Software Requirements Specification

for

Mobile Security Awareness Training Software

Version 1.1

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Revision History

Name	Date	Reason For Changes	Version
Nicholas	4/24/24	Updated diagram	1.1

1. Introduction

1.1 Purpose

The goal of this project is to design and develop training software to evaluate a user's awareness of mobile security and cyber attacks on mobile devices in an entertaining game format. The product will be implemented on a simple desktop-based game application that asks users questions about different types of cyber attacks on mobile devices and basic protection techniques, provides feedback on user answers, and displays correct answers. The training game application shall allow users to create their accounts and it will only accept strong passwords of at least ten or more characters with a special character, number, and letter mixed within the password. To start the game, a user must provide valid credentials such as username and password. The application shall also store previous game/quiz scores in the user profile.

1.2 Intended Audience and Reading Suggestions

This software is intended for users with or without experience of cyber-attacks and phishing for mobile devices to learn more about these threats through the use of entertainment.

1.3 Product Scope

The product is intended to raise awareness in corporate personnel on the dangers of cyber-attacks and phishing attempts targeted toward mobile devices. Additionally, it will train staff to prevent and avoid such attempts through a fun and educational game. Doing so will raise security on an individual and social level, where software protocols fall short.

2. Overall Description

2.1 Product Perspective

This new, self-contained product is intended to be a single-release edutainment game.

2.2 Product Functions

The major functions of this product are to allow account management, gameplay, user information, and game control. Account management allows users to create accounts and store and verify account credentials. Gameplay will display text to users, accept user input for answering questions, and provide feedback based on input. User information will display user information, including saved scores. Game control will allow users to pause, end, or restart the game.

2.3 User Classes and Characteristics

The product is designed for two user classes: Students and Educators. Students will have access to account management, gameplay, game control, and user information, however, their access to user information is limited as they will only have access to their information. Educators can view all students and their information. Educators are also able to assign students to different classes.

2.4 Operating Environment

The product will run on a Desktop environment running either the latest version of Windows, Linux, or Mac Operating System.

2.5 Design and Implementation Constraints

The product is limited to a desktop-based platform. Users will require accounts to play the game, with passwords at a minimum length of ten characters with a special character, number, and letter mixed within the password. Storing and retrieving previous scores is constrained by the database. Other constraints include hardware limitations, including memory and performance requirements. More information about performance requirements can be found in Section 5.1.

2.6 User Documentation

The user will have manual documentation to oversee how the software operates, along with additional online tutorials on how to operate the software.

2.7 Assumptions and Dependencies

The product assumes the availability of an appropriate operating system and reliable user authentication and data storage services. The product is dependent on the user's hardware specifications and the information provided in the user's manual, assuming the user's connection to the internet is available and the server is online to accept requests.

3. External Interface Requirements

3.1 Hardware Interfaces

A desktop computer with a mouse, a keyboard, a screen, and a connection to the internet is required for the hardware interface.

3.2 Software Interfaces

The product interacts with a database management system (DBMS) to store user's account information and scores. The product will run on desktop operating systems specified previously in section 2.4 and utilize developmental tools and libraries. Communication protocols will ensure data transmission between the product and the DBMS.

3.3 Communications Interfaces

This product requires a network connection to communicate with the database management system. The product also requires communication with the user's mouse, keyboard, and screen.

4. System Features

4.1 Account Management

4.1.1 Description and Priority

The account management feature is of high priority as it is required for the user to start the game. Account management allows the user to create an account or verify their existing account credentials in order to play the game.

- *Priority: High*
- *Benefit: 8*
- *Cost: 5*
- *Risk: 6*

4.1.2 Stimulus/Response Sequences

The user will click on an on-screen prompt, such as a button in order to start account creation or to verify their existing account credentials to log in. The software will recognize a mouse click on the button and allow the user to enter the necessary information. If the criteria for account creation are met, an account is created. If the criteria for credential verification are met, the user will be allowed to start the game. If the criteria for either of these situations is not met, an error will be displayed notifying the user.

4.1.3 Functional Requirements

The software will allow a new account to be created or for an existing account to be logged in. The software will allow the user to input the necessary information, such as their password, when creating or logging in to an account. The software will check the validity of the information input by the user and display an appropriate error message if it does not meet the criteria. When creating a new account, the password input must meet the minimum length of ten characters with a special character, number, and letter mixed within the password. In the case of logging in to an existing account, the password input by the user must match the password stored for their account in the database. Additionally, users of the educator class will have the ability to assign student users to classes.

REQ-1: Allow the user to create an account.
REQ-2: Allow the user to choose whether they are a student or educator.
REQ-3: Allow the user to input their credentials if they have an account.
REQ-4: Allow educators to put students into classes.

4.2 Gameplay

4.2.1 Description and Priority

The gameplay of the product is a high priority because this is an edutainment software, and gameplay is the main focus. The user will be given text to inspect and determine what a cyber attack or a security risk is. Feedback will be provided based on the user's answer and its correctness. The user can answer incorrectly three times before the game ends, and their score is calculated. The user can then choose to exit or restart the software.

- *Priority: High*
- *Benefit: 8*
- *Cost: 5*
- *Risk: 6*

4.2.2 Stimulus/Response Sequences

The user will be able to click on different parts of the text to inspect it closely and determine if it is fallacious. The software will recognize where the user is clicking. The user will be able to mark parts of the text as such. When the user submits their answer, they will be given feedback. Feedback will be provided based on how correct or incorrect the user's submission is. When the user makes three mistakes, the software will detect this and end the game.

4.2.3 Functional Requirements

The product will allow the user to inspect parts of the text by clicking on it. The user can then mark text they believe to be part of a security risk or a cyber attack.
The user can submit their answer and feedback will be provided, telling them what they were correct or incorrect when marking the text.

REQ-1: The user can closely inspect parts of the text.
REQ-2: The user can mark parts of the text as fallacious.
REQ-3: The user can submit their answer.
REQ-4: Feedback is given based on the user's submission.

4.3 User Information

4.3.1 Description and Priority

User information is of high priority as it is necessary for other key functions such as account management and gameplay. The user information stored is the user's credentials and previous game scores. Users listed as educators can view students' scores.

- *Priority: High*
- *Benefit: 8*
- *Cost: 5*
- *Risk: 8*

4.3.2 Stimulus/Response Sequences

At startup, the software asks for the user to either create an account or input their credentials. The user's credentials are saved in the DBMS. Users listed as students can view their own score, but not the score of other users. Users listed as educators can view their students' scores.

4.3.3 Functional Requirements

The product will connect to the database for storing player credentials. Additionally, the software stores the player's score for every game that is played. Only users of the educator class will be able to view the scores of all students. Users of the student class will only be able to view their own scores.

REQ-1: Save the user's credentials in a database.
REQ-2: Save the user's score for every game they play.
REQ-3: Allow educators to see their students' scores.
REQ-4: Allow students to see their own scores but not other students' scores.

4.4 Game Control

4.4.1 Description and Priority

Game control is of medium priority. It will allow the user to pause the software when in the middle of the game and end play early. It will also allow the user to exit the software or play the game again when the game has ended.

- *Priority: Medium*
- *Benefit: 6*
- *Cost: 4*
- *Risk: 5*

4.4.2 Stimulus/Response Sequences

When the user is in-game, they will be able to click a button in the corner of the screen so they can pause the game. A pause menu will appear, and the user can choose to either continue play or exit the software. When the user is finished playing the game- either by winning or making three mistakes- the game-over menu will appear. The user can choose to either exit the software or restart the game.

4.4.3 Functional Requirements

When the game is in play, there will be a button in the corner of the screen. The user can click it to pause the game. Upon pausing the game, a menu will pop up with two more buttons that will allow the user to unpause the game and continue playing or exit the software. When the game is over, another menu will appear. Options will be given to the user to allow them to either replay the game and restart or exit the software.

REQ-1: The user can pause and exit the software when they are in the middle of playing.
REQ-2: The game will automatically end when the user is incorrect three times.
REQ-3: When the game is over, the user will be able to exit or restart the software.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The minimum required performance to run the application will require a dual-core x86 processor with a processing speed of 1.5 gigahertz, 2 gigabytes of random access memory (RAM), a video processor such as a dedicated graphical processing unit (GPU) or integrated graphics, and 1 gigabyte of storage capacity.

5.2 Safety Requirements

Not Applicable.

5.3 Security Requirements

The user will be required to create an account. At startup, the user will be prompted to create an account or enter their credentials with a valid username and password. After logging in, the user will be able to play the game. Their password must be ten or more characters long with a special character, number, and letter mixed within the password. The database management system will be used to authenticate the user's credentials.

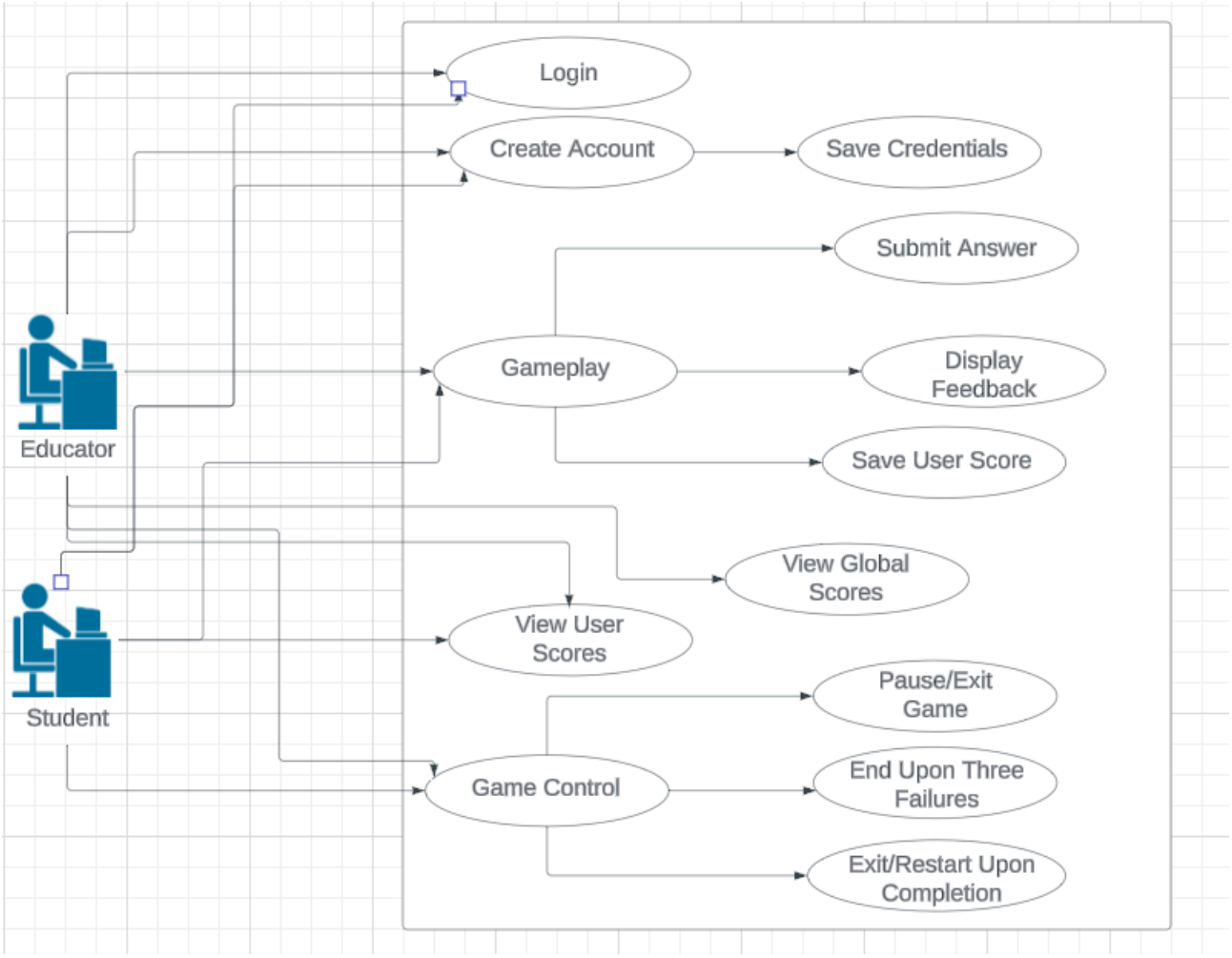
5.4 Software Quality Attributes

The Key quality characteristics of this software are usability, reliability, maintainability, and testability. Usability is emphasized to ensure the game is educational and easy to use. Reliability is crucial in efforts to minimize system failures. Security measures will be enforced to protect user safety. Maintainability is emphasized through well-documented and commented code, as well as the use of a GitHub repository.

6. Other Requirements

A database management system is required for the user's credentials to be stored after account creation, and a network connection is required to communicate with the database.

7. Analysis Model



Appendix A: Glossary

DBMS: Database management system
RAM: Random access memory
GPU: Graphical processing unit