MyGames

A SUMMER INTERNSHIP REPORT

Submitted by

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BACHELOR OF ENGINEERING

in

Information Technology

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SARDAR VALLABHBHAI PATEL INSTITUTE OF TECHNOLOGY, VASAD.

INFORMATION TECHNOLOGY ENGINEERING

2023-24

CERTIFICATE

Date:26/08/2023

This is to certify that the Summer Internship Work entitled “MyGames” has been carried out by Bhatt Abhishek Sanjay (210410116501) under my guidance in fulfillment of the degree of Bachelor of Engineering in Information Technology (7th Semester) of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

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ACKNOWLEDGEMENT

I would like to express my sincere gratitude to Prof. Gargi Madam for her guidance and support throughout the development of this Game Project. Her valuable insights and encouragement have been instrumental in completing this project successfully.

I would also like to thank the faculty members of Sardar Vallabhbhai Patel Institute of Technology Vasad for providing a conducive learning environment and the necessary resources to carry out this project.

I extend my thanks to my friends and peers for their valuable insights and feedback during the development of the mini game project. Their suggestions and discussions have been invaluable in refining the game play and user experience.

Lastly, I would like to acknowledge the efforts of the developers of various open-source libraries and resources that I utilized in this project. Their contributions have been instrumental in enhancing the functionality and performance of the mini game app.

Your Faithfully,
Abhishek Bhatt
(210410116501)

ABSTRACT

The mini game project is an Android application developed as part of my individual project study at SVIT Vasad. The objective of this project was to create a fun and interactive game that can be played on Android devices. The game consists of multiple mini-games, each offering a unique gaming experience.

The key features of the mini game project include:

1. A main menu screen displaying a list of mini-games.
2. Background music that plays throughout the app.
3. Character customization options for the player.
4. SQLite database functionality to store player details.
5. Toast messages for notifying the player about their game progress.
6. Simple and intuitive user interface.

The project was implemented using Java in Android Studio, making use of various Android components like RecyclerView, MediaPlayer, SQLite, and Intents. The development process involved designing and programming the individual mini-games, implementing the background music functionality, creating the character customization feature, and integrating SQLite for player registration.

The mini game project was successfully completed and tested on various Android devices. It provides an enjoyable gaming experience to users and serves as a testament to my learning and programming skills.

In conclusion, this mini game project has been a valuable learning experience, helping me strengthen my knowledge of Android app development. I am grateful for the opportunity to work on this project and would like to express my appreciation to all those who have contributed to its successful completion.

List of Figures

List of Abbreviations

GTU - Gujarat Technological University

SVIT - Sardar Vallabhbhai Patel Institute of Technology

UI - User Interface

API - Application Programming Interface

XML - Extensible Markup Language

SDK - Software Development Kit

CRUD - Create, Read, Update, Delete

JVM - Java Virtual Machine

OOP - Object-Oriented Programming

Contents

1 Introduction

The project aims to develop an engaging Android application with multiple mini-games that offer users an enjoyable gaming experience.

The app is designed to be user-friendly and accessible to a wide audience of players. By incorporating various mini-games, each with its unique gameplay, the application seeks to keep users entertained and challenged.

The project is developed using Java in Android Studio, making use of essential Android components and libraries to ensure smooth functionality. With a focus on creativity and user engagement, the mini game project strives to deliver a fun and interactive gaming platform for Android users.

1.2 Existing System

In the existing scenario, there are various gaming applications available on the Android platform. While these applications offer a diverse range of games, they often specialize in specific genres or themes, limiting the variety of gameplay experiences accessible to users. Additionally, some gaming apps may require users to install and manage multiple applications to access different games, resulting in a fragmented gaming experience.

However, for the purpose of this project, I have created a new gaming application that aims to address the limitations of the existing system. The mini game app offers a centralized platform featuring multiple mini-games, each with its unique gameplay and challenges. By providing a single application with a collection of diverse mini-games, users can enjoy a more comprehensive gaming experience without the hassle of switching between multiple apps.

Moreover, the proposed mini game app includes features like character customization and background music, adding a personal touch and creating an immersive gaming ambiance. The user-friendly interface ensures easy navigation and seamless access to various mini-

games. This project seeks to offer an innovative and entertaining gaming platform that caters to the interests of a broad audience, providing a fresh and enjoyable gaming experience compared to the existing system.

1.3 Need for the new System

The need for the new system arises from the desire to provide Android users with a versatile and exciting gaming application. While individual mini-games are popular, a collective platform featuring a diverse set of mini-games allows users to explore various gaming scenarios without switching between multiple applications.

The new system addresses this need by offering a seamless and unified gaming experience, where users can access a variety of mini-games from a single application. Additionally, the application's user-friendly interface and character customization options contribute to a more immersive and enjoyable gaming experience.

1.4 Objective of the New System

The primary objective of the mini game project is to create an all-in-one gaming application for Android users. The app's main goal is to entertain and engage users through a collection of mini-games, each offering unique challenges and entertainment value.

The new system aims to provide a platform where players can easily access and enjoy a diverse range of gaming experiences. Additionally, the project seeks to implement background music to enhance the overall gaming ambiance and create a more immersive game play environment. By offering a user-friendly interface and character customization features, the application aims to appeal to a broad audience and ensure an enjoyable gaming experience for all users.

1.5 Problem Definition

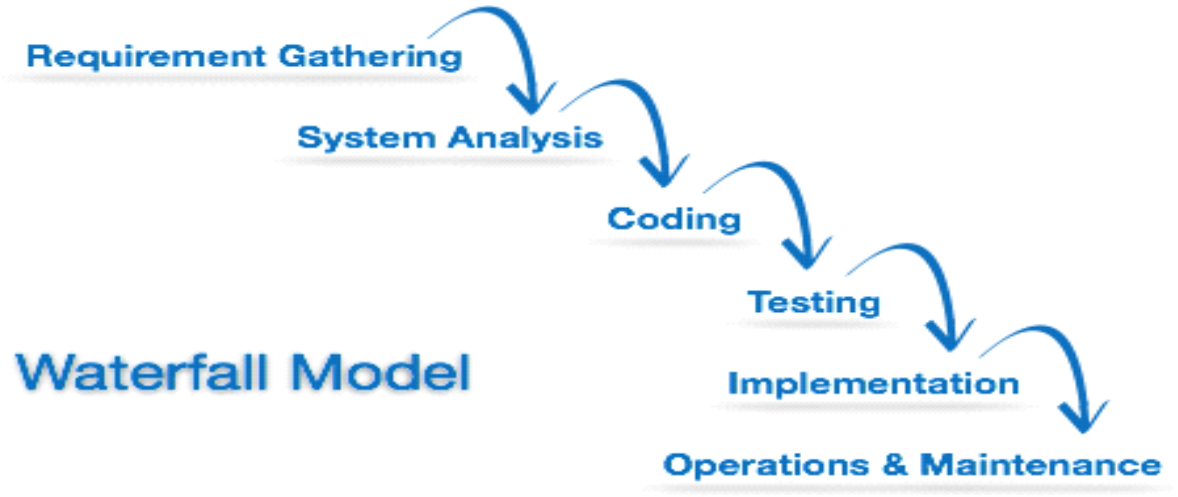
The primary problem addressed by the mini game project is the absence of a comprehensive gaming application on Android that offers multiple mini-games in a single platform.

Existing gaming apps often specialize in particular genres, limiting users to a specific type of gameplay. The lack of a centralized and diverse gaming platform leaves users searching for different applications to fulfill their gaming preferences.

The proposed solution seeks to overcome this problem by developing an integrated gaming app that offers various mini-games, character customization options, and background music. By creating a single app that caters to different gaming interests, the project aims to provide users with a convenient and entertaining gaming experience.

1.6 Software Process Model

The model that is basically being followed is the WATER FALL MODEL, which states that the phases are organized in a linear order. First of all the feasibility study is done. Once that part is over the requirement analysis and project planning begins. If system exists one and modification and addition of new module is needed, analysis of present system can be used as basic model. The design starts after the requirement analysis is complete and the coding begins after the design is complete. Once the programming is completed, the testing is done. In this model the sequence of activities performed in a software development project are: -



Here the linear ordering of these activities is critical. End of the phase and the output of one phase is the input of other phase. The output of each phase is to be consistent with the overall requirement of the system. Some of the qualities of spiral model are also incorporated like after the people concerned with the project review completion of each of the phase the work done.

WATER FALL MODEL was being chosen because all requirements are known to us in advance, they are very well written. And the objective of our software development is the computerization / automation of an already existing manual working system.

1.7 Core Components

The core components of the mini game project include the main menu, mini-games, background music, and Contact us functionality.

The main menu serves as the central navigation hub, providing users with access to different mini-games and customization options. Each mini-game is designed to offer a unique gaming experience, providing challenges and rewards based on user performance.

The background music feature adds an immersive element to the gameplay, creating a more engaging and enjoyable atmosphere.

Lastly, the Games it enhancing user experience and retention.

1.8 Project Profile

Project: MyGames (Android app)
Project Developer: Bhatt Abhishek Sanjay
Role: Mini Project
Institution: GTU SVIT Vasad
Guidance: Prof. Gargi Maam

The mini game project is an individual project undertaken at GTU SVIT Vasad as a Summer Internship or mini project subject, under the guidance of Prof. Gargi Maam.

The project is developed using Java in Android Studio and incorporates essential Android components to ensure seamless functionality.

The target platform for the application is Android devices, providing users with easy access to the diverse collection of mini-games.

The project allowing for flexibility and iterative development to deliver a high-quality gaming application.

1.9 Advantages and Limitations of the Proposed System

Advantages:

1. Centralized Gaming Platform: The proposed system offers a single, integrated platform with multiple mini-games, providing users with a wide variety of gaming experiences without the need to install separate applications.

2. User Engagement: Character customization options enhance user engagement, allowing players to personalize their in-game avatars and create a more immersive gaming experience.

3. Immersive Ambiance: The addition of background music in the mini-games contributes to an immersive ambiance, enhancing the overall gaming atmosphere and user experience.

4. User-Friendly Interface: The application features a user-friendly interface, enabling easy navigation and seamless access to various mini-games, promoting a smooth and enjoyable gaming experience.

Limitations:

1. Compatibility Issues: The proposed system may face compatibility issues with certain Android devices or operating system versions, requiring comprehensive testing to ensure optimal performance across a broad range of devices.

2. Limited Initial Content: As an individual project, the mini game app's initial collection of mini-games may be limited. Additional updates and future enhancements might be needed to expand the gaming library further.

3. Offline Play: The current version of the application may lack offline play functionality, requiring an internet connection to access some features or synchronize user data with the server.

4. Storage Space: The app's inclusion of multiple mini-games and background music may consume significant storage space on the user's device, potentially limiting the installation of other applications.

5. Advertisements: To support the project, the application may feature advertisements, which could affect the overall user experience for some players.

2 Requirement Determination & Analysis

2.1 Functional and Non Functional Requirements

Requirement determination involves identifying and analyzing the various needs and specifications for the mini game project to ensure its successful development and implementation.

2.1.1 Functional Requirement

1. Main Menu: The application should have a user-friendly main menu that serves as the central navigation hub for accessing different mini-games and features.

2. Mini-Games: The app must include multiple mini-games, each with its unique gameplay mechanics, rules, and challenges to offer diverse gaming experiences.

3. Background Music: The application must support background music to create an immersive and enjoyable gaming atmosphere.

4. Toast Messages: Toast messages should be displayed to provide feedback to the player, such as displaying "Win!!" when the player successfully completes a mini-game.

5. Contact: Player can contact and give feedback also.

2.1.2 Non Functional Requirements

1. Performance: The application should deliver smooth performance, with minimal lag or delays during gameplay transitions.

2. User Interface (UI): The UI should be intuitive, visually appealing, and responsive, enhancing the user experience and ease of navigation.

3. Reliability: The application must be reliable, ensuring that user data is securely stored, and games can be played without unexpected crashes.

4. Compatibility: The app should be compatible with various Android devices and operating system versions to reach a wide audience.

5. Security: User data and personal information should be secured and protected from unauthorized access or breaches.

2.1.3 Hardware Requirements

The hardware requirements for the mini game application are as follows:

1. Android Smartphone or Tablet
2. Sufficient Storage Space to accommodate the app and game data
3. Stable Internet Connection (if online features are incorporated in future)

2.1.4 Software Requirements

The software requirements for the mini game application are as follows:

1. Android Studio: To develop and test the application.
2. Java: To write the code and implement the functionality.

3. Android SDK: To access Android platform features and APIs.
4. SQLite Database: To manage player data and game progress storage.

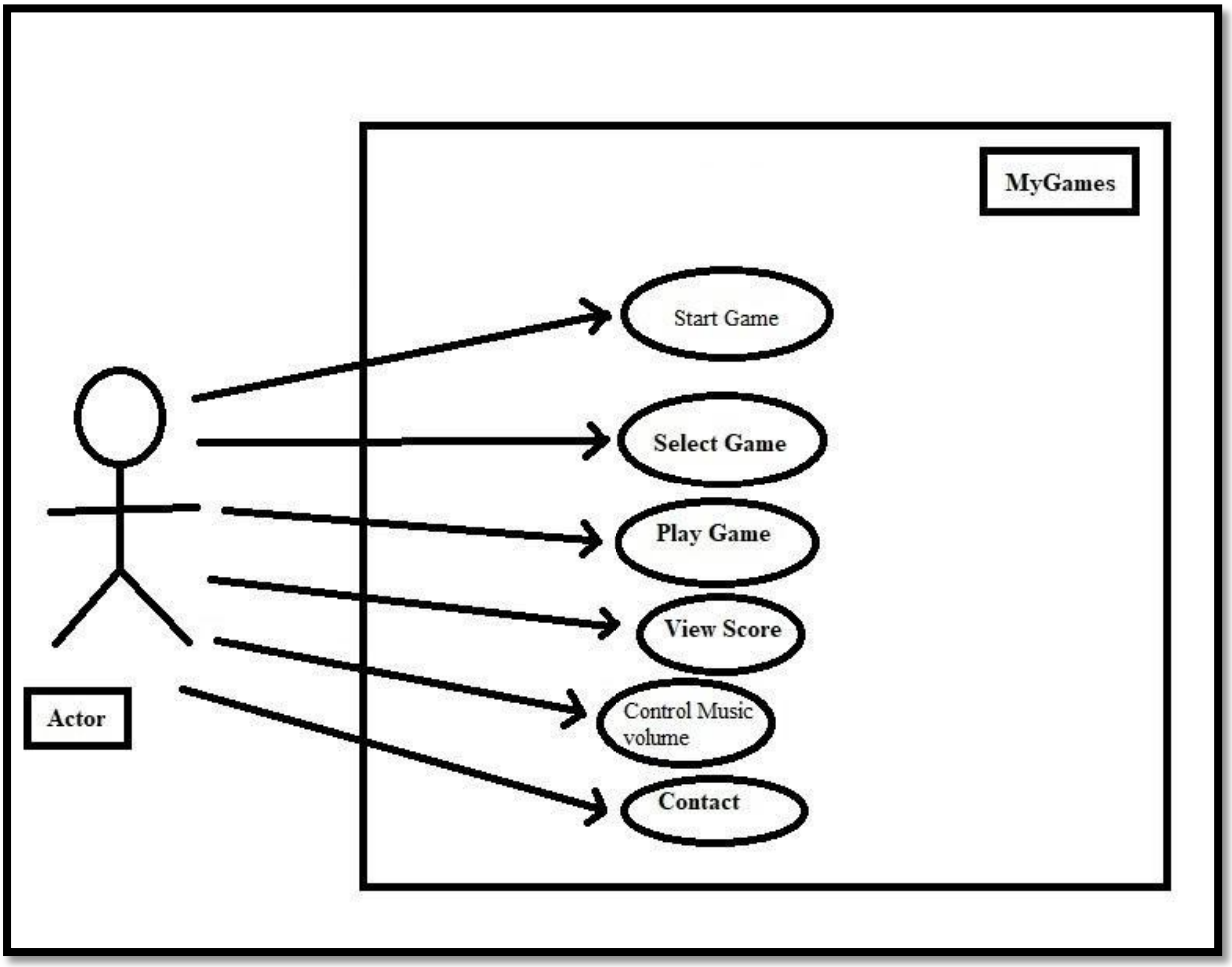
2.2 Targeted User

The targeted users for the mini game application are Android device owners who enjoy casual gaming and seek a diverse collection of mini-games in a single platform.

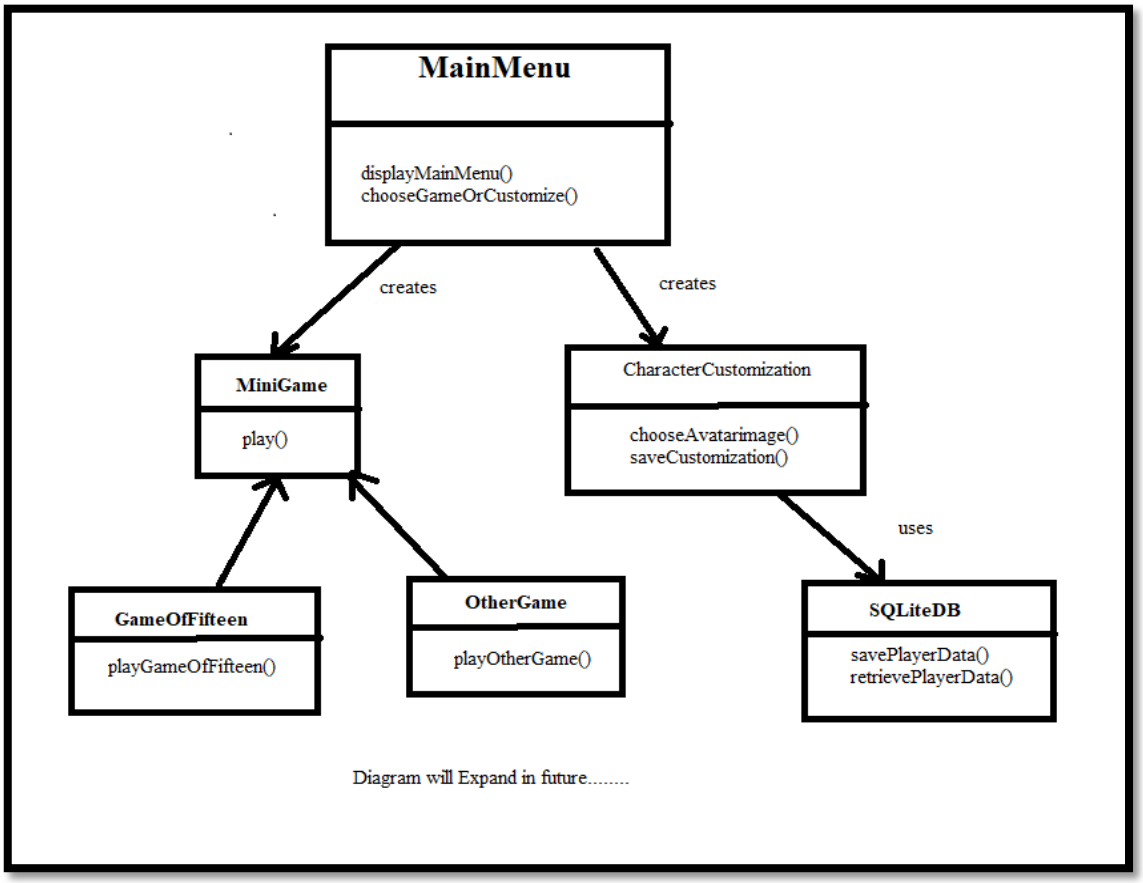
The app is designed to cater to users of all ages who are looking for entertainment and fun during their leisure time. With its user-friendly interface, character customization options, and a variety of mini-games, the application is suitable for both casual gamers and those looking for quick and engaging gaming experiences.
The app's broad target audience includes gaming enthusiasts, casual gamers, and individuals seeking an enjoyable and interactive gaming app on their Android devices.

3 System design

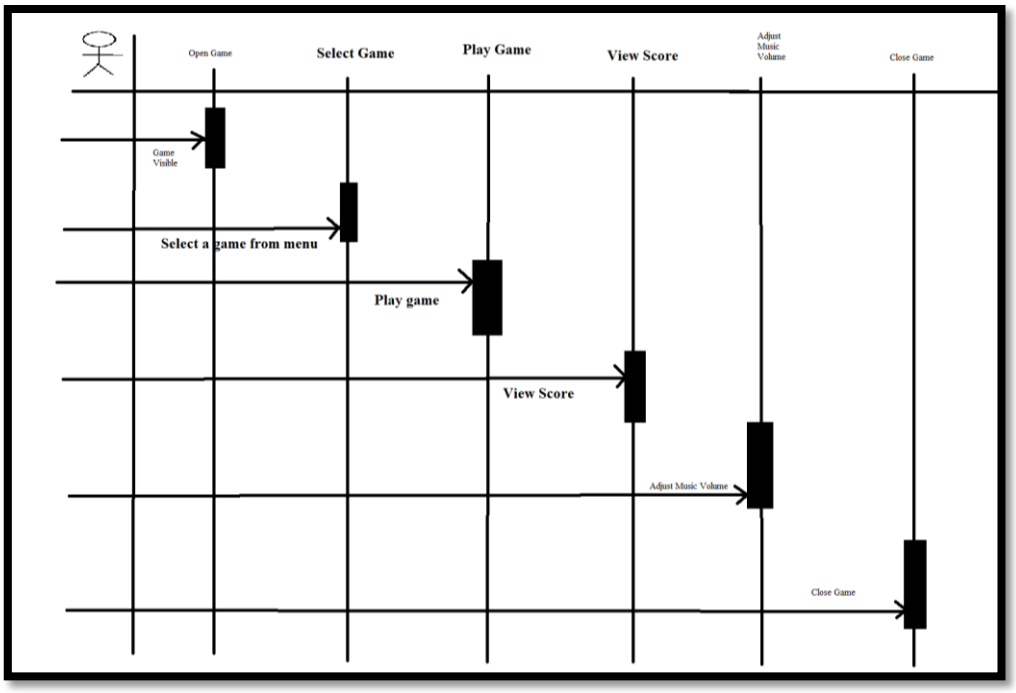
3.1 Use Case Diagram



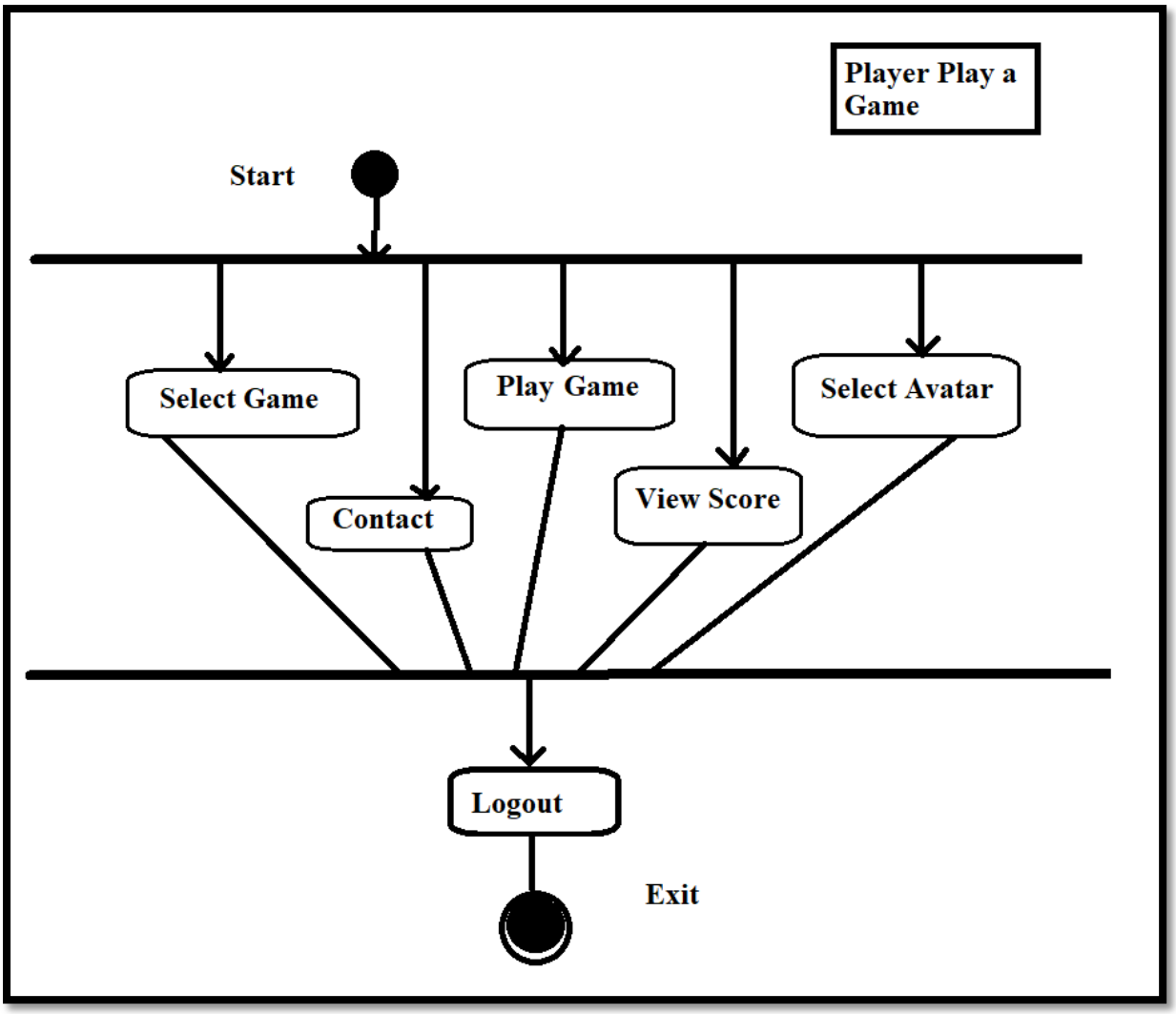
3.2 Class Diagram



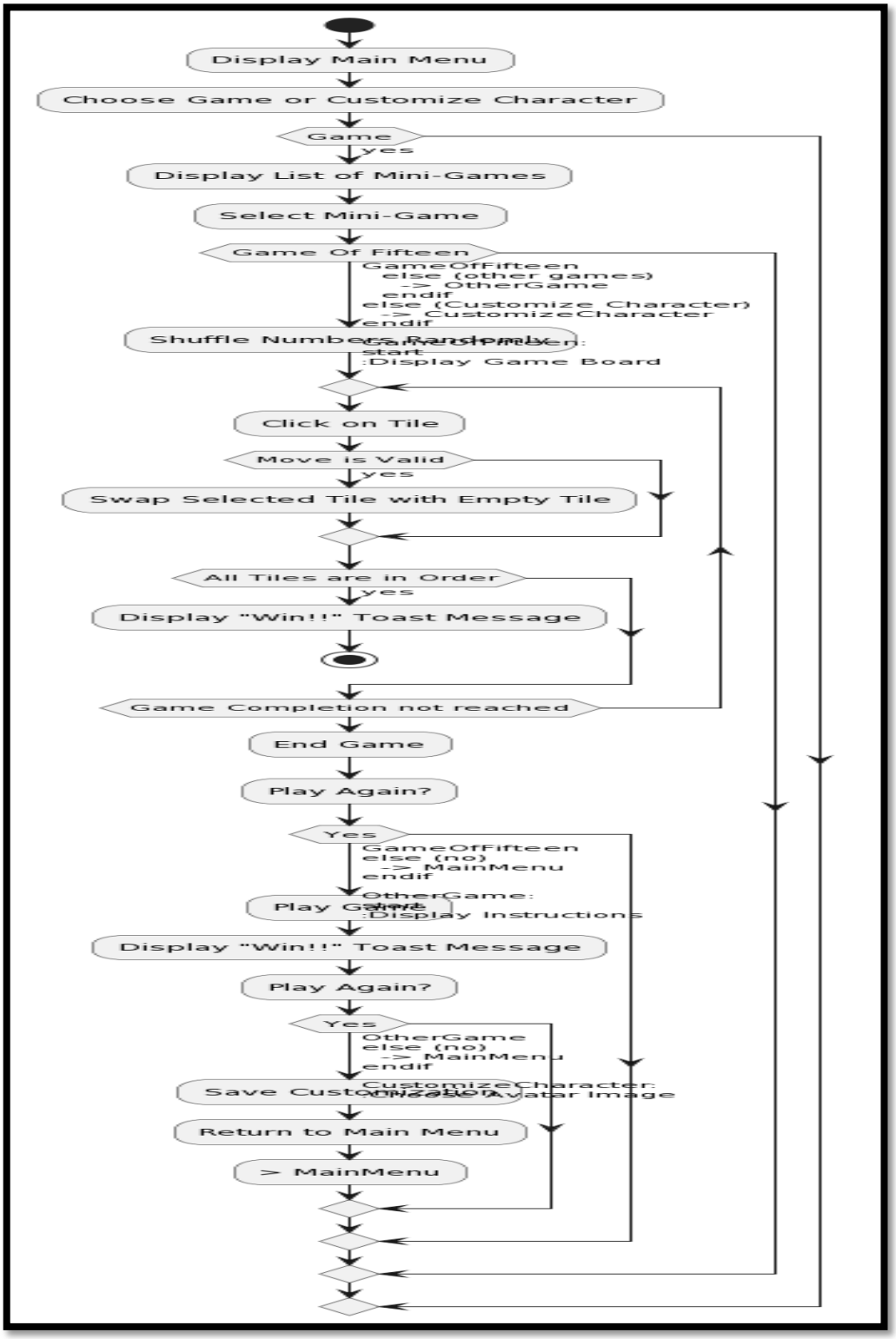
3.3 Sequence Diagram



3.4 Activity Diagram



3.5 Algorithm Flow



4 Development And User Interface

4.1 Coding Standards

In the development phase, coding standards are established to ensure consistency and maintainability of the codebase. Coding standards encompass guidelines on variable naming conventions, indentation, code structure, and comments.

Following standardized coding practices promotes readability and facilitates collaboration among developers, enabling efficient debugging and future updates.

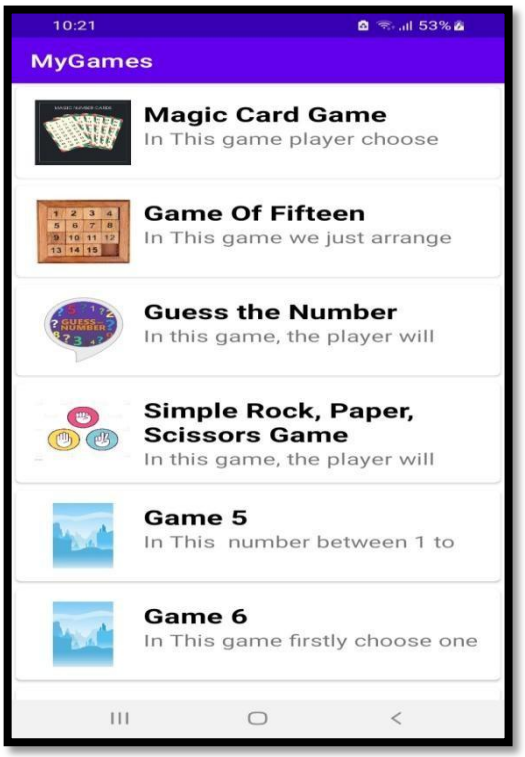
4.2 User Interface

During development, special attention is given to the user interface (UI) design. The UI is optimized for intuitive navigation and visual appeal, providing a seamless and engaging experience for users.

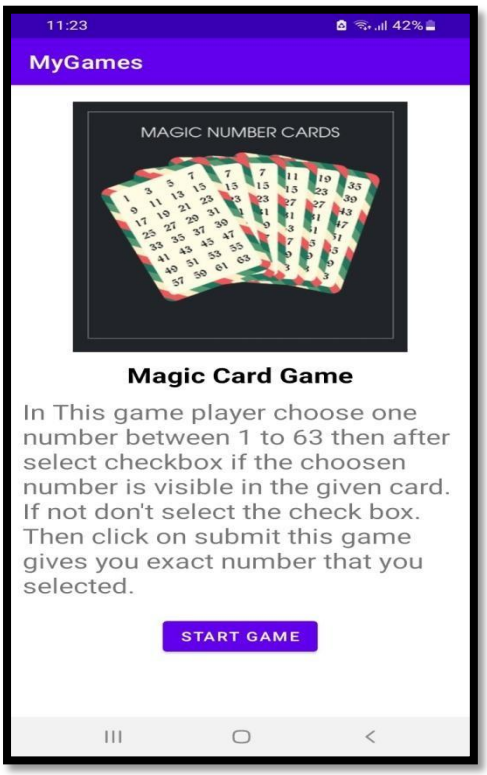
Custom graphics and animations are implemented to enhance the game's aesthetics and overall ambiance. User feedback and iterative testing are used to refine the UI and address any usability issues.

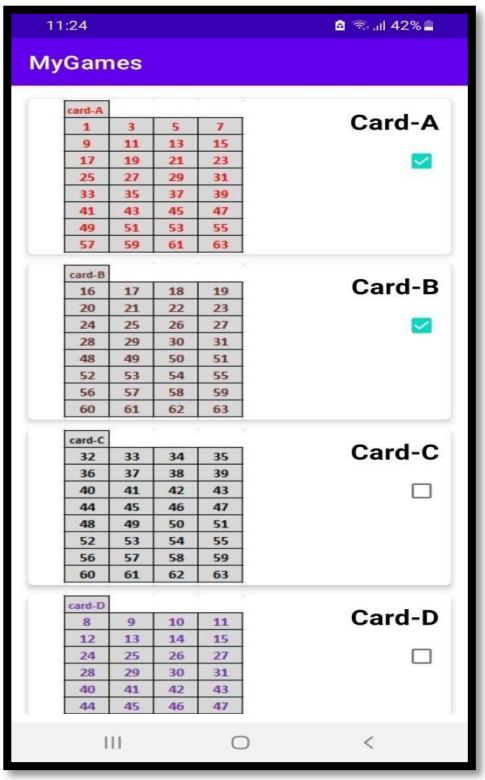
1. Splash screen and menu screen
2. Game 1 Introduction and game 1 activities.
3. Game 2 Introduction and game 2 activities.
4. Game 3 Introduction and game 3 activities.
5. Game 4 Introduction and game 4 activities.
6. Menu screen.
7. Email Contact activity.

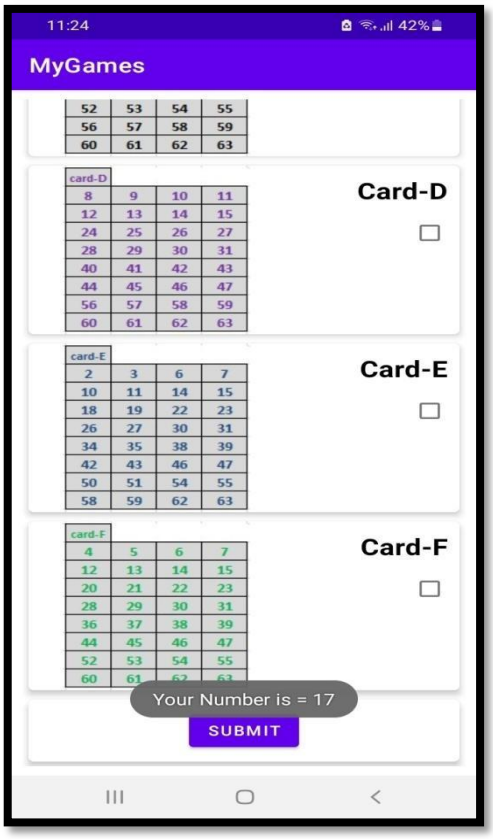
1. The game begins with an engaging splash screen, followed by a user-friendly menu screen that offers easy navigation to various gaming experiences.



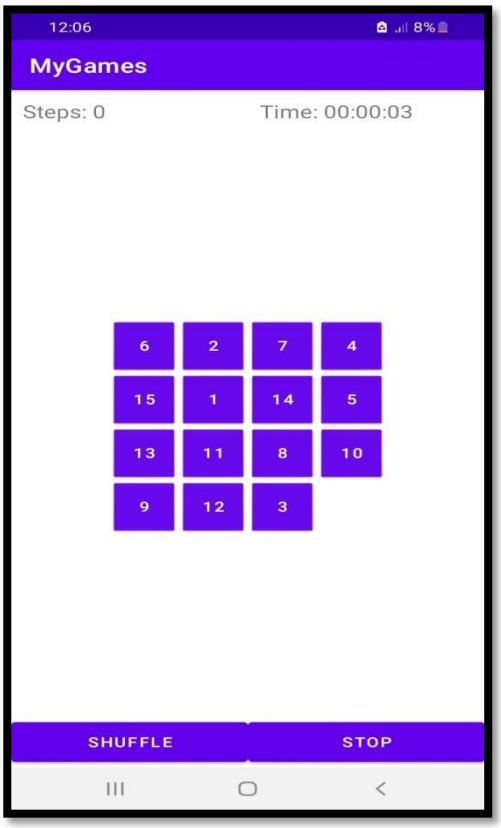
2. Game 1 introduces a captivating guessing challenge, inviting players to find a hidden number through interactive activities that keep them engaged and entertained.

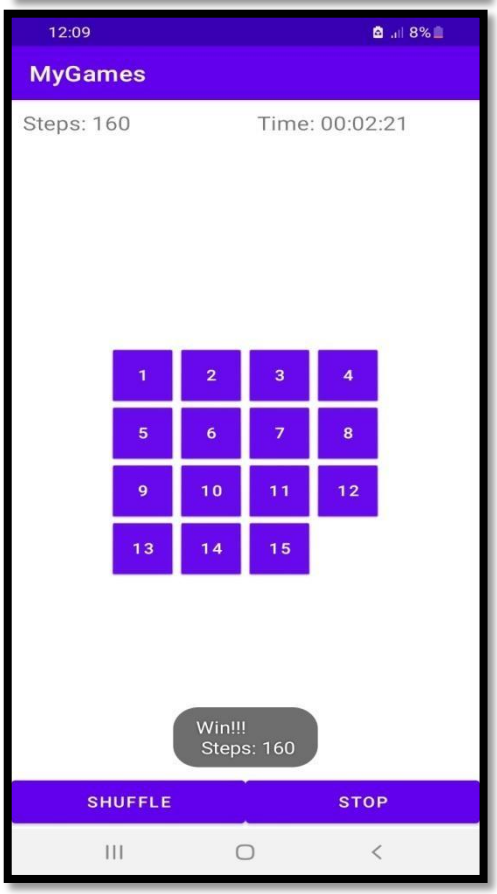




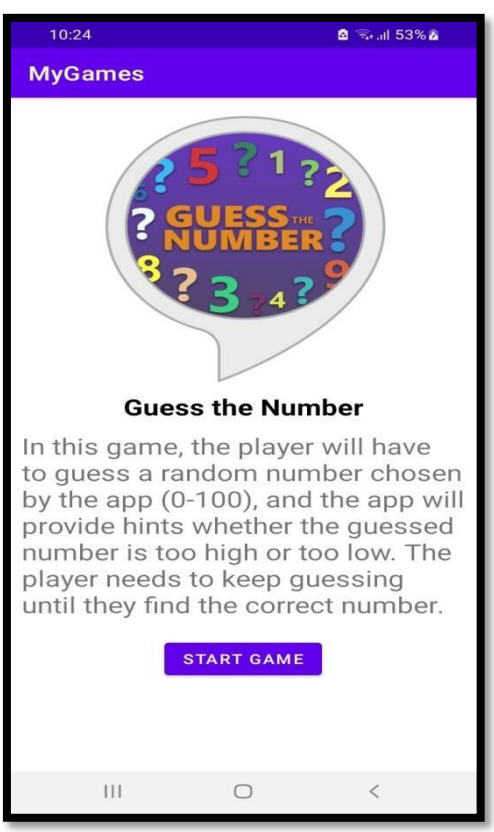


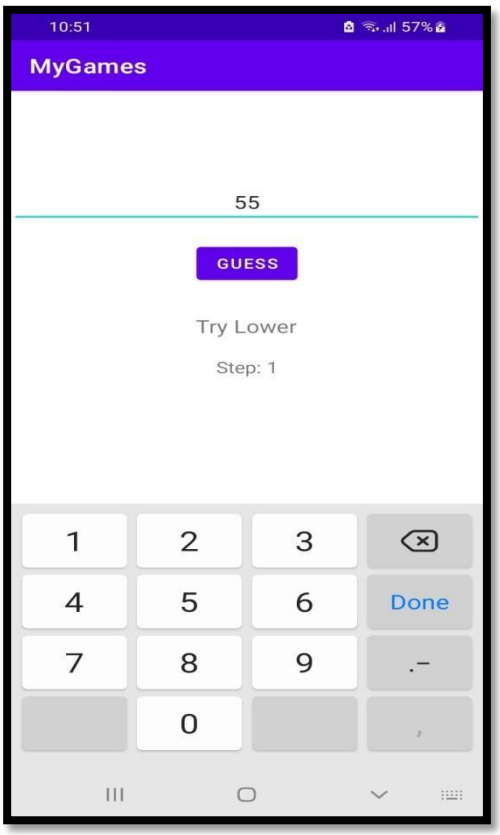
3. Game 2 unfolds with an intriguing sliding puzzle, offering players an exciting opportunity to rearrange tiles and solve the puzzle to achieve victory.

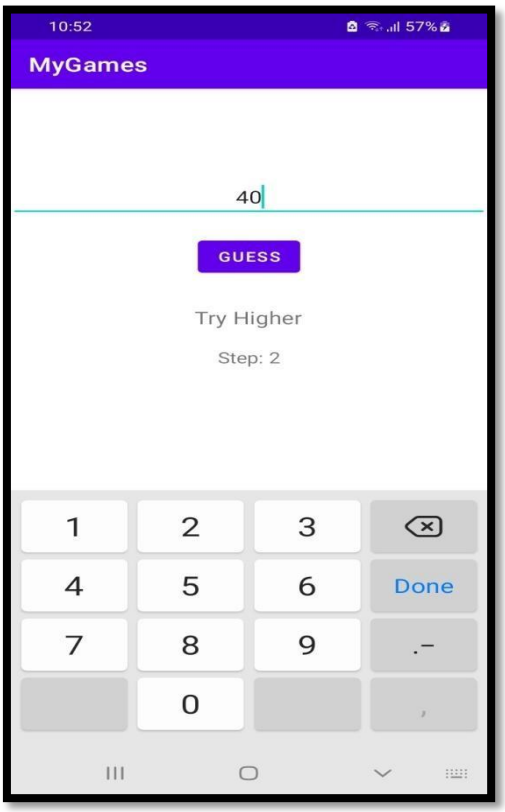


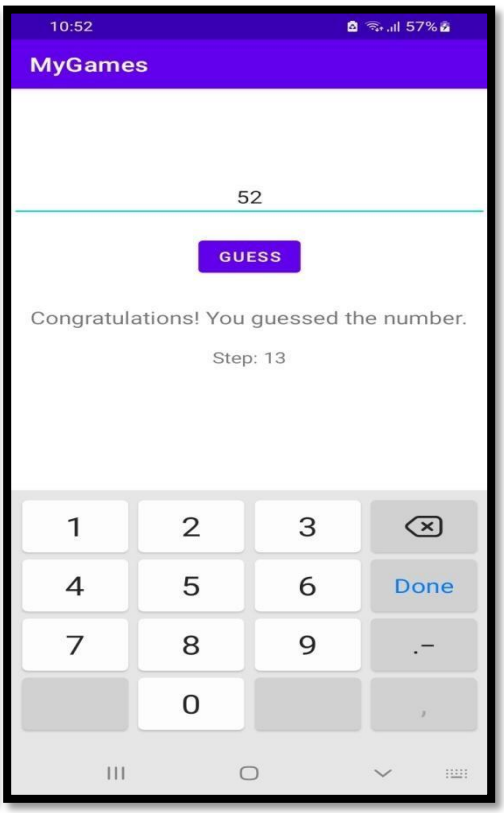


4. Game 3 presents an engaging twist on the classic guessing game, challenging players to deduce a hidden number within a specified range through strategic guesses and hints (Higher/Lower indications).

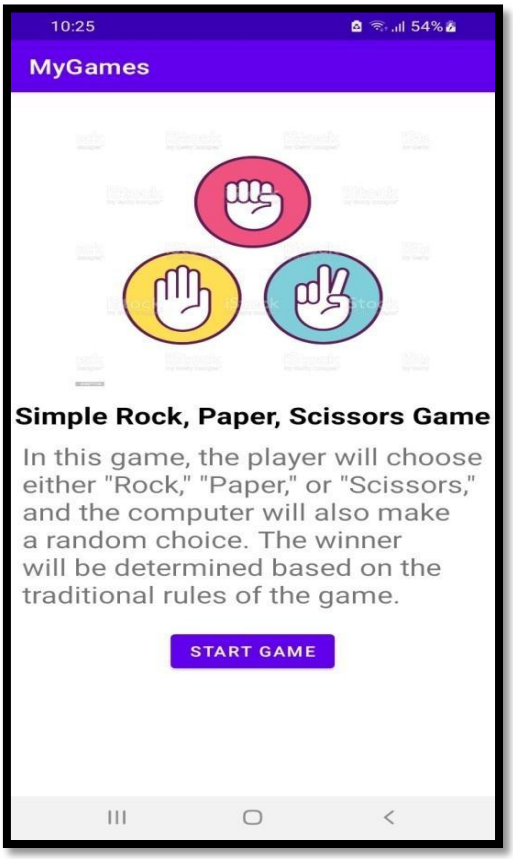




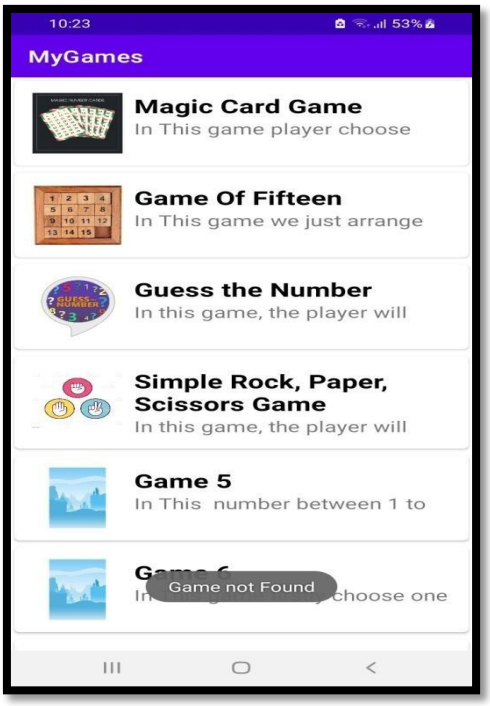




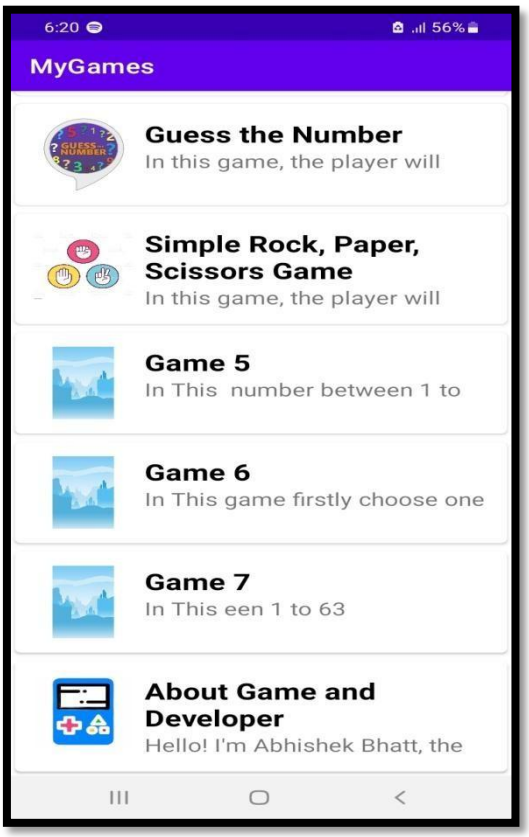
5. Game 4 presents a classic rock-paper-scissors experience, allowing players to choose their move and engage in a dynamic battle of wits against the computer.

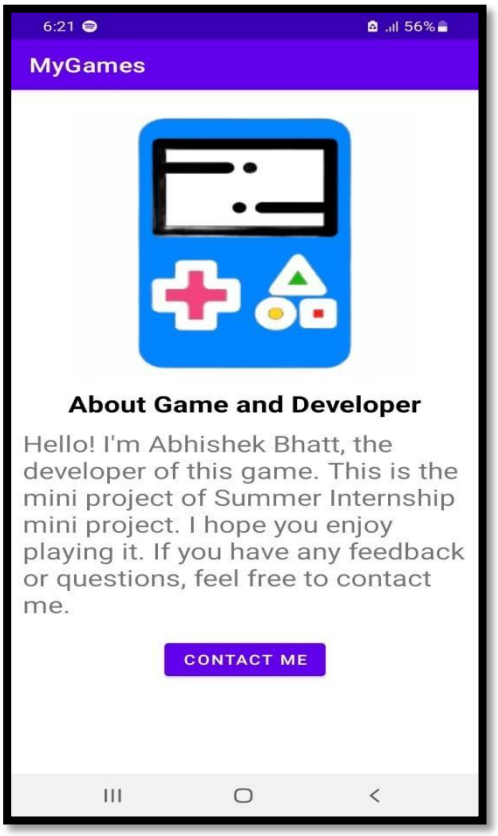


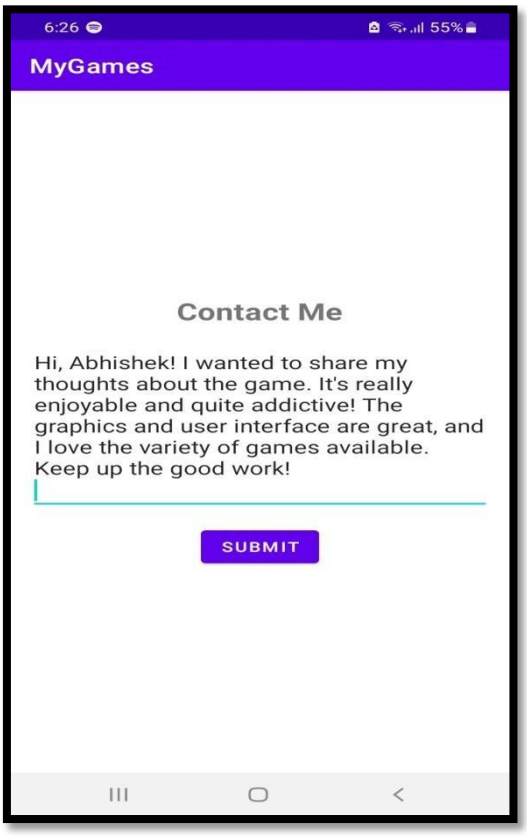
6. The menu screen serves as a hub for players, offering easy access to all game options and providing an intuitive and organized platform for seamless gameplay.

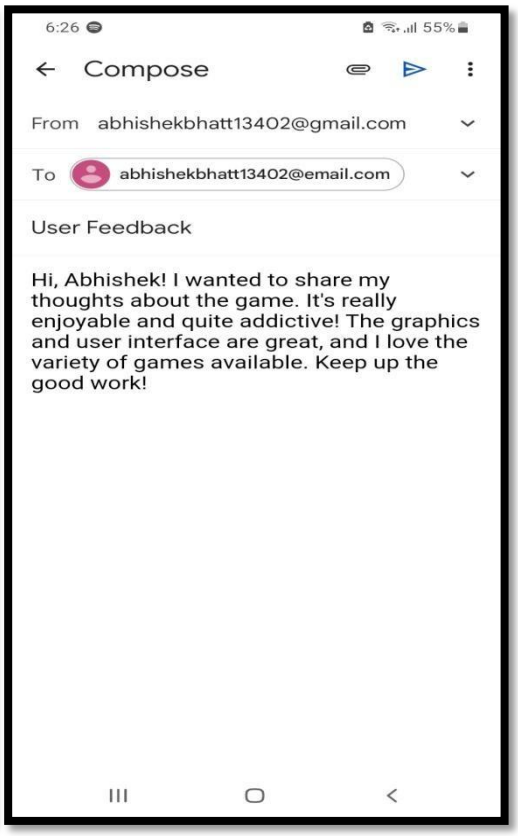


7. The email contact activity establishes a direct channel for players to share their thoughts, feedback, and suggestions, enhancing the interactive and player-focused nature of the game.









5 Testing Documentation: MyGame App

5.1 Modules:

1. Main Menu Screen
2. Game 1: Magic Card Game
3. Game 2: Game of Fifteen
4. Game 3: Number Guessing Game
5. Game 4: Rock Paper Scissors
6. About Me: Contact Me with Email
7. Background Music Service

1. Main Menu Screen

Test Objective: Verify that the main menu screen is displayed correctly upon launching the app.

Test Steps:
Launch the app.
Observe the main menu screen.
Verify that all menu options are displayed correctly.
Ensure that tapping on a menu option navigates to the respective game or activity.

Expected Result: The main menu screen should be displayed with all menu options functioning correctly.

2. Game 1: Magic Card Game

Test Objective: Validate the functionality of the Magic Card Game.

Test Steps:
Navigate to the "Magic Card Game" from the main menu.
Follow the game instructions.
Play the game by selecting a number and checking the corresponding checkbox.
Submit the selection and check the result.

Expected Result: The Magic Card Game should allow the user to make a selection, provide accurate results, and display appropriate messages.

3. Game 2: Game of Fifteen

Test Objective: Ensure the proper functioning of the Game of Fifteen.

Test Steps:
Access the "Game of Fifteen" from the main menu.
Play the game by arranging the tiles in order.
Complete the game and verify the win condition.

Expected Result: The Game of Fifteen should allow the user to arrange the tiles correctly and display a win message upon completion.

4. Game 3: Number Guessing Game

Test Objective: Confirm the correctness of the Number Guessing Game.

Test Steps:
Go to the "Number Guessing Game" from the main menu.
Input a number and submit a guess.
Verify the responses ("Higher" or "Lower") based on the guess.
Continue guessing until the correct number is guessed.

Expected Result: The Number Guessing Game should provide accurate responses and allow the user to guess the correct number.

5. Game 4: Rock Paper Scissors

Test Objective: Validate the functioning of the Rock Paper Scissors game.

Test Steps:
Enter the "Rock Paper Scissors" game from the main menu.

Select a choice (Rock, Paper, or Scissors).
Play against the computer and observe the result.

Expected Result: The Rock Paper Scissors game should accurately determine the winner based on the user's choice and the computer's choice.

6. About Me: Contact Me with Email

Test Objective: Verify the Contact Me feature.

Test Steps:
Navigate to the "About Me" or "Contact Me" section.
Enter feedback in the text field.
Submit the feedback through the provided button.
Check if an email is sent to the designated address.

Expected Result: The Contact Me feature should allow users to submit feedback, and an email containing the feedback should be sent.

7. Background Music Service

Test Objective: Validate the functionality of the Background Music Service that plays music throughout the app.

Test Steps:
Launch the app and navigate to different modules.
Pay attention to the background music playing.
Test scenarios:
Start the app: Check if the background music starts playing.
Navigate between modules: Verify that the music continues to play without interruption.
Exit the app: Check if the music stops correctly.
Return to the app: Confirm that the music resumes from where it left off.
Adjust volume: Verify that changing the volume controls the music's loudness.

Expected Result: The Background Music Service should consistently play the background music without interruptions, both when navigating within the app and when interacting with the device's volume controls.

6 Future Enhancement

In future enhancements, additional mini-games can be added to expand the gaming collection, catering to a wider audience. New levels, challenges, and interactive features can be introduced to keep the app fresh and exciting for users. Integration with social media platforms allows players to share their achievements and invite friends to join, fostering a sense of community.

7 Conclusion

The mini game project successfully delivers an Android gaming application with a diverse collection of mini-games and character customization options. The application's user-friendly interface, background music, and interactive gameplay create an immersive and enjoyable gaming experience

8 References

The development of the mini game project was supported by references to various learning resources, Android documentation, and online tutorials. Additionally, guidance and feedback from Prof. Gargi Maam at SVIT Vasad contributed to the successful completion of the project.

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