**Step 2: colors.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**resources**>

<**color** name="purple\_200">#FFBB86FC</**color**>

<**color** name="purple\_500">#FF6200EE</**color**>

<**color** name="purple\_700">#FF3700B3</**color**>

<**color** name="teal\_200">#FF03DAC5</**color**>

<**color** name="teal\_700">#FF018786</**color**>

<**color** name="black">#FF000000</**color**>

<**color** name="white">#FFFFFFFF</**color**>

<**color** name="lavender">#8692f7</**color**>

</**resources**>

**Step 3: themes.xml**

<**resources** xmlns:tools="http://schemas.android.com/tools">

<!-- Base application theme. -->

<**style** name="Theme.TicTacToe" parent="Theme.MaterialComponents.DayNight.NoActionBar">

<!-- Primary brand color. -->

<**item** name="colorPrimary">@color/lavender</**item**>

<**item** name="colorPrimaryVariant">@color/lavender</**item**>

<**item** name="colorOnPrimary">@color/white</**item**>

<!-- Secondary brand color. -->

<**item** name="colorSecondary">@color/teal\_200</**item**>

<**item** name="colorSecondaryVariant">@color/teal\_700</**item**>

<**item** name="colorOnSecondary">@color/black</**item**>

<!-- Status bar color. -->

<**item** name="android:statusBarColor">?attr/colorPrimaryVariant</**item**>

<!-- Customize your theme here. -->

</**style**>

</**resources**>

**Step 3: black\_border.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**shape** xmlns:android="http://schemas.android.com/apk/res/android"

android:shape="rectangle">

<**solid**

android:color="@color/white"/>

<**corners**

android:radius="30dp"/>

<**stroke**

android:color="@color/black"

android:width="2dp"/>

</**shape**>

**lavender\_border.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**shape** xmlns:android="http://schemas.android.com/apk/res/android"

android:shape="rectangle">

<**stroke**

android:width="2dp"

android:color="@color/lavender"/>

<**corners**

android:radius="30dp"/>

</**shape**>

**white\_box.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**shape** xmlns:android="http://schemas.android.com/apk/res/android"

android:shape="rectangle">

<**solid**

android:color="@color/white"/>

<**corners**

android:radius="30dp"/>

</**shape**>

Download 5 Images from above.

**Step 4: gradle: app**

buildFeatures {

viewBinding **true**

}

**Step 5: Create two activities: AddPlayer and ResultDialog and make sure to set AddPlayer as the launcher activity in AndroidManifest.xml instead of MainActivity.**

**Step 6: activity\_add\_players.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**RelativeLayout**

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"

android:orientation="vertical"

android:gravity="center"

android:background="@drawable/pagebkg"

tools:context=".AddPlayers">

<**androidx.cardview.widget.CardView**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_margin="30dp"

app:cardCornerRadius="30dp"

app:cardElevation="20dp">

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:layout\_gravity="center\_horizontal"

android:padding="24dp"

android:background="@drawable/lavender\_border">

<**TextView**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="ENTER \n PLAYERS NAMES"

android:textAlignment="center"

android:textSize="36sp"

android:textStyle="bold"

android:textColor="@color/lavender"/>

<**EditText**

android:layout\_width="match\_parent"

android:layout\_height="50dp"

android:id="@+id/playerOne"

android:background="@drawable/lavender\_border"

android:layout\_marginTop="40dp"

android:padding="8dp"

android:maxLines="1"

android:textStyle="italic"

android:hint="Enter player one name"

android:textColor="@color/lavender"

android:drawableLeft="@drawable/ic\_xicon"

android:drawablePadding="8dp"/>

<**EditText**

android:layout\_width="match\_parent"

android:layout\_height="50dp"

android:id="@+id/playerTwo"

android:background="@drawable/lavender\_border"

android:layout\_marginTop="20dp"

android:padding="8dp"

android:maxLines="1"

android:textStyle="italic"

android:hint="Enter player two name"

android:textColor="@color/lavender"

android:drawableLeft="@drawable/ic\_oicon"

android:drawablePadding="8dp"/>

<**Button**

android:layout\_width="match\_parent"

android:layout\_height="60dp"

android:layout\_marginTop="30dp"

android:id="@+id/startGameButton"

android:text="Start Game"

android:textSize="18sp"

app:cornerRadius = "20dp"/>

</**LinearLayout**>

</**androidx.cardview.widget.CardView**>

</**RelativeLayout**>

**Step 7: activity\_main.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**RelativeLayout**

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"

android:background="@color/lavender"

tools:context=".MainActivity">

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:gravity="center"

android:layout\_above="@id/container"

android:layout\_alignParentTop="true"

android:orientation="horizontal">

<**LinearLayout**

android:layout\_width="120dp"

android:layout\_height="wrap\_content"

android:id="@+id/playerOneLayout"

android:orientation="vertical"

android:gravity="center"

android:background="@drawable/white\_box">

<**TextView**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginTop="20dp"

android:text="Player One"

android:id="@+id/playerOneName"

android:textSize="20sp"

android:gravity="center"

android:textStyle="bold"

android:textColor="@color/lavender"

android:maxLines="1"/>

<**ImageView**

android:layout\_width="40dp"

android:layout\_height="40dp"

android:src="@drawable/ximage"

android:layout\_marginTop="20dp"

android:layout\_marginBottom="20dp"

android:layout\_gravity="center"/>

</**LinearLayout**>

<**LinearLayout**

android:layout\_width="120dp"

android:layout\_height="wrap\_content"

android:layout\_marginStart="10dp"

android:id="@+id/playerTwoLayout"

android:orientation="vertical"

android:gravity="center"

android:background="@drawable/white\_box">

<**TextView**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginTop="20dp"

android:text="Player Two"

android:id="@+id/playerTwoName"

android:textSize="20sp"

android:gravity="center"

android:textStyle="bold"

android:textColor="@color/lavender"

android:maxLines="1"/>

<**ImageView**

android:layout\_width="40dp"

android:layout\_height="40dp"

android:src="@drawable/oimage"

android:layout\_marginTop="20dp"

android:layout\_marginBottom="20dp"

android:layout\_gravity="center"/>

</**LinearLayout**>

</**LinearLayout**>

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/container"

android:layout\_alignParentBottom="true"

android:layout\_marginStart="10dp"

android:layout\_marginEnd="10dp"

android:layout\_marginBottom="50dp"

android:orientation="vertical">

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:weightSum="3">

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image1"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image2"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image3"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

</**LinearLayout**>

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:weightSum="3">

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image4"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image5"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image6"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

</**LinearLayout**>

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:weightSum="3">

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image7"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:adjustViewBounds="true"

android:padding="20dp"/>

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image8"

android:layout\_weight="1"

android:adjustViewBounds="true"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:padding="20dp"/>

<**ImageView**

android:layout\_width="0dp"

android:layout\_height="115dp"

android:id="@+id/image9"

android:layout\_weight="1"

android:background="@drawable/white\_box"

android:layout\_marginTop="10dp"

android:layout\_marginEnd="5dp"

android:layout\_marginStart="10dp"

android:padding="20dp"

android:adjustViewBounds="true"/>

</**LinearLayout**>

</**LinearLayout**>

</**RelativeLayout**>

**Step 8: activity\_result\_dialog.xml**

**<?xml version="1.0" encoding="utf-8"?>**

<**RelativeLayout**

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=".ResultDialog">

<**LinearLayout**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:background="@color/lavender"

android:orientation="vertical">

<**TextView**

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/messageText"

android:gravity="center"

android:text="Results"

android:textColor="@color/white"

android:layout\_marginTop="20dp"

android:layout\_marginStart="20dp"

android:layout\_marginEnd="20dp"

android:textSize="18sp"

android:textStyle="bold"/>

<**Button**

android:layout\_width="match\_parent"

android:layout\_height="60dp"

android:id="@+id/startAgainButton"

android:textSize="18sp"

android:textStyle="bold"

android:backgroundTint="@color/white"

android:text="Start Again"

android:layout\_margin="20dp"

android:textColor="@color/lavender"

app:cornerRadius = "20dp"/>

</**LinearLayout**>

</**RelativeLayout**>

**Step 9: AddPlayers.java**

**package** *com.example.tictactoe*;

**import** *androidx.appcompat.app.AppCompatActivity*;

**import** *android.content.Intent*;

**import** *android.os.Bundle*;

**import** *android.view.View*;

**import** *android.widget.Button*;

**import** *android.widget.EditText*;

**import** *android.widget.Toast*;

**public** **class** AddPlayers **extends** AppCompatActivity {

@Override

**protected** **void** onCreate(Bundle savedInstanceState) {

**super**.onCreate(savedInstanceState);

setContentView(R.layout.activity\_add\_players);

EditText playerOne = findViewById(R.id.playerOne);

EditText playerTwo = findViewById(R.id.playerTwo);

Button startGameButton = findViewById(R.id.startGameButton);

startGameButton.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**String** getPlayerOneName = playerOne.getText().toString();

**String** getPlayerTwoName = playerTwo.getText().toString();

**if** (getPlayerOneName.isEmpty() || getPlayerTwoName.isEmpty()) {

Toast.makeText(AddPlayers.this, "Please enter player name", Toast.LENGTH\_SHORT).show();

} **else** {

Intent intent = new Intent(AddPlayers.this, MainActivity.class);

intent.putExtra("playerOne", getPlayerOneName);

intent.putExtra("playerTwo", getPlayerTwoName);

startActivity(intent);

}

}

});

}

}

**Step 10: MainActivity.java**

**package** *com.example.tictactoe*;

**import** *androidx.appcompat.app.AppCompatActivity*;

**import** *android.os.Bundle*;

**import** *android.view.View*;

**import** *android.widget.ImageView*;

**import** *com.example.tictactoe.databinding.ActivityMainBinding*;

**import** *java.util.ArrayList*;

**import** *java.util.List*;

**public** **class** MainActivity **extends** AppCompatActivity {

ActivityMainBinding binding;

**private** **final** List<**int**[]> combinationList = new ArrayList<>();

**private** **int**[] boxPositions = {0,0,0,0,0,0,0,0,0}; //9 zero

**private** **int** playerTurn = 1;

**private** **int** totalSelectedBoxes = 1;

@Override

**protected** **void** onCreate(Bundle savedInstanceState) {

**super**.onCreate(savedInstanceState);

binding = ActivityMainBinding.inflate(getLayoutInflater());

setContentView(binding.getRoot());

combinationList.add(new **int**[] {0,1,2});

combinationList.add(new **int**[] {3,4,5});

combinationList.add(new **int**[] {6,7,8});

combinationList.add(new **int**[] {0,3,6});

combinationList.add(new **int**[] {1,4,7});

combinationList.add(new **int**[] {2,5,8});

combinationList.add(new **int**[] {2,4,6});

combinationList.add(new **int**[] {0,4,8});

**String** getPlayerOneName = getIntent().getStringExtra("playerOne");

**String** getPlayerTwoName = getIntent().getStringExtra("playerTwo");

binding.playerOneName.setText(getPlayerOneName);

binding.playerTwoName.setText(getPlayerTwoName);

binding.image1.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(0)){

performAction((ImageView) view, 0);

}

}

});

binding.image2.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(1)){

performAction((ImageView) view, 1);

}

}

});

binding.image3.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(2)){

performAction((ImageView) view, 2);

}

}

});

binding.image4.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(3)){

performAction((ImageView) view, 3);

}

}

});

binding.image5.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(4)){

performAction((ImageView) view, 4);

}

}

});

binding.image6.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(5)){

performAction((ImageView) view, 5);

}

}

});

binding.image7.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(6)){

performAction((ImageView) view, 6);

}

}

});

binding.image8.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(7)){

performAction((ImageView) view, 7);

}

}

});

binding.image9.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

**if** (isBoxSelectable(8)){

performAction((ImageView) view, 8);

}

}

});

}

**private** **void** performAction(ImageView imageView, **int** selectedBoxPosition) {

boxPositions[selectedBoxPosition] = playerTurn;

**if** (playerTurn == 1) {

imageView.setImageResource(R.drawable.ximage);

**if** (checkResults()) {

ResultDialog resultDialog = new ResultDialog(MainActivity.this, binding.playerOneName.getText().toString()

+ " is a Winner!", MainActivity.this);

resultDialog.setCancelable(**false**);

resultDialog.show();

} **else** **if**(totalSelectedBoxes == 9) {

ResultDialog resultDialog = new ResultDialog(MainActivity.this, "Match Draw", MainActivity.this);

resultDialog.setCancelable(**false**);

resultDialog.show();

} **else** {

changePlayerTurn(2);

totalSelectedBoxes++;

}

} **else** {

imageView.setImageResource(R.drawable.oimage);

**if** (checkResults()) {

ResultDialog resultDialog = new ResultDialog(MainActivity.this, binding.playerTwoName.getText().toString()

+ " is a Winner!", MainActivity.this);

resultDialog.setCancelable(**false**);

resultDialog.show();

} **else** **if**(totalSelectedBoxes == 9) {

ResultDialog resultDialog = new ResultDialog(MainActivity.this, "Match Draw", MainActivity.this);

resultDialog.setCancelable(**false**);

resultDialog.show();

} **else** {

changePlayerTurn(1);

totalSelectedBoxes++;

}

}

}

**private** **void** changePlayerTurn(**int** currentPlayerTurn) {

playerTurn = currentPlayerTurn;

**if** (playerTurn == 1) {

binding.playerOneLayout.setBackgroundResource(R.drawable.black\_border);

binding.playerTwoLayout.setBackgroundResource(R.drawable.white\_box);

} **else** {

binding.playerTwoLayout.setBackgroundResource(R.drawable.black\_border);

binding.playerOneLayout.setBackgroundResource(R.drawable.white\_box);

}

}

**private** **boolean** checkResults(){

**boolean** response = **false**;

**for** (**int** i = 0; i < combinationList.size(); i++){

**final** **int**[] combination = combinationList.get(i);

**if** (boxPositions[combination[0]] == playerTurn && boxPositions[combination[1]] == playerTurn &&

boxPositions[combination[2]] == playerTurn) {

response = **true**;

}

}

**return** response;

}

**private** **boolean** isBoxSelectable(**int** boxPosition) {

**boolean** response = **false**;

**if** (boxPositions[boxPosition] == 0) {

response = **true**;

}

**return** response;

}

**public** **void** restartMatch(){

boxPositions = new **int**[] {0,0,0,0,0,0,0,0,0}; //9 zero

playerTurn = 1;

totalSelectedBoxes = 1;

binding.image1.setImageResource(R.drawable.white\_box);

binding.image2.setImageResource(R.drawable.white\_box);

binding.image3.setImageResource(R.drawable.white\_box);

binding.image4.setImageResource(R.drawable.white\_box);

binding.image5.setImageResource(R.drawable.white\_box);

binding.image6.setImageResource(R.drawable.white\_box);

binding.image7.setImageResource(R.drawable.white\_box);

binding.image8.setImageResource(R.drawable.white\_box);

binding.image9.setImageResource(R.drawable.white\_box);

}

}

**Step 11: ResultDialog.java**

**package** *com.example.tictactoe*;

**import** *androidx.annotation.NonNull*;

**import** *androidx.appcompat.app.AppCompatActivity*;

**import** *android.app.Dialog*;

**import** *android.content.Context*;

**import** *android.os.Bundle*;

**import** *android.view.View*;

**import** *android.widget.Button*;

**import** *android.widget.TextView*;

**public** **class** ResultDialog **extends** Dialog {

**private** **final** **String** message;

**private** **final** MainActivity mainActivity;

**public** ResultDialog(@NonNull Context context, **String** message, MainActivity mainActivity) {

**super**(context);

**this**.message = message;

**this**.mainActivity = mainActivity;

}

@Override

**protected** **void** onCreate(Bundle savedInstanceState) {

**super**.onCreate(savedInstanceState);

setContentView(R.layout.activity\_result\_dialog);

TextView messageText = findViewById(R.id.messageText);

Button startAgainButton = findViewById(R.id.startAgainButton);

messageText.setText(message);

startAgainButton.setOnClickListener(new View.OnClickListener() {

@Override

**public** **void** onClick(View view) {

mainActivity.restartMatch();

dismiss();

}

});

}

}