**CMPE 492 Senior Project 2**

**A Gamified Training Platform Supported By AI Test Plan Report**

The URL of the project web page:
https://isthisecho.github.io/TermProject/

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# 1. Introduction

This document describes the plan for testing Gamified Training Platform Supported By AI project. This Test Plan document supports the following objectives:

- Identifying existing project information and software that needs to be tested.
- Determining hardware/environment requirements.
- Identification of testing strategies to be used.
- Listing the features to be tested and not to be tested.
- Describing the tools used to test the project.

# 2. Scope

This Test Plan Report describes the integration and system tests for the subsystems and components of the Gamified Training Platform Supported By AI.

The interfaces between the following subsystems will be tested:

- Account Registration
- Account Login
- Manage Account/Courses
- View Menu/Courses/Events/Notifications
- Attend Quiz
- Examine Results
- Add Material
- Set Event
- Create Quiz

These feature are not be tested because they are not included in the software requirement specification:

- User Interfaces
- Hardware Interfaces
- Software Interfaces
- Database logical
- Security and Performance

# 3. Testing Strategy

## 3.1. Unit Testing

Javascript does not support unit testing in browsers. In addition, page renderings and DOM Manipulations can not be done with ease. End of the day, using unit testing frameworks becomes necessary in terms of time management and convenience [1].

As a result, Unit.js which is an open-source unit testing framework for Javascript will be planned to use. Since it provides multiple assertion and compatibility with other unit testing frameworks,it offers a good solution [2].

## 3.2. System and Integration Testing

Since Jest.js compabilitable with React, Babel and Typescript, that is planned to be used at testing phase.

It provides asynchronous testing, integration testing which includes side effects and E2E testing with ease [3].

## 3.3. Performance and Stress Testing

| Performance and Stress Testing | Testing Preferences |
|---|---|
| Android / iOS | Standandard tools that have been provided by related SDK's or environments. |
| Web | Jest.js framework will be used. |

# 4. Hardware and Software Requirements

**To use all system features with optimal user experience, user may fulfill following requirements ;**

Architecture:

| System Architecture | Minimum Requirements |
|---|---|
| Android | Since the virtual machine structure has been upgraded from Dalvik |

| | |
|---|---|
| | Machine to ART, the most stable version of the android version is considered as Android 10. - API 29-<br><br>In Addition, Android 10 supports new protections for user privacy and security.<br><br>Moreover, it provides full coverage of 5G features for the future [4]. |
| **iOS** | iOS and iPadOS Sdk 13 have exhibited similar and predictable behavior on both tablets and phones. To have a more fluent user experience, stated above or later versions are required [5]. |
| **Web** | Since ECMAScript 2016 is sector standard nowadays, Chrome version 52, Firefox version 54 and Opera version 39 or later versions are required [6]. |

Processing Power:

**Due to perform 60 fps animations and fluency on display, device may fulfill following requirements;**

| Processing Unit | Minimum Requirements |
|---|---|
| **Android / iOS** | Since the system needs efficiency, high performance and virtualization support in hardware,ARM Cortex-A7 based processors or later versions are required. [7] |
| **Web** | Any processing unit that is able to run browsers and their JS engines which stated above is suitable. |

Memory:

**Due to perform all the operations that have been set up, device may fulfill following requirements;**

| Memory | Minimum Requirements |
|---|---|
| **Android / iOS Web** | At least 400 mb of free memory on ram is required. |

## 5. Features to Be Tested

All system features defined as functional requirements in the project specification report need to be tested.

**System Features for Mobile Application**

| System Feature | Role | Description |
|---|---|---|
| **Account Login** | Student | The system shall let users sign into their accounts along with a username and password if they already possess a valid account on the system. System verifies username and password which were given by the user. If a user enters the correct username and password, the homepage will be displayed by system. When a user enters faulty input, an error message will be displayed by the system. |
| **Reset Password** | Student | The reset password function allows users who forgot their passwords to reset their passwords. |
| **Account Registration** | Student | The Account Registration function shall let users create accounts that include their name, surname, email address, ID number and password. |
| **Manage Information** | Student | Manage Information function shall let users who are logged into the account modify their information such as name, surname and email address. |
| **Change Password** | Student | Change Password function shall let users change their passwords. |
| **Logout** | Student | Logout function shall let users log out of the system. |
| **View Main Menu** | Student | View Main Menu function shall let users whose role is a student to view the information about their grades. Users will be able to see their own scores and their place on the leaderboard. |
| **View Courses** | Student | View Courses function shall let users whose role is a student to view and download all course related documents such as videos, notes and study materials. |
| **View Events** | Student | View Courses function shall let users whose role is a student to view course events. |
| **Attend Quiz** | Student | Attend Quiz function shall let users whose role is a student to take part in online or offline quizzes organized by the instructor and view scores. |
| **View Overall Stats** | Student | View Stats function shall let users whose role is a student to view their overall course stats. |

| System Feature | Role | Description |
|---|---|---|
| **View Quiz Stats** | Student | View Stats function shall let users whose role is a student to view their quiz results and stats. |
| **Examine Quiz Results** | Student | The Examine Quiz Results function shall let users examine the answers of the quiz after the quiz is closed. |
| **View Notifications** | Student | View Notification function shall let users to view notifications. |

**System Features for Mobile Application**

| System Feature | Role | Description |
|---|---|---|
| **Account Login** | Instructor | The system shall let users sign into their accounts along with a username and password if they already possess a valid account on the system. System verifies username and password which were given by the user. If a user enters the correct username and password, the homepage will be displayed by system. When a user enters faulty input, an error message will be displayed by the system. |
| **Reset Password** | Instructor | The reset password function allows users who forgot their passwords to reset their passwords. |
| **Account Registration** | Instructor | The Account Registration function shall let users create accounts that include their name, surname, email address, ID number and password. |
| **Manage Information** | Instructor | Manage Information function shall let users who are logged into the account modify their information such as name, surname and email address. |
| **Change Password** | Instructor | Change Password function shall let users change their passwords. |
| **Logout** | Instructor | Logout function shall let users log out of the system. |
| **View Main Menu** | Instructor | View Main Menu function shall let users whose role is an instructor to view all courses, notifications and calendar. |
| **Add Course** | Instructor | Add Courses function shall let users whose role is an instructor to create a new course. |
| **Add Chapter** | Instructor | Add Chapter function shall let users whose role is an instructor to create a new chapter. |

| | | |
|---|---|---|
| **Add Subtopic** | Instructor | Add Subtopic function shall let users whose role is an instructor to create a new subtopic of a chapter. |
| **View Stats** | Instructor | View Stats function shall let users whose role is an instructor to view the information about students. Users can see the students' earned points. |
| **Add Material** | Instructor | Add material function shall let users whose role is an instructor to upload, activate or deactivate all course related documents. |
| **Set Event** | Instructor | Set Event function shall let users whose role is an instructor to create new events. |
| **Create Quiz** | Instructor | Create Quiz function shall let users whose role is an instructor to prepare questions and answers to create online or offline quizzes. |
| **Manage Admin Panel** | Admin | The Manage Admin Panel function shall let admin to approve newly created instructor accounts. |

## 6. Features Not to Be Tested

These features are not be tested from both the user's perspective of what the system does and a configuration management or version control view, because they are not included in the project specification report. These features will be provided but not tested as a functional part of the project.

- User Interfaces
- Hardware Interfaces
- Software Interfaces
- Database logical
- Security and Performance

## 7. Tools

Server: Need a Database server which installs MsSQL server Web server.

Network: Setup a LAN Gigabit and 1 internet line with the speed at least 5 Mb/s .

Computer:  Computer running Windows 7, Ram 2GB, CPU 3.4GHZ.

Mobile Phone: Virtual devices that are running on iOS / iPadOS 13 or Android 10.

## 8. References

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 [5] : *Apple Developer Documentation. (n.d.). Retrieved April 25, 2022, from https://developer.apple.com/documentation/ios-ipados-release-notes/ios-13-release-notes*

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