



**CSC 710 – SOFTWARE ENGINEERING**  
(Prof. Zhanyang Zhang)

**Beat Me GO!**

**Final – Software Design Document**

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## **1. Introduction:**

Beat Me Go! is real-time multiplayer Android OS game. Version 1.0 of this game contains basic functionalities of game including registering, multiplayer match and leaderboard support.

The game is created using Android XML style. We tried to support UI for every android device with different resolutions. We made simple UI which doesn't require too much graphical images; therefore it loads fast and also looks attractive in any device.

## **2. Application Architecture:**

Our game has basically five pages which are operated by users, which are as follow:

1. Home Page – where all the action buttons are available to handle game.
2. User Profile – where user can see his/her information and progress.
3. Leaderboard – where user can see top players of the game with their scores.
4. Setting – where users can login/logout, turn on/off SFX and more.
5. Game Board – where user will compete with other users globally.

The first starting page would be gaming startup page where user will login with his/her Google account for first time or after logging out. The startup page shows game logo and data loading progress.

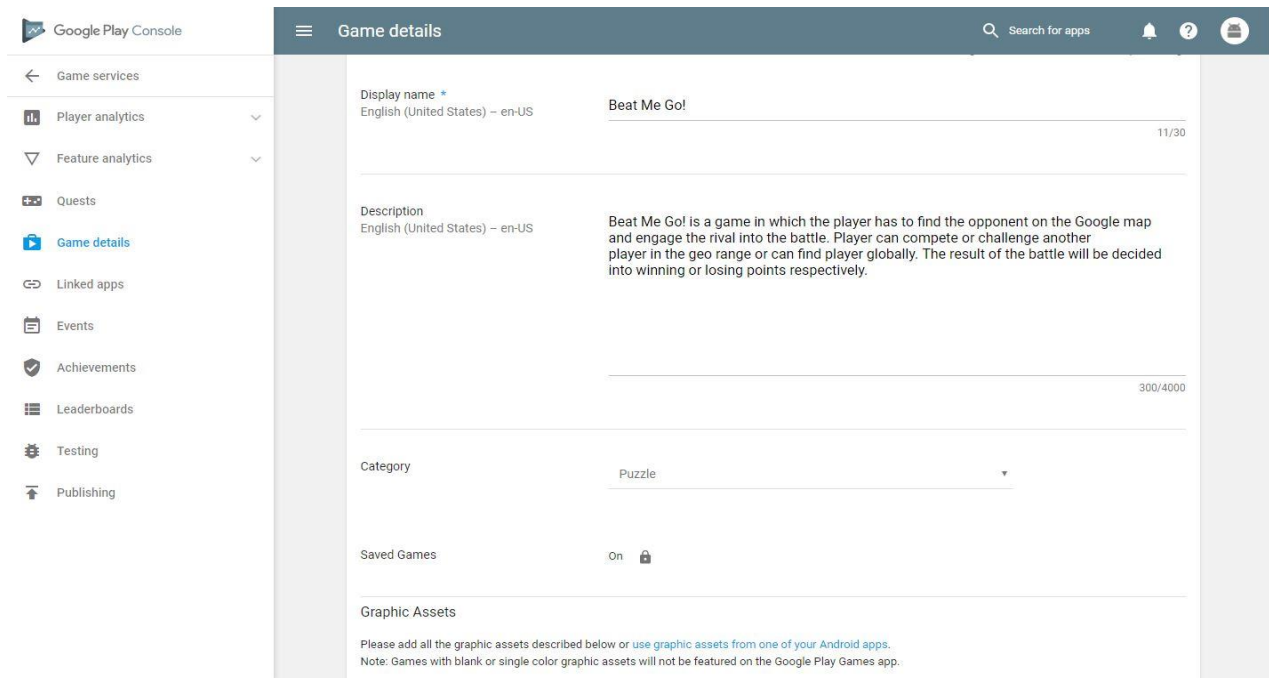
Home page has all action buttons to see leaderboard, open profile, open settings and start game session.

All the pages GUI are built in Android XML layouts with the support of some graphical icons and images.

## **3. Required System Functions:**

Our game runs on Google Play Game Services, which provides users to save their data on Google Cloud and also play real-time game with other players globally.

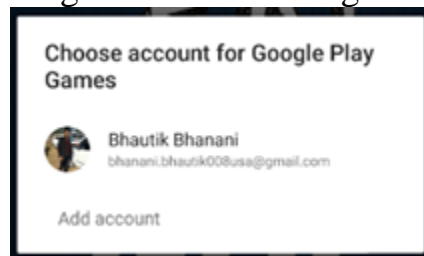
The major and key system function for this game is to register game and link game with Google Play Console with specific AppID.



(Figure 3.1)

As per the figure 3.1, our game is registered on Google Play Console and linked with Android Platform. We can link our game with iOS Platform, Windows Platform and Web Platform as well.

Second main system function is to login a user with his/her Google account with the game. When user opens game first time or opens game after logging out, game will pop-up dialog to user to login with liked Google account with that device.

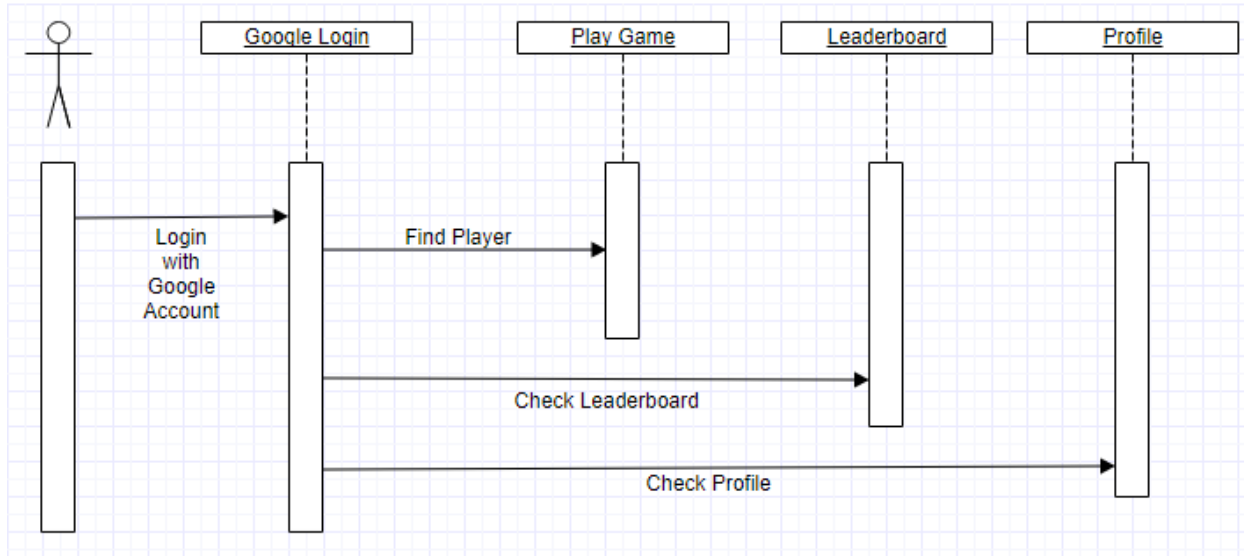


(Figure 3.2)

As per the figure 3.2, user can see his/her linked accounts and he/she can choose any one account to start game. All his/her data will be stored into that account.

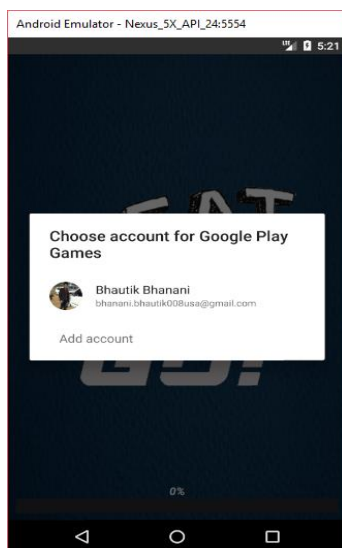
## 4. User Interface:

Our game follows standard system cycle. Following figure 4.1 describes basic system flow of the app.



(Figure 4.1)

As per Figure 4.1, once user will login with Google Account; Google Play Games will generate one unique PlayerID and will link that id with account for future logins.



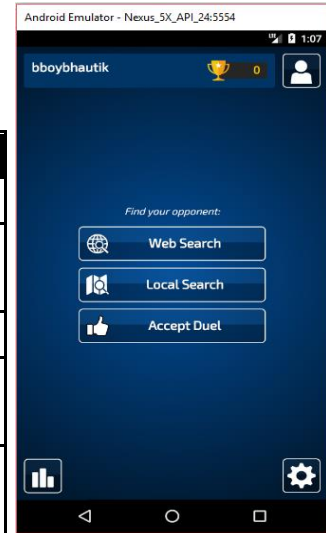
(Figure 4.2)

Figure 4.2, shows starting page of game GUI, where user can login with his/her Google account.

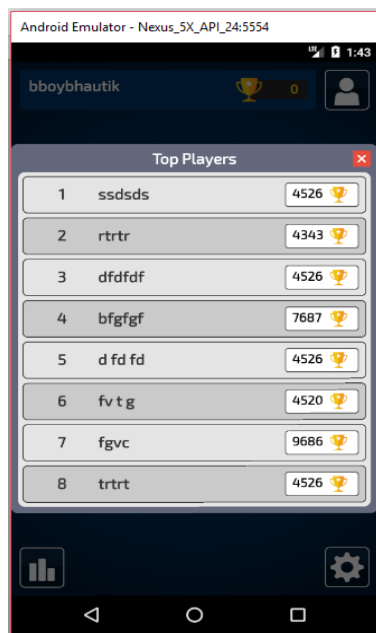
To access any game functionality, game requires Google Play AppID, player Google ID which can be obtained by registering user to game.

Figure 4.3, shows home page layout with all action buttons to handle game.

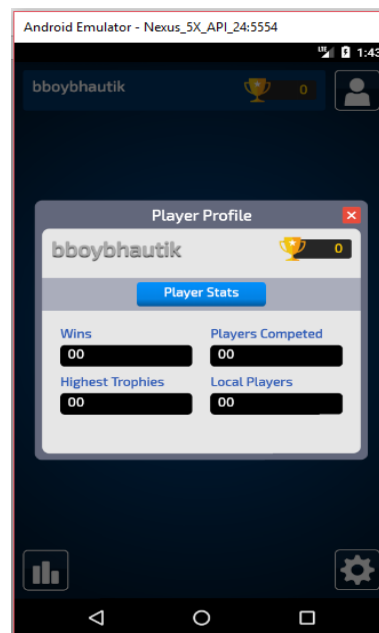
Button	Position
Profile	Top right with user icon
Leaderboard	Bottom left with 3 level winning stage icon
Setting	Bottom right with gear icon
Play Game	First in middle three buttons with “Web Search” icon
Score	Right side on play name title with trophy icon



(Figure 4.3)



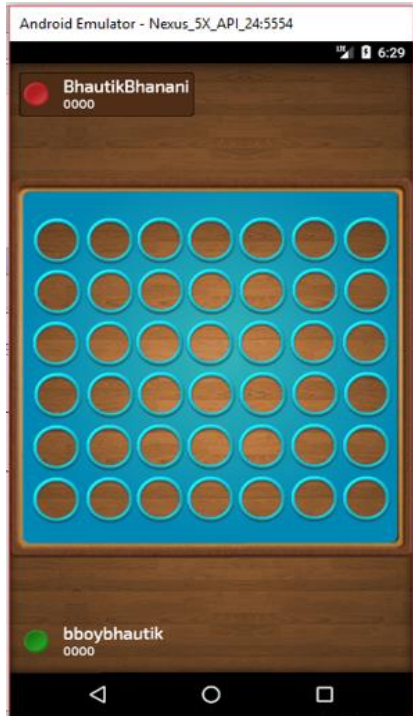
(Figure 4.4)



(Figure 4.5)

As per figure 4.4, player can check top players who have achieved top scores in game. Currently, game shows only top 25 players with their scores.

Figure 4.5 gives information about user. Profile shows player's total wins, number of players competed and higher trophy achieved by user.



(Figure 4.6)

Figure 4.6, shows GUI of game board. Only two players can enter the session and start game. Specific coins will be assigned to player after joining the session. One player will use Red coin and other player will use Green coin. Player with Red coin will start the game.

Players have to insert their coin into one column turn by turn. Basic game play of this game is to match any same color of four coins in row. Position of this match can be horizontal or vertical or diagonal.

Player who will manage to place all four coins together will win the match.

Once the match is over, player will see their new updated score and redirected to home page. Player who wins the match will get 10 points from the other player.

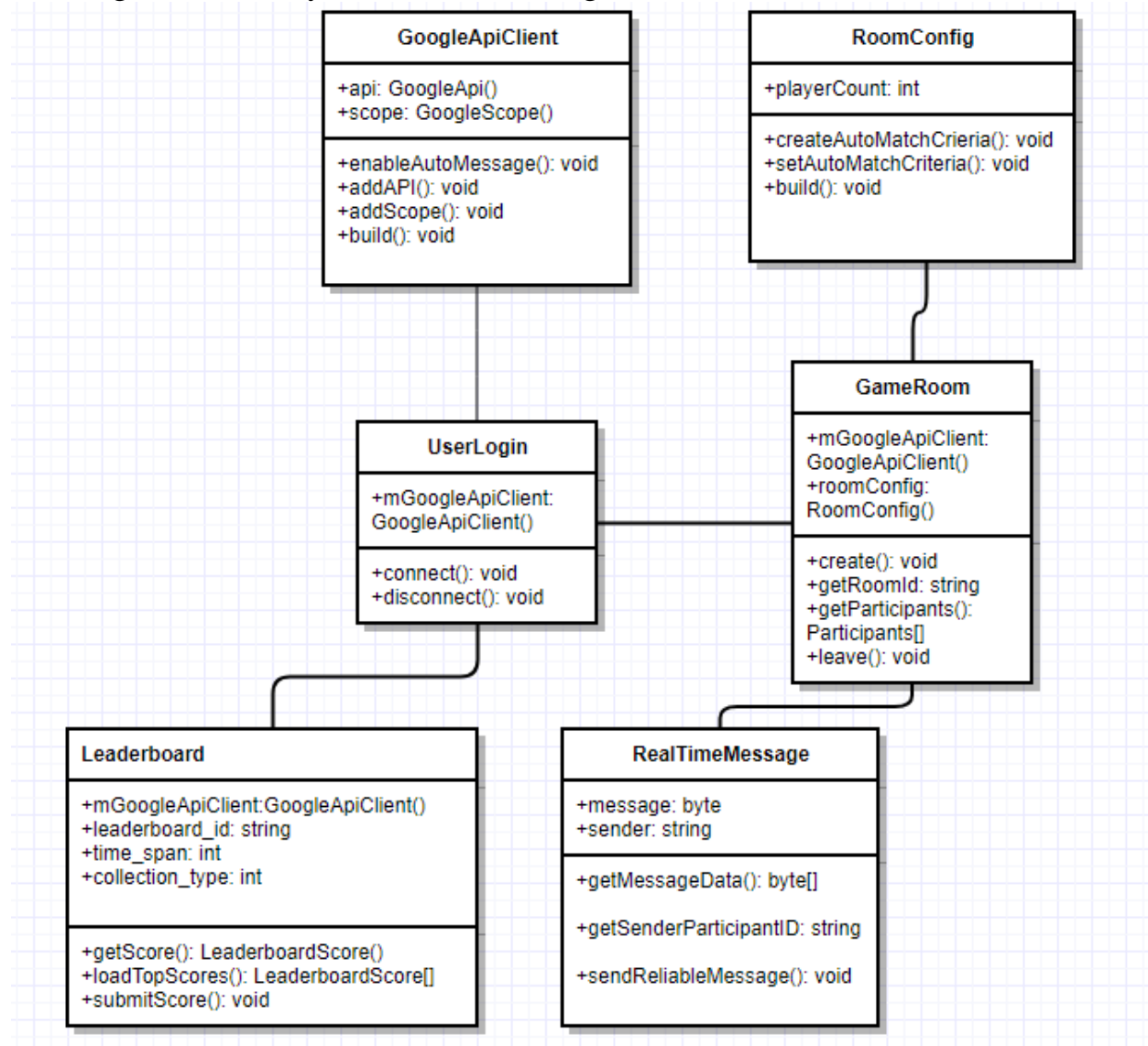
## **5. System Components:**

Name	Description	Input Data	Output Data	Dependencies
Google Play Login	Login with Google account to play game	Google Email Account	Player ID	Google Play Game App
User Profile	Show progress of player	Player ID	Players information	Player ID
Game Session	Online session where two players can compete	Player ID, GoogleApiClient ID	Room ID, Participants ID	GoogleApiClient ID
Leaderboard	Shows top 25 players	GoogleApiClient ID, Leaderboard ID	Players Score	Leaderboard ID



## 6. Database:

ER Diagram for our system is shown in figure 6.1.



(Figure 6.1)

Our system doesn't require any database to register user or create game session or to show top players in leaderboard.

User's score and login data are stored in Google Cloud which will handle by App ID and player's Google Account.

However, we have listed other information about player in user profile such as:

- Number of wins
- Number of players competed
- Highest achieved trophies

These data cannot be stored on Google Cloud; therefore, we created on database and stored those data based on Player ID given by Google on registration.

The table name for that functionality is “Playerstats” and the schema is as below:

Field Name	Type	Default Value	Description
playerID	Text	Null	Player ID given by Google
wins	Integer	0	Number of total wins
matches	Integer	0	Total number of players competed
trophy	Integer	0	Highest number of trophies achieved

## **7. Required Hardware & Software:**

Software Requirements to run this game are as follow:

- Android OS 4.0 KitKat or higher
- Google Play Service App in device
- Google Play Game App in device
- Google Account
- Google Play Store to download game

Hardware Requirements to run this game are as follow:

- Android compatible device
- Minimum 512mb RAM
- Minimum 35mb device space for installation
- Internet connection