**Activity\_File:-**

**package** com.ict.tictactoegame;  
  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**import** android.graphics.Color;  
**import** android.os.Bundle;  
**import** android.util.Log;  
**import** android.view.View;  
**import** android.widget.Button;  
**import** android.widget.TextView;  
**import** android.widget.Toast;  
  
**public class** MainActivity2 **extends** AppCompatActivity **implements** View.OnClickListener {  
  
 **private** TextView **participantOneScore**, **participantTwoScore**, **participantStatus**;  
 **private** Button[] **buttons** = **new** Button[9];  
 **private** Button **resetGame**;  
  
 **private int participantOneScoreCount**, **participantTwoScoreCount**, **roundCount**;  
 **boolean activeParticipant**;  
  
 *//p1 => 0  
 //p2 => 1  
 //empty => 2* **int**[] **gameState** = {2, 2, 2, 2, 2, 2, 2, 2, 2};  
  
 **int**[][] **winningPositions** = {  
 {0, 1, 2}, {3, 4, 5}, {6, 7, 8}, *//rows* {0, 3, 6}, {1, 4, 7}, {2, 5, 8}, *//columns* {0, 4, 8}, {2, 4, 6} *//cross* };  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 **participantOneScore** = (TextView) findViewById(R.id.***participantOneScore***);  
 **participantTwoScore** = (TextView) findViewById(R.id.***participantTwoScore***);  
 **participantStatus** = (TextView) findViewById(R.id.***participantStatus***);  
  
 **resetGame** = (Button) findViewById(R.id.***resetgame***);  
  
 **for**(**int** i = 0; i < **buttons**.**length**; i++){  
 String buttonID = **"button\_"** + i;  
 **int** resourceID = getResources().getIdentifier(buttonID,**"id"**, getPackageName());  
 **buttons**[i] = (Button) findViewById(resourceID);  
 **buttons**[i].setOnClickListener(**this**);  
 }  
  
 **roundCount** = 0;  
 **participantOneScoreCount** = 0;  
 **participantTwoScoreCount** = 0;  
 **activeParticipant** = **true**;  
 }  
  
 @Override  
 **public void** onClick(View view) {  
 **if** (!((Button)view).getText().toString().equals(**""**)){  
 **return**;  
 }  
 String buttonID = view.getResources().getResourceEntryName(view.getId()); *//button\_2* **int** gameStatePointer = Integer.*parseInt* (buttonID.substring(buttonID.length()-1, buttonID.length())); *//2* **if** (**activeParticipant**){  
 ((Button) view).setText(**"X"**);  
 ((Button) view).setTextColor(Color.*parseColor*(**"#FFC34A"**));  
 **gameState**[gameStatePointer] = 0;  
 } **else** {  
 ((Button) view).setText(**"O"**);  
 ((Button) view).setTextColor(Color.*parseColor*(**"#FFC34A"**));  
 **gameState**[gameStatePointer] = 1;  
 }  
 **roundCount**++;  
  
 **if** (checkWinner()){  
 **if** (**activeParticipant**){  
 **participantOneScoreCount**++;  
 updateParticipantScore();  
 Toast.*makeText*(**this**, **"Participant One Won!!!"**, Toast.***LENGTH\_SHORT***).show();  
 playAgain();  
 } **else** {  
 **participantTwoScoreCount**++;  
 updateParticipantScore();  
 Toast.*makeText*(**this**, **"Participant Two Won!!!"**, Toast.***LENGTH\_SHORT***).show();  
 playAgain();  
  
 }  
 } **else if** (**roundCount** == 9){  
 playAgain();  
 Toast.*makeText*(**this**, **"It's a Draw!!!"**, Toast.***LENGTH\_SHORT***).show();  
  
 } **else** {  
 **activeParticipant** = !**activeParticipant**;  
 }  
  
 **if** (**participantOneScoreCount** > **participantTwoScoreCount**){  
 **participantStatus**.setText(**"Participant One is Winning!!!"**);  
 } **else if** (**participantTwoScoreCount** > **participantOneScoreCount**){  
 **participantStatus**.setText(**"Participant Two is Winning!!!"**);  
 }  
  
 **resetGame**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View view) {  
 playAgain();  
 **participantOneScoreCount** = 0;  
 **participantTwoScoreCount** = 0;  
 **participantStatus**.setText(**""**);  
 updateParticipantScore();  
 }  
 });  
 }  
 **public boolean** checkWinner(){  
 **boolean** winnerResult = **false**;  
  
 **for** (**int** [] winningPosion : **winningPositions**){  
 **if** (**gameState**[winningPosion[0]] == **gameState**[winningPosion[1]] && **gameState**[winningPosion[1]] == **gameState**[winningPosion[2]] && **gameState**[winningPosion[0]] !=2){  
 winnerResult = **true**;  
 }  
 }  
 **return** winnerResult;  
 }  
 **public void** updateParticipantScore(){  
 **participantOneScore**.setText(Integer.*toString*(**participantOneScoreCount**));  
 **participantTwoScore**.setText(Integer.*toString*(**participantTwoScoreCount**));  
 }  
 **public void** playAgain(){  
 **roundCount** = 0;  
 **activeParticipant** = **true**;  
  
 **for** (**int** i = 0; i < **buttons**.**length**; i++){  
 **gameState**[i] = 2;  
 **buttons**[i].setText(**""**);  
 }  
 }  
}

**Layout:-**

*<?***xml version="1.0" encoding="utf-8"***?>*<**androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"**>  
  
  
 <**TextView  
 android:id="@+id/participantOne"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="36dp"  
 android:layout\_marginTop="16dp"  
 android:text="Participant One"  
 android:textSize="20sp"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/participantOneScore"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="0"  
 android:textSize="25sp"  
 app:layout\_constraintTop\_toBottomOf="@+id/participantOne"  
 tools:ignore="MissingConstraints"  
 tools:layout\_editor\_absoluteX="99dp"** />  
  
 <**TextView  
 android:id="@+id/participantTwo"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="16dp"  
 android:layout\_marginRight="48dp"  
 android:text="Participant Two"  
 android:textSize="20sp"  
 app:layout\_constraintRight\_toRightOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"**/>  
  
 <**TextView  
 android:id="@+id/participantTwoScore"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginRight="68dp"  
 android:text="0"  
 android:textSize="25sp"  
 app:layout\_constraintRight\_toRightOf="@+id/participantTwo"  
 app:layout\_constraintTop\_toBottomOf="@+id/participantTwo"  
 app:layout\_goneMarginRight="35dp"**/>  
  
 <**TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/participantStatus"  
 android:textSize="20sp"  
 android:textAlignment="center"  
 app:layout\_constraintTop\_toBottomOf="@+id/participantOneScore"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintRight\_toRightOf="parent"**/>  
  
 <**Button  
 android:id="@+id/button\_0"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/participantStatus"  
 android:layout\_marginLeft="3dp"  
 android:layout\_marginTop="15dp"**/>  
  
 <**Button  
 android:id="@+id/button\_1"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintTop\_toTopOf="@+id/button\_0"  
 app:layout\_constraintLeft\_toRightOf="@+id/button\_0"** />  
  
 <**Button  
 android:id="@+id/button\_2"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toRightOf="@+id/button\_1"  
 app:layout\_constraintTop\_toTopOf="@+id/button\_1"** />  
  
 <**Button  
 android:id="@+id/button\_3"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toLeftOf="@+id/button\_2"  
 app:layout\_constraintTop\_toBottomOf="@+id/button\_2"** />  
  
 <**Button  
 android:id="@+id/button\_4"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toRightOf="@+id/button\_3"  
 app:layout\_constraintTop\_toTopOf="@+id/button\_3"** />  
  
 <**Button  
 android:id="@+id/button\_5"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toRightOf="@+id/button\_4"  
 app:layout\_constraintTop\_toTopOf="@+id/button\_4"** />  
  
 <**Button  
 android:id="@+id/button\_6"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toLeftOf="@+id/button\_3"  
 app:layout\_constraintTop\_toBottomOf="@+id/button\_3"** />  
  
 <**Button  
 android:id="@+id/button\_7"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toRightOf="@+id/button\_6"  
 app:layout\_constraintTop\_toTopOf="@+id/button\_6"** />  
  
 <**Button  
 android:id="@+id/button\_8"  
 android:layout\_width="135dp"  
 android:layout\_height="135dp"  
 android:backgroundTint="#559CE4"  
 android:textColor="#6237AF"  
 android:textSize="60sp"  
 android:textStyle="italic"  
 app:layout\_constraintLeft\_toRightOf="@+id/button\_7"  
 app:layout\_constraintTop\_toTopOf="@+id/button\_7"** />  
  
 <**Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="60dp"  
 android:id="@+id/resetgame"  
 android:text="Reset Game"  
 android:textColor="#F44336"  
 android:backgroundTint="#CDDC39"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 app:layout\_constraintTop\_toBottomOf="@+id/button\_6"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintRight\_toRightOf="parent"**/>  
  
  
</**androidx.constraintlayout.widget.ConstraintLayout**>