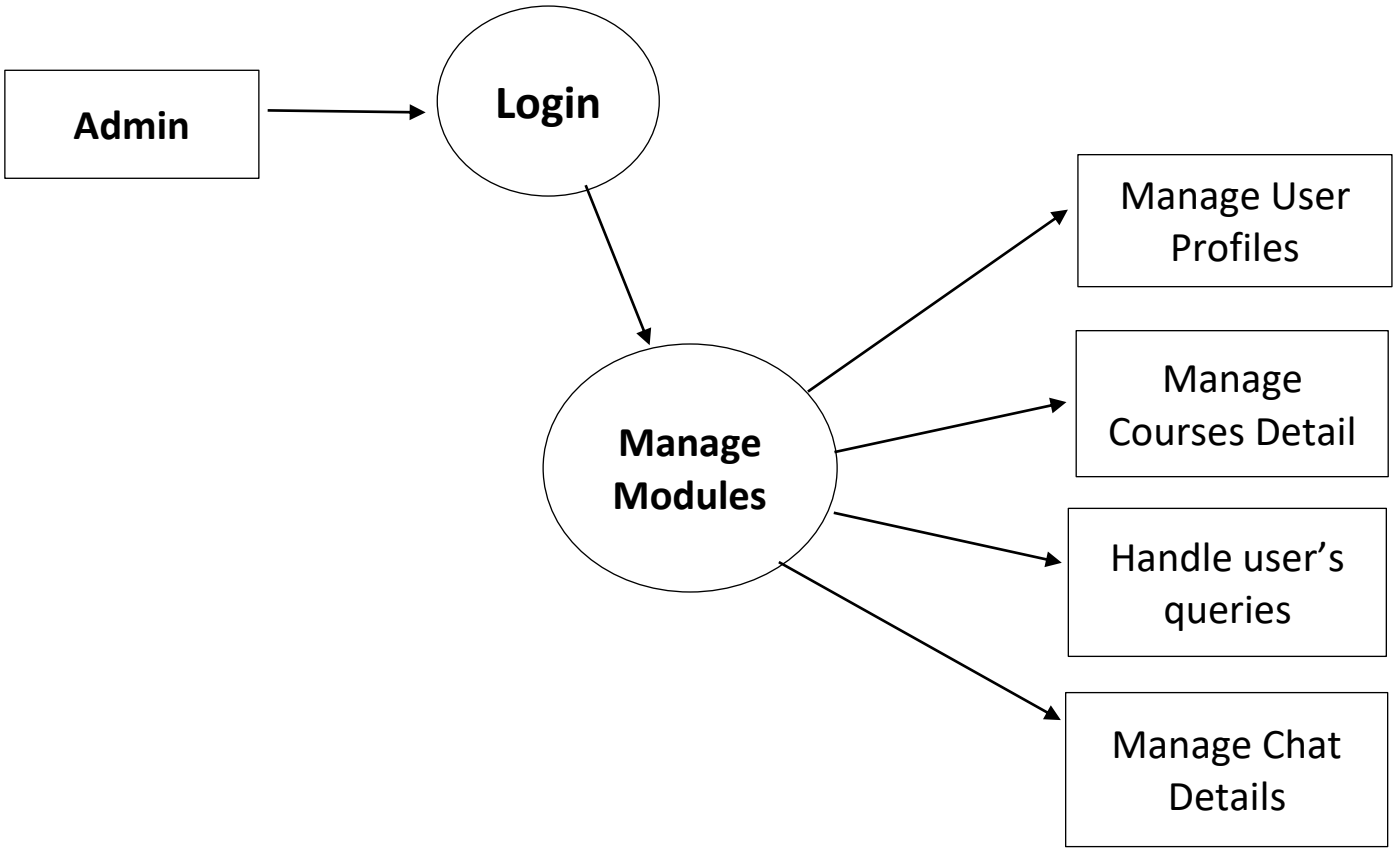
4.7. Data Flow diagram

Gamify US Data Flow Diagram is often used to create an overview of the platform without going in deep details, it consists of overall application dataflow and process of the education platform (Gamify US). It includes the user dataflow and their entities like courses, leaderboards, reward management and chats.

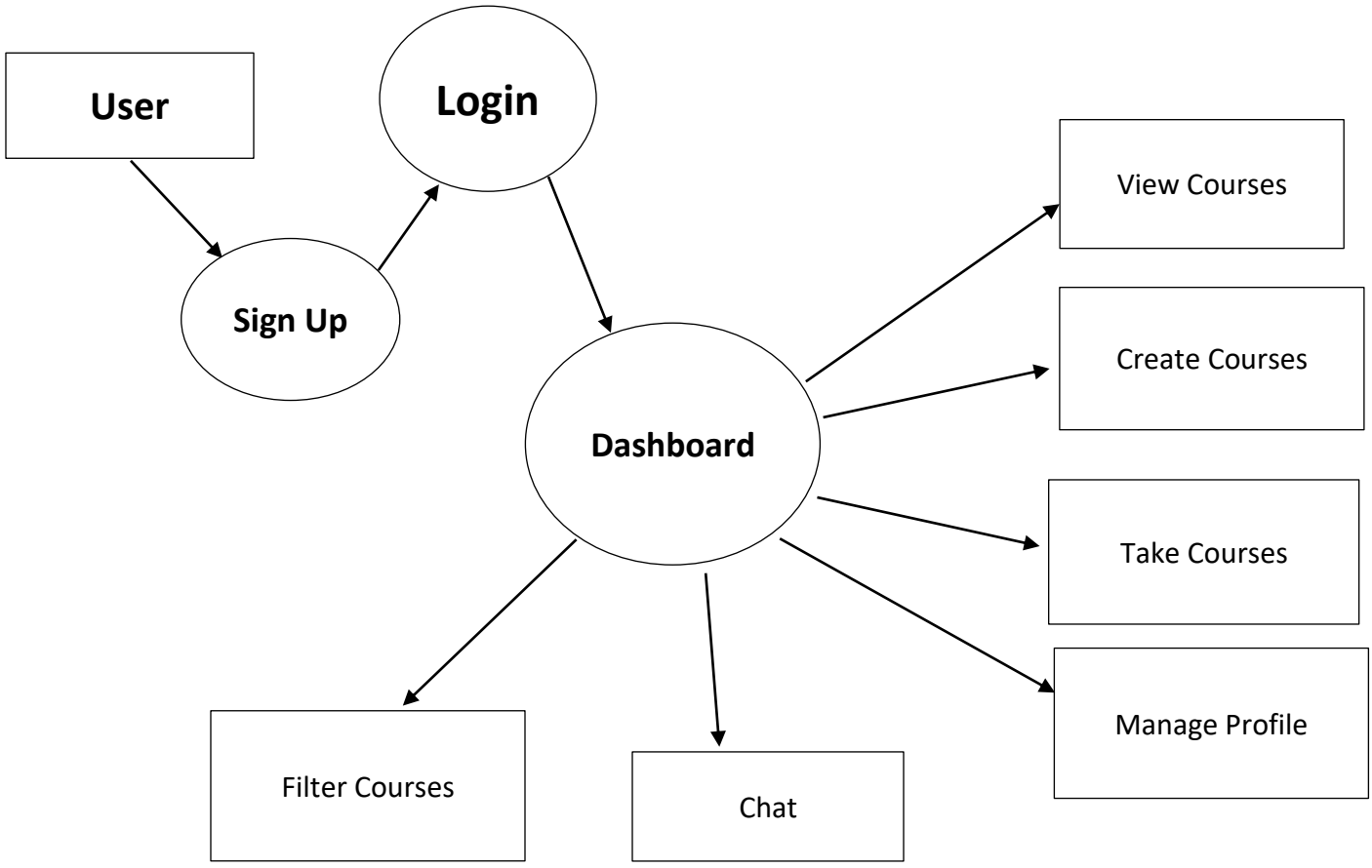
Context Level DFD – 0 Level



Admin Side DFD – 1st Level:



User Side DFD – 2nd Level:



Chapter 5
Implementation

Chapter 5: Implementation

5.1. Important Flow Control/Pseudo codes

User

Create User Account

View Course

Make Interactive Courses

Take Courses

Chat

Profile Management

Leaderboards

Admin

User Management

Courses Management

Handle System Queries

System Controls Management

5.2. Components, Libraries, Web Services and stubs

Components

Interactive Courses

Chat

Leaderboards.

Profiles.

Libraries

JavaScript Libraries

React Native Libraries

PHP Laravel Libraries

MySQL Libraries

Vue JS Libraries

Web Services

MySQL

AWS EC2 Instance

PHP (web services)

5.3. Deployment Environment

The software operates on Web browser for instructor and Smart phone for students.

Browser:

- Play store
- App store
- Any web browser (Chrome, safari, Firefox etc.)

Operating System:

- Any Version of Android up to 4.2
- Any Version of IOS up to 8

5.4. Tools and Techniques

- Visual Studio Code
- MySQL database
- PHP (web services)
- Html, CSS and Bootstrap
- Predictive analytics

5.5. Best Practices / Coding Standards

The best practices to write the code which we will follow:

- Commenting
- Code Reusability (Components)
- Fast and reliable code.

Chapter 6

Testing and Evaluation

Chapter 6: Testing and Evaluation

The assessment is done by the tree of standards from the essential measures up. The technique for still up in the air by the choice standards. The variation which is granted the most noteworthy grade should be the best one. Because of the intricacy of Interactive course learning and countless measures it is fundamental that the dynamic model permits us to acquire the last appraisal, yet additionally a definite halfway investigation of individual components.

In this manner we can identify flimsy parts and detriments of the framework, which can be utilized as the reason for framework enhancements.

6.1. Use Case Testing

Use case describe the process flows through a system based on its most likely use this makes the test cases derived from use cases particularly good for find defects in the real world use of the system.

Instructor Screen

Test Case ID: 1			**Test Design By:** Ahmad Imran		
Test Module Name: Instructor Dashboard Screen			**Test Design Date:** 17 March 2023		
Test Priority: High			**Test Executed By:** Farhan Tariq		
Test Title: To test Instructor Dashboard screen is showing all the functional requirement			**Test Executed Date:** 17 March 2023		
Description: Test Instructor Dashboard screen is showing all the functional requirement					
Pre-condition: Open site and login/register to instructor dashboard					
Dependencies:					
Step	**Test Step**	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**
1.	Login to instructor dashboard		Instructor dashboard is shown	Instructor dashboard is shown	Pass

2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass
3.	View analytics and check reviews		Data shown on dashboard is correct	Data shown on dashboard is correct	Pass
Post Condition: Instructor page works perfectly					

Instructor Add Course Screen

Test Case ID: 2			**Test Design By:** Ahmad Imran		
Test Module Name: Instructor Add Course Screen			**Test Design Date:** 21 March 2023		
Test Priority: High			**Test Executed By:** Farhan Tariq		
Test Title: To test instructor add course module			**Test Executed Date:** 21 March 2023		
Description: Test Instructor add course screen has all its functional requirement					
Pre-condition: Open site and login/register to instructor dashboard					
Dependencies:					
Step	**Test Step**	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**
1.	Login to instructor dashboard		Instructor dashboard is shown	Instructor dashboard is shown	Pass
2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass
3.	View add course screen		Form shown to add data	Form shown to add data	Pass

4.	Check validation and complete steps to add a course		Validations shown and Course add successfully	Validations shown and Course add successfully	Pass

Student screen

Test Case ID: 3			**Test Design By:** Hamza Shah		
Test Module Name: Student mobile application screen			**Test Design Date:** 24 March 2023		
Test Priority: High			**Test Executed By:** Ahmad Imran		
Test Title: To test student mobile application main screen			**Test Executed Date:** 24 March 2023		
Description: Test student mobile application main screen follow its functional requirement.					
Pre-condition: Install application and register/login as a student					
Dependencies:					
Step	**Test Step**	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**
1.	Login to student application		Student main screen is shown	Student main screen is shown	Pass
2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass
3.	View and search courses.		Courses are of student category and can be enrolled.	Courses are of student category and can be enrolled.	Pass

Student Interactive Course functionality

Test Case ID: 4	**Test Design By:** Hamza Shah
Test Module Name: Test interactive course functionality for student.	**Test Design Date:** 26 March 2023
Test Priority: High	**Test Executed By:** Ahmad Imran
Test Title: To test student interactive course functionality.	**Test Executed Date:** 26 March 2023
Description: Test student is able to interactive with course through quiz question.	
Pre-condition: Login into application and Enrolled a course.	
Dependencies:	

Step	Test Step	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1.	Login to student application		Student main screen is shown	Student main screen is shown	Pass
2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass
3.	Add a course.		Course is added to my courses.	Course is added to my courses.	Pass
4.	Start video in the course.		Question are shown while watching video	Question are shown while watching video	Pass
5.	Answer the question.		Points given on every question answered.	Points given on every question answered.	Pass

6.2. Equivalence partitioning

At least two circumstances are identical on the off chance that they produce basically a similar conduct. In the event that one circumstance works accurately, we can essentially expect the other(s) are right as well. (We don't need to test them everything.) It very well may be utilized at any dimension of programming for testing and is ideally a decent system to utilize first.

Equivalent Class Partitioning is a black box technique (code is not visible to tester) which can be applied to all levels of testing like unit, integration, system, etc. In this technique, we divide the set of test condition into a partition that can be considered the same.

6.3. Boundary value analysis

Boundary value analysis is a test case design technique to test boundary value between partitions (both valid boundary partition and invalid boundary partition). A boundary value is an input or output value on the border of an equivalence partition, includes minimum and maximum values at inside and outside boundaries. Normally Boundary value analysis is part of stress and negative testing. The Behavior at the edge of each equivalence partition is more likely to be incorrect than the behavior within the partition, so boundaries are an area where testing is likely to yield defects.

6.4. Data flow testing

Data flow testing is the form of white box testing and structural type testing, which generally keeps check at the points where the data values are being received by the variables, and at the points, when it is called for use. The basic idea behind this form of testing, is to reveal the coding errors and mistakes, which may result in to improper implementation and usage of the data variables or data values in the programming code i-e. data anomalies, such as

- All the data variables, present in the programming code have been initialized or not.
- Data variables which are put into use, have been, priory initialized or not.
- If the initialized data variables, has been used, at least once, in the programming code.

6.5. Unit testing

Unit testing focuses verification efforts on the smallest unit of the software design, the module This is also known as "Module Testing". The modules are tested separately. This testing carried out during programming stage itself. In this testing each module is found to be working satisfactorily as regards to the expected output from the module.

- I have clearly check the flow is correct between inside and outside the module.
- Verify the check statements
- Check the extreme boundaries values of output
- Loops are correct or not

6.6. Integration testing

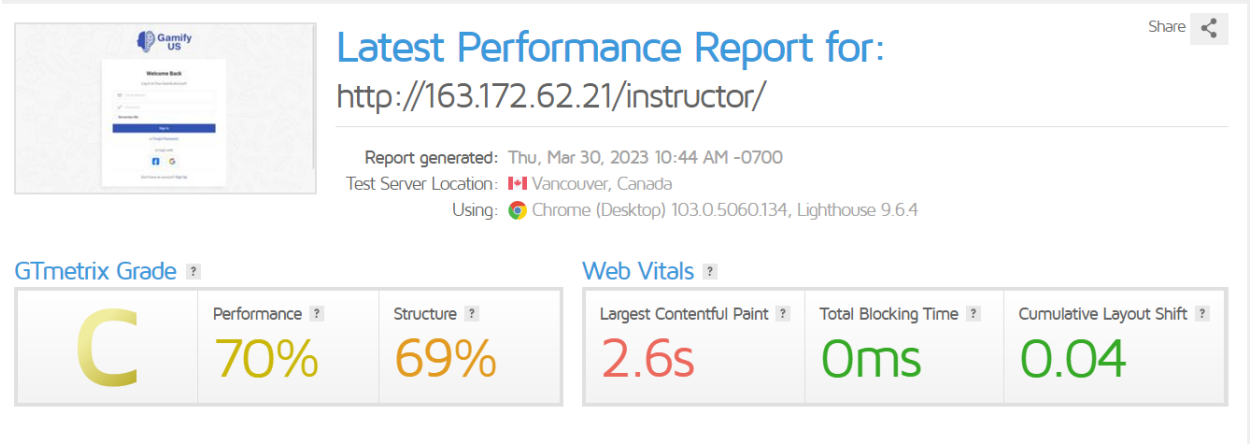
In light of the incorporation methodology select a part to be tired unit test every one of the classes in the part assembled chosen part do any fundamental fix-up important to make the joining test functional.

6.7. Performance testing

Features and Functionality supported by a software system is not the only concern. A software application's performance like its response time, reliability, resource usage and scalability do matter. The goal of Performance Testing is not to find bugs but to eliminate performance bottlenecks.

The focus of Performance Testing is checking a software programs.

- **Speed**- Determines whether the application responds quickly
- **Scalability** - Determines maximum admin load the software application can handle.
- **Stability** - Determines if the application is stable under varying loads



6.8. Stress Testing

Stress Testing is defined as a type of Software Testing that verified the stability & reliability of the system. This test mainly determines the system on its robustness and error handling under extremely heavy load conditions. The goal of stress testing is to analyze the behavior of the system after a failure. This test mainly determines the system on its robustness and error handling under extremely heavy load conditions.

Stress testing is also extremely valuable for the following reasons:

- To check whether the system works under abnormal conditions.
- Displaying appropriate error message when the system is under stress.
- System failure under extreme conditions could result in enormous revenue loss
- It is better to be prepared for extreme conditions by executing Stress Testing

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

This proposal is for our final year Project of, "Gamify US". The purpose of this project is to create an interactive platform where instructor can upload there courses and platform will make it interactive for the student which will drive engagement in the class. This is helpful for Teachers and students in many ways, especially when teacher and student time is so precious. When a student will watch that video and gives answer on every particular point, he will get points on every answer and a leader board will show the students who have highest points while watching video.

7.2. Achievements and Improvements

So. Far we have achieved great skills in handling market affairs, relations, and responsibilities while working with an already existing market business. We have come to know the dealings in the market and gathered much more experience. Similarly, we have also improved our coding skills during development. Our project was in Laravel and Vue js language for web and React Native for mobile application, which we have not studied in our previous semester but we didn't have much grip on the language until we implemented ourselves in the development of this project. So, yes this fyp project has had a huge impact on our achievements and improvements.

7.3. Critical Review

This document is very useful for all the persons associated with this project. The document start describing from the scope of the project and ends at testing phase. The foundation and deployment of the project is described. Last but not the least this document is a complete guide for the stockholders of this project.

7.4. Lessons Learnt

Our team has learned that Time Management decide the success and failure of the project so it is necessary to do the tasks on the schedule time otherwise it will create burden and may led the project towards failure. So we've put a lot of time into building infrastructure on Android & Web Services, The whole process was a huge learning process for us. We learned a lot about our time, When we started the Final Year Project we only had the deadline in mind. Perhaps a schedule would have made it easier to divide our time to the different aspects of the process furthermore, in the beginning it was hard to realize the overall size of the work. We have done our best at keeping own views and opinions apart and not letting them affect the final outcome.

7.5. Future Enhancements/Recommendations

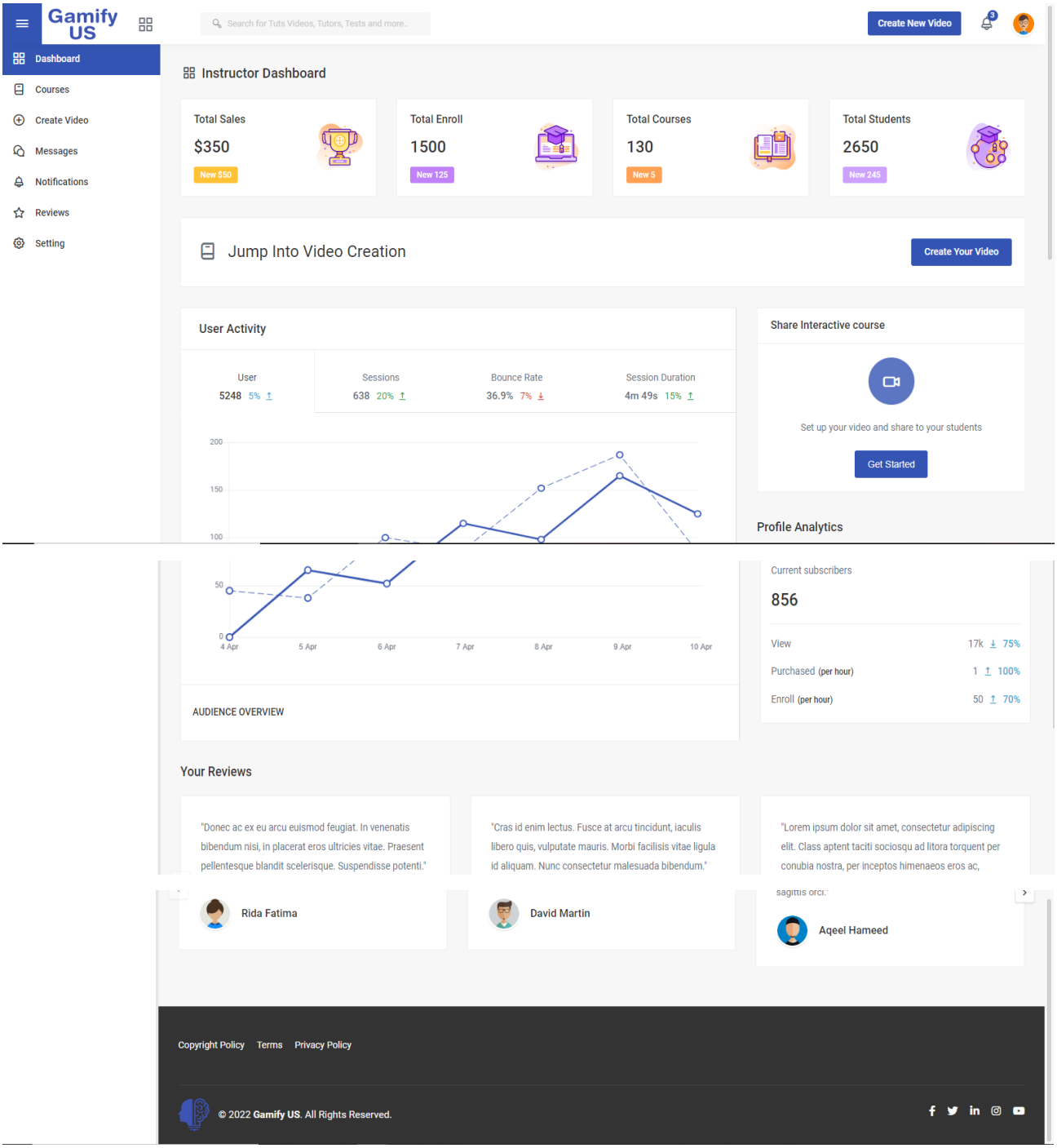
Some of the future enhancements for the “Gamify US”:

- Personalization: Consider adding a personalization feature that allows users to customize their video viewing experience based on their interests or preferences. For example, users can choose to skip certain sections of the video or view additional content related to their areas of interest.
- Social sharing: Add social sharing functionality to allow users to share their favorite videos on their social media accounts, increasing the visibility of the application and driving more traffic.
- Collaborative features: Consider adding collaborative features that allow users to work together on video projects. This can include shared editing tools, real-time collaboration, and a commenting system to provide feedback on each other's work.
- Mobile optimization: Ensure that the application is optimized for mobile devices, as more and more users are accessing content on their mobile phones. This can include optimizing the video for different screen sizes and providing a user-friendly interface for touch-based interactions.

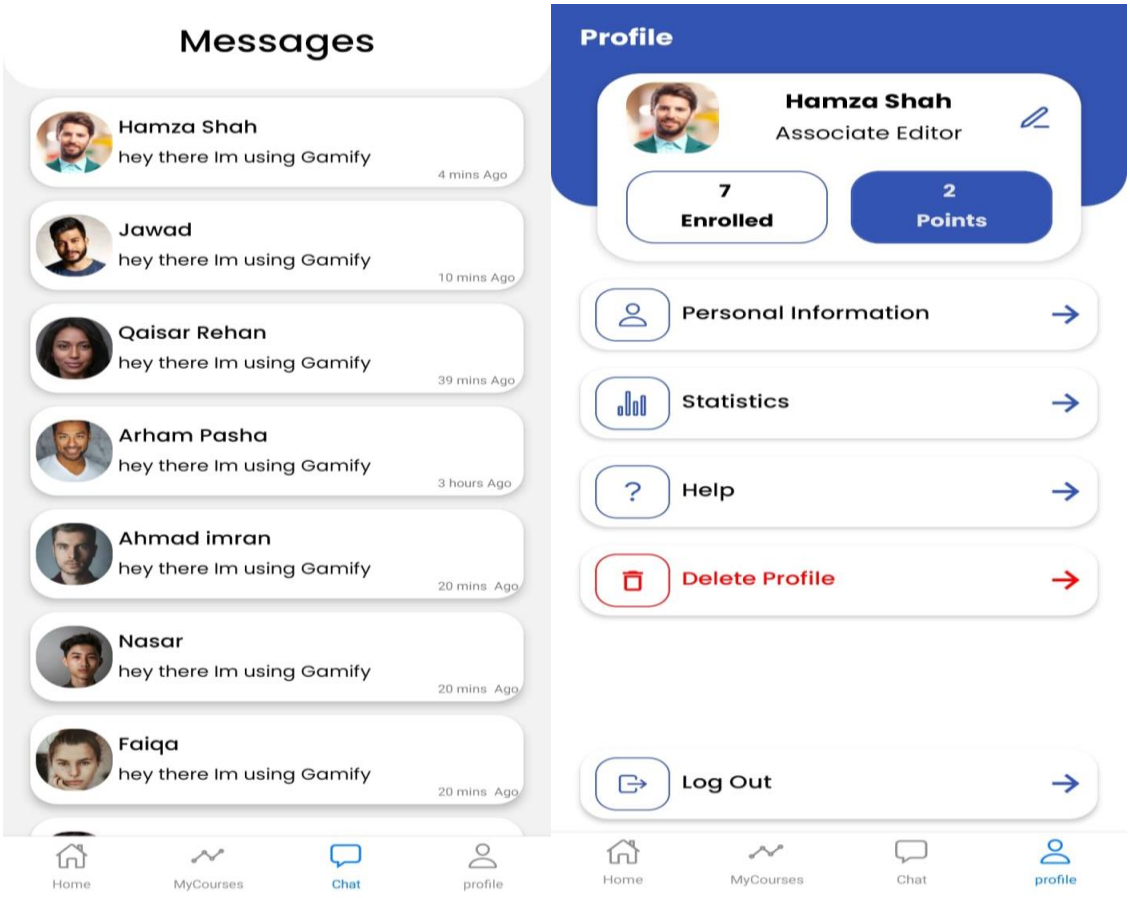
Appendices

Appendix A:

A.1. Instructor Dashboard



A.2. Student Mobile Application


Messages
Hamza Shah
hey there Im using Gamify
4 mins Ago
Jawad
hey there Im using Gamify
10 mins Ago
Qaisar Rehan
hey there Im using Gamify
39 mins Ago
Arham Pasha
hey there Im using Gamify
3 hours Ago
Ahmad imran
hey there Im using Gamify
20 mins Ago
Nasar
hey there Im using Gamify
20 mins Ago
Faiqa
hey there Im using Gamify
20 mins Ago
Home
MyCourses
Chat
profile
Profile
Hamza Shah
Associate Editor
7
Enrolled
2
Points
Personal Information
Statistics
Help
Delete Profile
Log Out
Home
MyCourses
Chat
profile

Reference and Bibliography

Reference and Bibliography

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