GAMIFICATION TOOL IMPLEMENTATION

Functional Spec

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October 2020

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Abstract:

Gamification is seen as the application of elements in games, for example points, badges, and leader boards to other areas of activity. In this instance, the activity is for learning and amplifying the user enjoyment and experience. The aim of this research manual is to give an insight on what is involved in implementing a gamification tool that teaches GDPR and other cyber security content and highlights the techniques needed to develop this application.

1) Introduction

1.1 Document Purpose:

The aim of this functional specification document is to provide detailed information on how the gamification tool/application will function and how it will behave in its environment. This specification will provide a clear idea of how the actors will function with the system and how they are expected to communicate with the system and what should be expected. It also provides what they can and cannot do while interacting with the system.

1.2 Project Scope:

GDPR and online security courses are becoming more and more essential to organizations in different work sectors. A gamification learning application that adds elements of gaming to the enhance the experience of the learning. This will include points, badges, and leader boards. This will make the learning experience more enjoyable and addictive for people to learn the material. The user will be able to create a unique account and log in as well. The registration will allow for multiple users and will be managed with a database such as Google Firebase.

2) Project Overview:

2.1 System Functions

The functionality of this application will be similar to some of others like it on the market.
It will open with a screen with the splash screen and then boot into a register screen where the end user can enter their username, email, and password. They can then log in with their user credentials and once they are logged in it will display the user's username. The main menu will have a layout menu to select topics, exam, statistic or logging out. The progress level design will be in a bar chart format or loading percentage design, ideally it should be a green bar if a task is close to completion.

Registration is taking the user credentials and stores it in a Google firebase service Cloud Firestore. This function allows for multiple users to sign in and being managed in a system.

2.2 Functional Requirements

#	**Function**	**Description**	**Dependencies**
1	Registration	This will allow for multiple users to log into their own unique account.	Database (Google Firebase)
2	Login	Allows user to login with their email address	Function #1
3	Main Menu	Allows the user to navigate throughout the application.	Function #2
4	Topics	This page will have a private link to the slides where the modules are hosted.	Function #3
5	Exam	User can test their knowledge with quiz section	Function #3
6	Extra Feature	External phishing assessment	N/A
7	Log Out	User can log out safely.	User has to be logged in

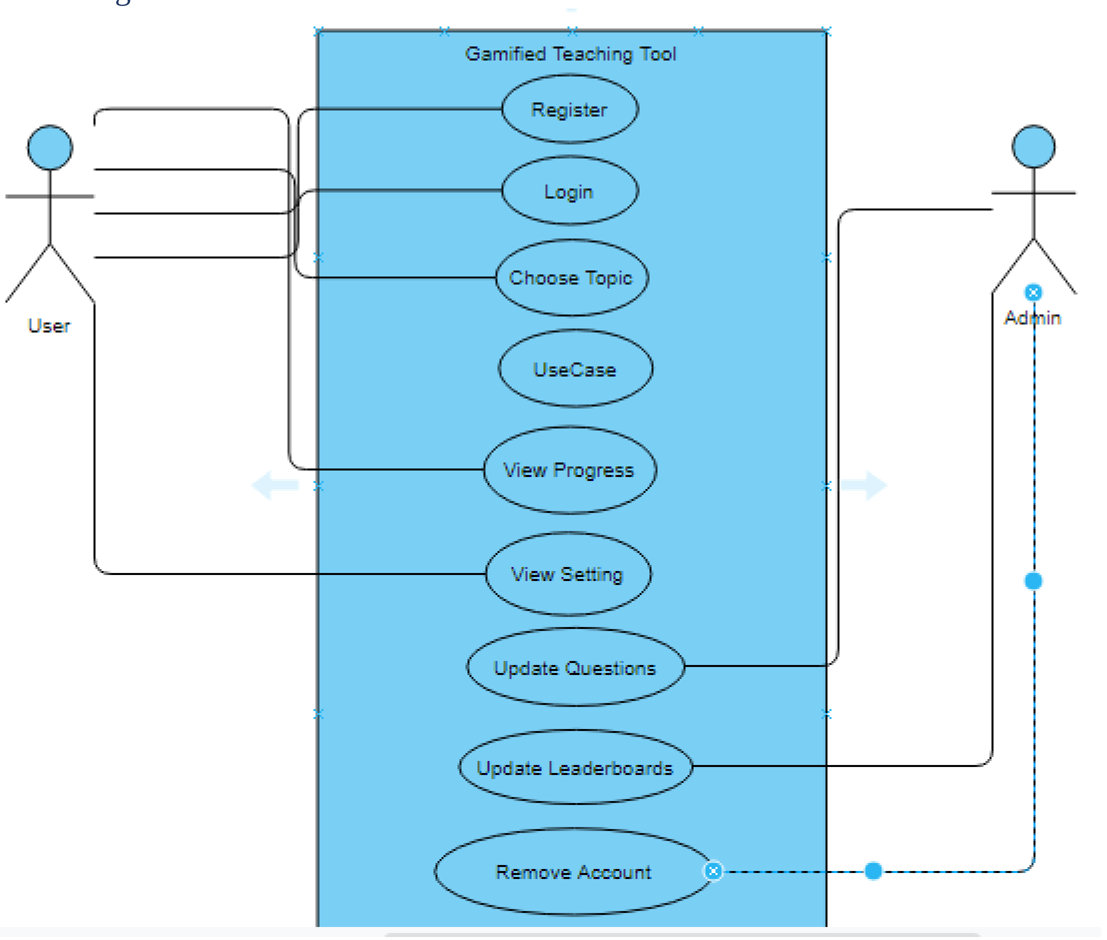
2.3 System Actors

Actors:
User/Client, Admin.

Actors:
The actors will interact with the use case (mobile application).
User/Client can register, login, choose a topic, take an exam, view progress.

Admin:
The admin can remove accounts, validate accounts, update questions and update leaderboards via database.

Use-case Diagram



2.4 Constraints

The constraints I may face with this application will probably be down to time limit and workload behind the application. The progress of this application will rely on the developer being proactive and constantly researching and adding to the current work. The ability grasps things quickly and find solutions will be very beneficial.

Delivery Date:

The delivery date for the final product is April 30th2021. This is not a long time as we are doing continuous assessment throughout so delivering this final product will be very challenging while trying to implement the key elements.

Platforms:

The final application will most likely be Android only due to time constraints and my knowledge on developing IOS apps.

3) System Architecture

Requirements:

Android Studio:

Android Studio is the official IDE for Android application development. I did not know too much about the IDE as we mainly focused on Eclipse and Visual Studio in college but having that Java background from first year to second year gave me a solid foundation for Android Studio. It is based on IntelliJ which also a JAVA IDE for software development.

Kotlin:

Kotlin is an android development language that is open source and developed by JetBrains.
My application is mainly built on the Kotlin language as it was highly recommended and had a lot of resource to work from when I started learning about it in the first semester independently.

Android Device:

The application is designed for android devices as it will also be used to test the application in its development phase and once it is fully complete.

Mobile Web Browser:

The slides for each topic are being hosted on an external website. Slideshare.net allows the users with the private link from inside the application to access the material needed to cover the topic.

Firebase Cloudstore:

In the brief of my project a management system to accommodate multiple users should be implemented so I am using Google Firebase which is a NoSQL database that has a service called Firebase Cloudstore which will allow us to register users and then allow them to login into their own respect accounts.

Kali Linux:

Kali Linux will be used to set up a crontab for scheduled emails for the extended phishing feature. The user will sign up for a phishing email test via Google Docs. The crontab will schedule a phishing email and if the user is unlucky enough to click it he/she will be greeted by redirect website.

4) High-Level Design – Use Case Explanations

Registration:

Primary Actor:

User

Preconditions:

None

Success Guarantee:

The user can create an account with their email. The username and password are then saved into the database so they can authenticate after.

Main Success Guarantee:

1. The user installs the app and the splashscreen loads into the registration.
2. The user presses the Sign-Up button.
3. The user enters a username , email, and password they wish to use.
4. If the email is available and the password is correct length, the user's account is created. The username and password are stored in the database.

Alternative:

4) The email already exists, and user is prompted to try again.

Login:

Primary Actor:

User

Preconditions:

The user has already created an authorized account for the application.

Success Guarantee:

The user can successfully log into the application and the application can greet the user with his/her username.

Main Success Guarantee:

1. The user can log into the application.
2. The user enters their email and password into the login screen.
3. The user is greeted by the main menu and his username is displayed.

Alternative:

2. The user enters the wrong email and password into the login screen.

Main Menu:

Primary Actor:

User

Preconditions:
The user has logged in successfully into the application.

Success Guarantee:
The user can see a list of the pages he/she can navigate through after logging it successfully.

Main Success Guarantee:

1. The user logs into the application successfully.
2. The username is displaying the correct name of the authenticated user.
3. The user can navigate through the different screens of the application.
4.

Topic:

Primary Actor:

User

Preconditions:
The user has logged in successfully into the application.

Success Guarantee:
The user can see a list of the pages he/she can navigate through after logging it successfully.

Main Success Guarantee:

1. The user can access the topics through the hyperlink.
2. The mobile devices are displaying the topic slides on the SlideShare link.
3. The user is still logged in whilst using the mobile browser.

Exam:

Primary Actor:

User

Preconditions:
The user has logged in successfully into the application.

Success Guarantee:
The user can select answers from the list of multiple-choice questions.

Main Success Guarantee:

1. The user can see the question clearly.
2. The user can select the correct answer.
3. The wrong answer is being shown as the correct answer.

5) User Groups:

The target demographic for this application is for users who are currently not working in the I.T. sector. The aim with targeting this specific demographic is that the majority of people are becoming more and more I.T literate and want to dive in a little deeper on the internet, this will provide them with the much-needed focus on learning the fundamentals of cybersecurity. Prerequisite knowledge is not a requirement, knowing the general gist and functionality of a computer is satisfactory.

6) Inspiration:

In relation to my project, there was not many big gamification applications out there that used cybersecurity as their marketing niche but one that did inspire me and had executed their functionalities really well was Duolingo. Duolingo tapped into the gamification of learning languages with competitive leaderboards and user-friendly GUI.

7) Metrics:

This application will be deemed successful if:

1) The user can install the application quickly.
2) User interface is smooth and quick.
3) The user can register an account and log in successfully.
4) User can access the topics via SlideShare link.
5) The user can take an exam based on specific chapters.