5²: An Android Application

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I. About the Game:

5^2 is a 5x5 tic-tac-toe game developed for Android devices. The objective of the game is to get 4 in a row on the 5x5 tic-tac-toe board. The design of the app is based on Tron.

II. Modes:

The app contains 4 exciting modes. These are the classic mode, the race against time mode, the two-player mode and the head-to-head Bluetooth mode. Their function is as follows:

1. Classic

   This game engages the user in a one on one game against a programmed player. The objective is to achieve 4 in a row. The automated player plays a defensive game, blocking your attempts to a win.

2. Race Against Time

   In this mode, the users ability to make wise impulsive choices is challenged and exploited. This mode is similar to the classic mode with the addition on a time constriction for each turn. The user is provided a time span of 2 seconds to make a move. If he runs out the game is concluded. This constraint of time along with the increased complexity posed by a larger game board makes this mode challenging and exciting.

3. Two Player

   This mode allows the user to play the game with another player on the same device. It is a local turn based game. There are no time restrictions.

4. Head-to-Head Bluetooth

   Who doesn't like wireless technology? This mode allows the user to compete with other users via a Bluetooth connection.

III. Game Elements:

The game interface contains features to enhance the user experience.

1. Scoreboard

   This scoreboard is situated below the game board and displays cumulative results of the games played in a certain mode. Using this feature allows the user to keep a track and compare his wins against his losses. Restarting the game can reset these counters.

2. Sound

   One of the most exciting features of this game is the responsive soundtrack. This soundtrack is programmatically created and responds to the game status. It speeds up as the game progresses creating an intense atmosphere. It also drops hints for the users in the case of a winning move.

3. Restart Option

   This button allows the user to restart a game at any point and also resets the win counters.

4. Progress Bar

   Gives the user an idea of the amount of time left for his/her turn to end. The progress bar starts as a green bar, switched to a yellow halfway to end and turns red in the last 500ms. This element is active only in the race against time mode. In the other modes it indicates indeterminate time.

IV. Additional Features/Services:

The app uses the Google play services API that allows the user to unlock developer created achievements and share their scores on a leaderboard. This app contains a total of 8 achievements, namely:

1. First Game

   Unlocked when a user completes playing their first game.

2. First Win

   Unlocked when a user wins a game for the first time.

3. Champ

   Unlocked when the user defeats the automated player within 10 moves.

4. The Challenger

   Unlocked when the user defeats the automated player in the race against time mode.

5. Head to Head

   Unlocked when the user completes playing his first head-to-head game over a Bluetooth connection.

6. Making a Name

   Unlocked when a user wins 10 head to head Bluetooth games.

7. Getting Good

   Unlocked when a user wins 10 games in the race against time mode

8. Addicted

   This is a hidden achievement that unlocks and reveals itself when the user plays more than 10 games

The Google Play Services also provided us, the developers, access to the statistics for data such as the number of players connected via the Google services, the number of achievements unlocked within a certain interval of time, the progress of the leaderboards and the engagement of users. This helped us better understand user interactions and would be a great resource in the future to improve our current game concepts in order to increase user engagement.

V. Intended Users:

Everyone! This game is meant for and designed for all ages.

VI. Technologies Used:

We used Eclipse and the Android SDK to develop the app. The external libraries used were the google-play-games-services_lib and the android-support-v7-appcompat.

VII. Future Improvements:

Following are future improvements for this project:

1. Have the design support multiple devices
2. Better implementation of the mute feature and sound flexibility
3. More flexible automated player
4. Customizable themes and boards
5. Improvements to Game Concepts; Additional features like power ups; More game modes
6. Online Turn Based Multiplayer using the Google Play Services API
7. Improvements to the user interface design to improve user interaction and experience
8. Making the Bluetooth connection process automated

VIII. The Team:

Game Logic, Game Structure, Game Concepts and Team Management - *Shantanu Bobhate*

Bluetooth Concept and Bluetooth Implementation - *Fangling Ye*

Sound Concept and Sound Implementation - *Mike Reavey*

User Interface and User Experience Implementation - *Aseel Alkhabbaz & Saniya Shah*

VII. Additional Resources:

The source code for this project can be found at

https://github.com/buec327spr14/st-sbobhate/tree/master/PROJECT

The demo video can be found at

 https://www.youtube.com/watch?v=si_ZvNdbsoA&feature=youtu.be

The app can be installed from Google Play at

https://play.google.com/store/apps/details?id=ec327.project.x5tictactoe

Or by installing the .apk file on your device from

https://github.com/buec327spr14/st-sbobhate/tree/master/PROJECT/Final%20Product