

Lambton
College

In Toronto



CESTAR COLLEGE
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PROJECT REPORT

MAZE RUNNER USING ANDROID

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INTRODUCTION TO MAZE GAMERS:

Introduction of the game:

Our maze game is an 2d-animation game developed using android studio. The game consists of a ball and a board with a hole in the center of it. We are using accelerometer as controller to guide ball towards the hole. There are different types of screens in game called splash screen, signup screen, login screen.... User's data will be stored in online database server which is based on **php** and **MySQL**.

..... **Splash Screen**: On this screen user can see the title of the game.

- 1. Registration screen:** At first user need to select a profile photo from his gallery next step is to select name , user name, and phone number there will be marker which helps to show present location of the user there will be two types of buttons below marker called sign-in/signup. A toast will be displayed after user registered successfully.
- 2. Login screen:** If user registered successfully then on sign-in screen user need to provide phone number after providing phone number user get otp to his/her mobile. User can enter successfully if he/she is registered earlier or else an error message will be shown.
- 3. Home Fragment:** On Home fragment user can see a welcome message with his/her name and a new game. Score Board will be shown below the new game button with users who score highest names and their scores.
- 4. Game screen:** In game screen there will be a ball which from top to bottom and horizontal lines which is called hurdle and a stop watch is used there is a hole at bottom once ball gets in contact with hole the game will be over. A background music will be played during the game.
- 5. Game over screen:** After completion of game on this screen user can see a toast will be displayed like game is over and score of players in that game.
- 6. Profile Fragment:** In profile fragment user can see his profile picture and below that his name address and his score in the previous game with a logout button at bottom.
- 7. Google maps Fragment:** In this screen user can see his name and score at his location on the maps with a pop-up. On other google map fragment user name with highest score will be displayed

DESCRIPTION OF OUR MAZE GAMERS

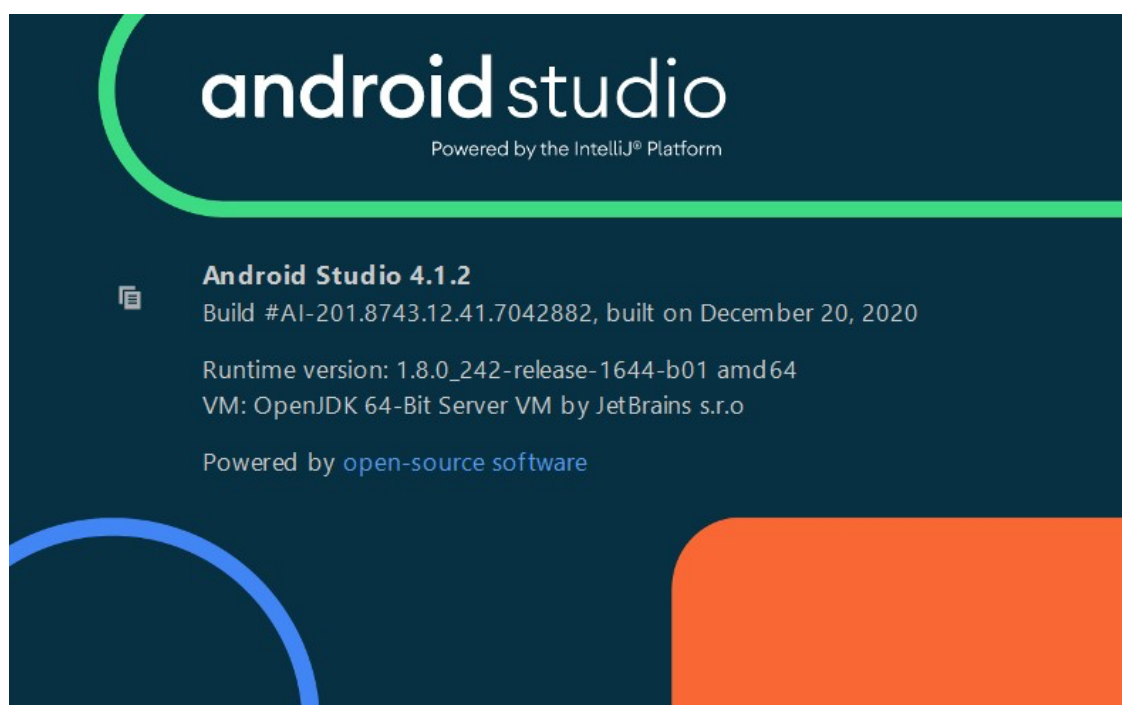
- The game we created is a prototype of the 2D-Animation game where user can create an account through Registration screen using name, phone number, password and a marker is placed at bottom through which user can select his/her current location.
- In login screen user should enter his/her phone number and there will be a get otp button by tapping on it user will get an otp to his mobile after entering otp user should press verify button if otp is correct user can successfully login into the game.
- In game there will be a ball which moves from top to bottom and a horizontal line called hurdles, a stop watch which shows time, background music will be played, a hole is placed at bottom after ball meets the hole game will end.
- Once the game finished user can see a toast with game is over message and a score that he/she score in the game. Once user press on ok he/she will be taken to profile fragment which shows profile picture of user and below that there will be name of user, address, score of user in previous game. A logout button is also placed at bottom of fragment.
- A Google map fragment is created which shows user name and previous game score at his current location on other Google map fragment user who score highest score and name is shown.
- On home fragment user name with welcome message will be shown and a new game button is placed between welcome message and score board at bottom a score board is placed which shows highest score of user with names and scores of user's will be shown.

MINIMUM REQUIREMENTS OF THE GAME

Technical Requirements: Our gaming project is based on Java language i.e. **Java 1.8.0_281**. As our project is made using the functionality to save data entered by users in an MySQL database and php, also this application is compatible only with **"Android 5.0 or higher"**, reason being is that the features we implemented in our application are compatible with android 5.0 or higher versions. Running this application in lower android versions may cause the application to crash due to incompatible SDK version. Hence, the only compatible software to develop our gaming application is Android Studio, additionally, it requires **Android Studio 10** to test and debug the application properly, but it can also be tested on older versions of android studio, but the full functionality is not guaranteed.

General Requirements: Although, our gaming is just a prototype of a fully-fledged working gaming application, yet we have implemented some features to include some of the general requirements to use our application. Primarily, user must enter an name, phone number, location using marker, user name, password while creating a new account, if any of these is not entered, account will not be created, user will have to try again. Moreover, user can login into the account with phone number and a otp(one time password), User can select a profile picture through his/her phone gallery. Besides this, another feature of our application is that the user can see his/her score on current location using map fragment. Finally, In the game user can see a ball with hurdles (horizontal lines) and a hole at bottom once ball touches hole the game will be completed and user can see his/her final game.

Softwares Used: We used only one software for developing our gaming project which is **"AndroidStudio 4.1.2"** and the operating system we were using was **"Windows 10 64-bit"**. The screenshot of the version of **Android Studio** is as follows:



2 CLASSES AND METHODS USED IN GAME

1. **Generate OTP:** This is the method which generate otp after user provide his/her phone number.
2. **Save Login Details:** This is the method in which all the data entered by user on signup screen will be saved into the mysql and php.
3. **Fetch markers:** This method helps to get all the latitude and longitude from the database of the user.
4. **Fetch profile:** This method fetch profile used to fetch all the data of user like profile picture, name, phone number, location.
5. **getcurrentLocation:** This method is used to get the present physical address of the user.
6. **InsertUser:** This method is used to store details of the user into the local database

USER MODEL CLASS:

```
public class User {
    int id, score;
    String name, phone, password, image, address;
    double latitude, longitude;

    public User() {
    }

    public User(int id, int score, String name, String phone, String password, String image, String address, double latitude, double longitude) {
        this.id = id;
        this.score = score;
        this.name = name;
        this.phone = phone;
        this.password = password;
        this.image = image;
        this.address = address;
        this.latitude = latitude;
        this.longitude = longitude;
    }

    // this constructor is for recyclerview (Top 3 Players)
    public User(int id, int score, String name, String image, double latitude, double longitude) {
        this.id = id;
        this.score = score;
        this.name = name;
        this.image = image;
        this.latitude = latitude;
        this.longitude = longitude;
    }
}
```

3 TASKS APPLICATION CAN PERFORM

Step 1. User can create an account through Registration screen using name, phone number, password and a marker is placed at bottom through which user can select his/her current location.

Step 2. In login screen user should enter his/her phone number and there will be a get otp button by tapping on it user will get an otp to his mobile after entering otp user should press verify button if otp is correct user can successfully login into the game

Step 3. In game there will be a ball which moves from top to bottom and a horizontal lines called hurdles, a stop watch which shows time, background music will be played, a hole is placed at bottom after ball meets the hole game will end.

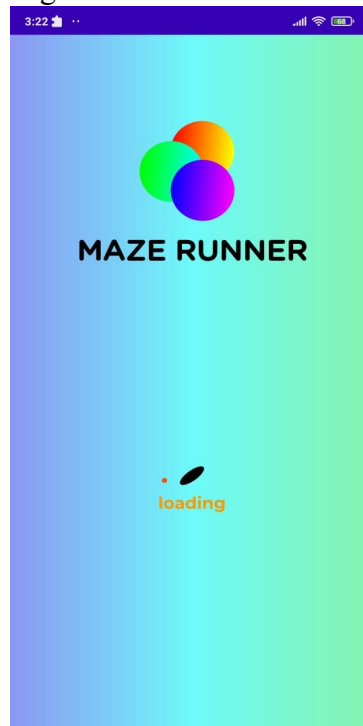
Step 4. Once the game finished user can see a toast with game is over message and a score that he/she score in the game. Once user press on ok he/she will be taken to profile fragment which shows profile picture of user and below that there will be name of user, address, score of user in previous game. A logout button is also placed at bottom of fragment.

Step-5. A Google map fragment is created which shows user name and previous game score at his current location on other Google map fragment user who score highest score and name is shown.

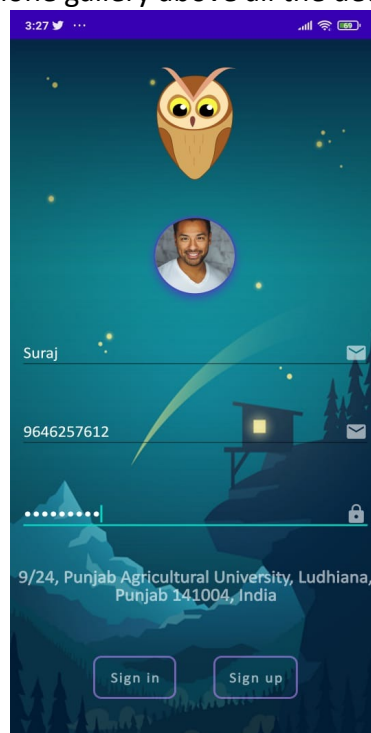
Step-6. On home fragment user name with welcome message will be shown and a new game button is placed between welcome message and score board at bottom a score board is placed which shows highest score of user with names and scores of user's will be shown. We are using accelerometer for movement of the ball

4. WORKING OF THE APPLICATION

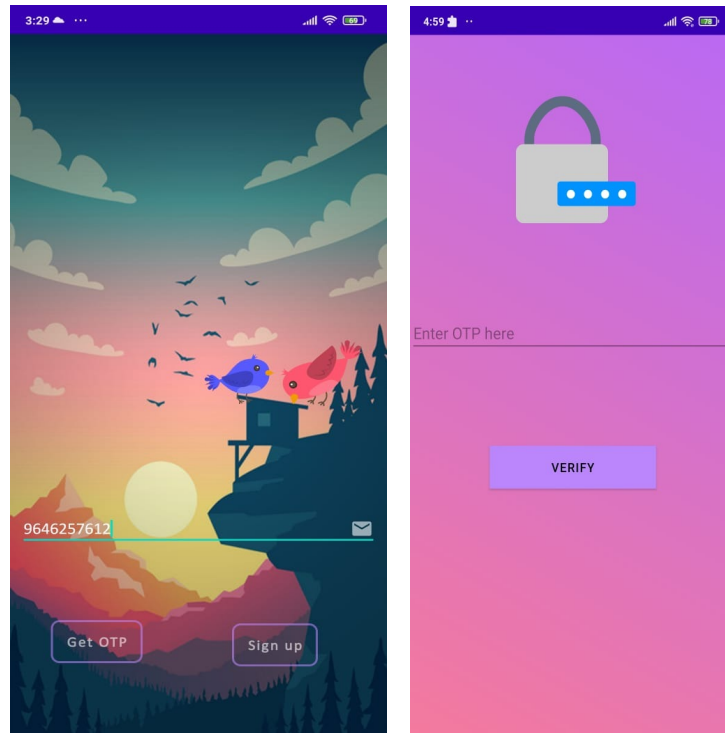
SPLASH SCREEN: The splash screen of our game looks like in the below screenshot:



Step-1: In first option of the menu, user can create a new game account through registration screen by using phone number, name, password and a marker which shows user's current location a user profile picture is shown which is chosen by user phone gallery above all the details that screen looks as below:



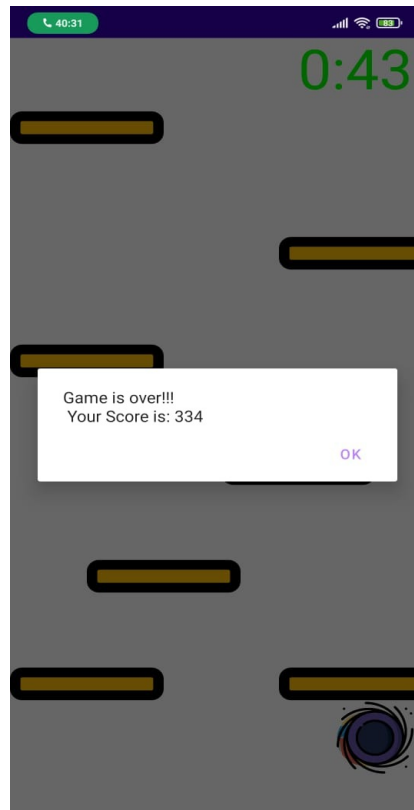
Step-2: After successfully creating a game account, user will be taken to the login screen, where user can login to the application by entering his/her phone number. A otp will be sent to phone number provided by the user. user will be taken to otp screen where he/she should provide otp. If otp entered by user is correct then a toast message will be displayed.



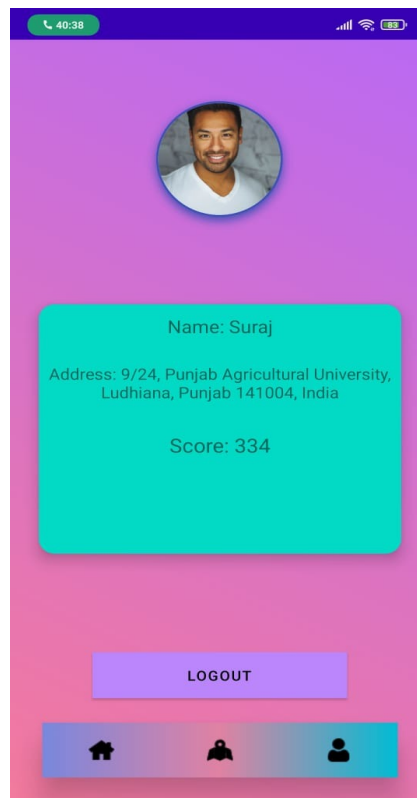
Step-3: After successfully logging into the game, user can view a game where a ball moves up to down using accelerometer, hole at the bottom of the screen when ball touches hole the game comes to end and there are hurdles(horizontal lines) in between. There will be a stop watch at top right corner of the screen and also a background music will be played in the game screen.



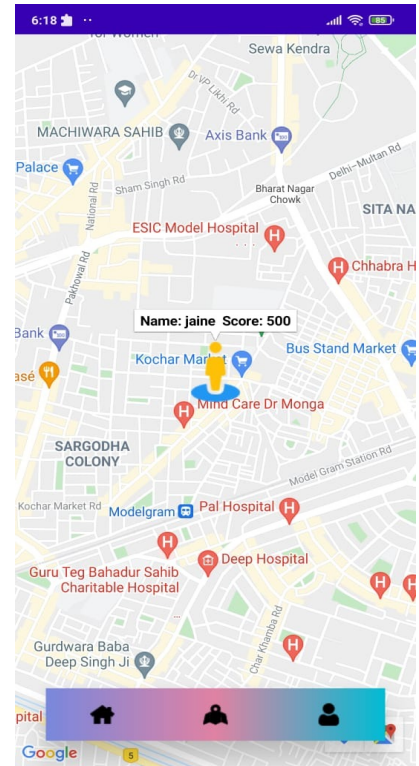
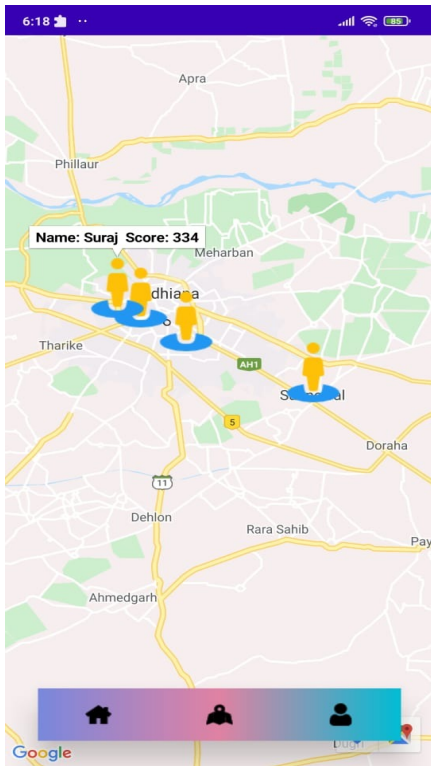
Step-4: In game over screen once the game finished user can see a toast with game is over message and a score that he/she score in the game:



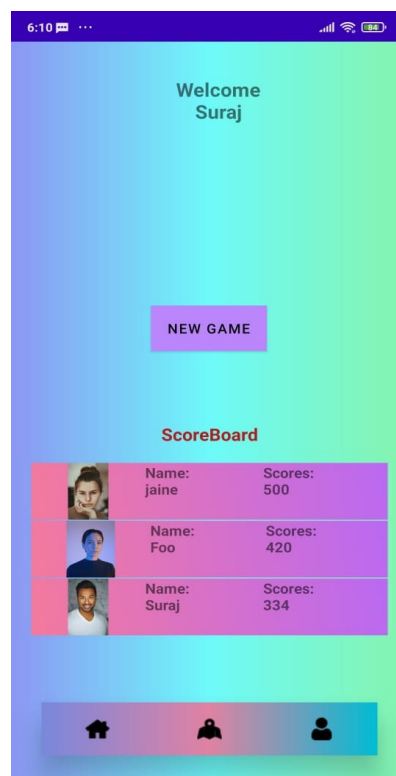
Step-5: In step 5, Once user press on ok he/she will be taken to profile fragment which shows profile picture of user and below that there will be name of user, address, score of user in previous game. A logout button is also placed at bottom of fragment.



Step-6: A Google map fragment is created which shows user name and previous game score at his current location on other Google map fragment user who score highest score and name is shown:



Step-7: On home fragment user name with welcome message will be shown and a new game button is placed between welcome message and score board at bottom a score board is placed which shows highest score of user with names and scores of user's will be shown.



Solution: We were getting the above error in the recyclerview adapter The solution is in the getItemCount() where all the items of recyclerview is stored.

```
@Override
public int getItemCount() {
    return imageList.size();
}
}
```

7. VIDEO LINK OF PROJECT WORKING WITHOUT ERRORS

We have made a short video representing the working of each step included by us in our application. The link for the video is available on the GitHub same as project.

8. CONCLUSION

Conclusively, as we were given the task to make a maze game with some predefined mandatory features to be included in it. According to which, we developed a gaming application in android, our gaming application basically lets a user create an account with requirements like name, phone number, password and address. If already had an game account he/she can login to the game by using phone number a otp will be received by the user after successful login user can start playing the game. After finishing game user can see the score as a toast message. We used accelerometer to guide the ball to the hole. We took help from previous recordings provided by our instructor in our moodle account along with looking up for the bugs on various websites such as [stackoverflow](#) and [Greeksforgod](#) and were able to solve all the errors we got during the testing of our application. As we are five members in our group Sukhjeet, Suraj, Gracy, neha and pavan so we decided to equally distribute the work among us to finalize the project on time. Suraj being the leader of our group, started with the coding part along with Sukhjeet, while Gracy started working on the designing part and project file, as project file being the overview of our project and the most important part. Suraj did the step 1 and 2 of the system, while Sukhjeet did the step 3 and 4 of the system. After the completion of 4 steps of the project, Gracy was given the work to complete step 5 and writing the necessary comments wherever required. Sukhjeet finalized the project file by adding screenshots of project working, errors and video link of the working of our system in Android Studio. Finally, Suraj handled and solved all the errors and exceptions we got while building the system after discussing with Sukhjeet and Gracy. At last, with great teamwork and equal task distribution among the group we managed to successfully build a fully working banking system in java language in Android Studio. We would like to share that it was a great experience for every member in the group, while working with Android we get to know many new things about how the applications in android are being developed. Moreover, working in group gave us the opportunity to broaden the horizons of our knowledge, it also helped inculcating in us the quality of teamwork, which will be conducive for all of us in our future jobs.

9. LIST OF REFERENCES

The used the following websites as our references to find solutions of errors and syntax format of some methods while building the application:

1. www.stackoverflow.com

www.github.com