CMSC 234

Project 03

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**Design:**

**Player.java**

Create data fields:

Name

Score

Wins

Losses

Ties

Create constructor with only id and name, initialize other fields to 0

Create Getters and Setters

Override toString Method

**Activity.main.xml**

Add Button for Game Emulator Activity

Add button for Add New Player Activity

Add button for Select Player 1 Activity

Add button for Select Player 2 Activity

Add button for Score Board Activity

**MainAcitivity.java**

Add a new activity intent for each Button on Click

**GameEmulator.java**

Inserted previous TicTacToe game, this time with 2 players

Additional data Fields:

Player1Name

Player2Name

Process: onCreate

Create an instance of Intent

IF Player 1 name equals to “Choose a Player”

Show the Select Player 1 button,

ELSE

Hide the Select Player 1 button,

ENDIF

Get Extras for Player 1 Name from Intent

Set Player 1 Name

Get Extras for Player 1 and 2 Name from Intent

If player 1 and player 2 names are not null

For Player 1 and 2:

Do

Get the json object that matches with the name and set as a Player object

ENDProcess

Add 3 onClick event handlers:

onScoreBoardClick

Before launching the score board intent,

Save the new player 1 and player 2 object game results in shared preferences file.

Then open the intent.

onSelectPlayer1Click and

onSelectPlayer2Click > creates an intent for opening corresponding activities

**Add Player Activity**

Process: onCreate

Register the EditView with its id

Register the Button with its id

AddPlayer on Click at the Button

Create an instance of sharedPreferences and add create Player object with id and name

Add the player object to Shared Preferences file

Create an ArrayList of Player names with String object

Convert String to Json object,

Extract the name and add it to a list

Add the list items to ListView to be shown in SelectPlayer 1 and SelectPlayer 2

ENDPROCESS

**SelectPlayer1Activity /SelectPlayer2 Activities,**

They are very similar so the design given together:

Create List view mPlayers

Create an adapter for list view and attach mPlayerNames into it as simple\_list\_item\_1

Process: onCreate

Get all the strings as names from SharedPreferences

If names not null

Try/catch : Read json strings and save only the names in an ArrayList playerNames

For each value in names,

Add the name String to playerNames arrayList.

On save Button, send the player name to the next intent

(Player1Select > only player1 name

Player2Select > both names to game emulator activity)

**Score Board Activity**

Create fields for each cell in the table as Text View

Player1 name, wins, ties, losses,

Player2 name, wins, ties, losses

Open Shared Preferences and get all under names Map

Create a JSON reader and

Get all the names to ArrayList playerNames

get all the player json strings into ArrayList players

Create an empty ArrayList playerList that hols Player object

For each player string

Convert it to a Player object and store it in playerList ArrayList made of Player objects

Craete max

maxPlayer1index

maxPlayer2index

maxPlayer3index

For each player in playerList

Get the higest score

Store it in playertop1

Remove it from the list

Repeat it 2 more times to get the second and third place.

Set Texts for each sell accordingly.

**Test Cases:**

Start Game > Game Emulator Activity works

**Screen Shots:**

**Main Activity:**

Main Activity hosts 5 buttons which are gates to corresponding activity views.

For the testing of the app,

You may start with adding new players before clicking Start Game so that we would have some player names while selecting one.

Graphical user interface, text, application

Description automatically generated

**Add Players Activity:**

A screenshot of a cell phone

Description automatically generated

Clicking the save button would create a new Player object and save it to SharedPreferences file as a String, json object Map**. Save button launches the SelectPlayer1Activity**.

Should you want to add more players, simply click the back button and add more players before selecting any players for the game.

**SelectPlayer1 Activity:**

A screenshot of a cell phone

Description automatically generated

I used a ListView to display only names of the Player json objects.

There is an EditText field and the users are expected to enter one of the names shown in the list.

P.S. I searched but could did not have enough time to add an onclick to get the text from the selected list view.

Clicking **Save button will launch the SelectPlayer2Activity view**, sending the Player 1 info to that activity.

**SelectPlayer2 Activity**

The name selected as Player 1 will not be shown in the Select Player 2 list view to prevent the user from selecting the same player from the list. Player 1 name “Derya” is no longer visible in the list.

The list is accessed from SharedPreferences file and it is filtered before showing the ListView in the Select Player 2 activity view.

A screenshot of a cell phone

Description automatically generated

Clicking Save will send the Player 1 and Player 2 data to the Game Emulator activity ( also accessed by Start Game button on Main activity view.

A screenshot of a cell phone

Description automatically generated

Now we have both players chosen.

If we would directly start with clicking Start Game button on the main page, we would see that Select Player 1 and Select Player 2 buttons are visible only the players has not been chosen. But I preferred to direct the user from SelectPlayer1Activity to SelectPlayer2Activity and then to Start Game activity, this feature cannot be viewed. Bu the logic can be viewed in the code.

This is because I wanted to get both player name data returning to GameEmulator activity together.

A screenshot of a cell phone

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When we play the game, depending on the wins, losses and ties, each players data on shared preferences file is updated with the new results and the Player objects calculates and assigns the total score field on its own and commit the changes to the shared preferences.

To get a nice score board, we should make sure that we play at least 2 games with each time different 2 players. This way the score board will show only the top 3 total scores with corresponding player data.

There is a small bug:

After the user adds new players and select player 1 and 2 and play some game, in order to keep the scoreboard, the user should use back buttons to get to Select Player1 Activity to chose a new player and select player 2 to start a new game. If after playing a game and viewing the score board, instead of going to the main activity and clicking start game button.

To reach the start game activity to player again, you may click the back button to get to that activity again.

**Score Board:**

The Score board has a logic which gets all the json objects from sharedpreferences file and convert them into Player objects and stores them in an arrayList of Players. Then after searching it displays only the players with the top 3 totalScores.

A screenshot of a cell phone

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