Slip no – 4

Q1. Create a Simple Application, that performs Arithmetic Operations. (Use constraint layout)

activity\_main.xml

<?*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">  
  
 <EditText  
 *android:id*="@+id/number1EditText"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:hint*="Enter first number"  
 *android:inputType*="numberDecimal"  
 *app:layout\_constraintTop\_toTopOf*="parent"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintEnd\_toEndOf*="parent" />  
  
 <EditText  
 *android:id*="@+id/number2EditText"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:hint*="Enter second number"  
 *android:inputType*="numberDecimal"  
 *app:layout\_constraintTop\_toBottomOf*="@+id/number1EditText"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintEnd\_toEndOf*="parent"  
 *app:layout\_constraintBottom\_toTopOf*="@+id/addButton"  
 *android:layout\_marginTop*="16dp"/>  
  
 <Button  
 *android:id*="@+id/addButton"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:text*="Add"  
 *app:layout\_constraintTop\_toBottomOf*="@+id/number2EditText"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintEnd\_toEndOf*="parent"  
 *android:layout\_marginTop*="16dp"  
 *android:onClick*="performAddition" />  
  
 <Button  
 *android:id*="@+id/subButton"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:layout\_marginTop*="80dp"  
 *android:onClick*="performSubtraction"  
 *android:text*="sub"  
 *app:layout\_constraintEnd\_toEndOf*="parent"  
 *app:layout\_constraintHorizontal\_bias*="0.501"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintTop\_toBottomOf*="@+id/number2EditText" />  
  
 <Button  
 *android:id*="@+id/mulButton"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:layout\_marginTop*="136dp"  
 *android:onClick*="performMultiplication"  
 *android:text*="mul"  
 *app:layout\_constraintEnd\_toEndOf*="parent"  
 *app:layout\_constraintHorizontal\_bias*="0.501"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintTop\_toBottomOf*="@+id/number2EditText" />  
  
 <Button  
 *android:id*="@+id/divButton"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:layout\_marginTop*="200dp"  
 *android:onClick*="performDivision"  
 *android:text*="div"  
 *app:layout\_constraintEnd\_toEndOf*="parent"  
 *app:layout\_constraintHorizontal\_bias*="0.501"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintTop\_toBottomOf*="@+id/number2EditText" />  
  
 <TextView  
 *android:id*="@+id/resultTextView"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:layout\_marginTop*="212dp"  
 *android:text*="Result"  
 *app:layout\_constraintEnd\_toEndOf*="parent"  
 *app:layout\_constraintStart\_toStartOf*="parent"  
 *app:layout\_constraintTop\_toBottomOf*="@+id/addButton" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

*package* com.example.slipno4;  
*import* android.os.Bundle;  
*import* android.view.View;  
*import* android.widget.EditText;  
*import* android.widget.TextView;  
*import* androidx.appcompat.app.AppCompatActivity;  
  
*public class* MainActivity *extends* AppCompatActivity {  
  
 *private* EditText number1EditText, number2EditText;  
 *private* TextView resultTextView;  
  
 @Override  
 *protected void* onCreate(Bundle savedInstanceState) {  
 *super*.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 number1EditText = findViewById(R.id.*number1EditText*);  
 number2EditText = findViewById(R.id.*number2EditText*);  
 resultTextView = findViewById(R.id.*resultTextView*);  
 }  
  
 *public void* performAddition(View view) {  
 String num1Str = number1EditText.getText().toString();  
 String num2Str = number2EditText.getText().toString();  
  
 *if* (!num1Str.isEmpty() && !num2Str.isEmpty()) {  
 *double* num1 = Double.*parseDouble*(num1Str);  
 *double* num2 = Double.*parseDouble*(num2Str);  
  
 *double* result = num1 + num2;  
 resultTextView.setText("Result: " + result);  
 } *else* {  
 resultTextView.setText("Please enter both numbers");  
 }  
 }  
 *public void* performSubtraction(View view) {  
 String num1Str = number1EditText.getText().toString();  
 String num2Str = number2EditText.getText().toString();  
  
 *if* (!num1Str.isEmpty() && !num2Str.isEmpty()) {  
 *double* num1 = Double.*parseDouble*(num1Str);  
 *double* num2 = Double.*parseDouble*(num2Str);  
  
 *double* result = num1 - num2;  
 resultTextView.setText("Result: " + result);  
 } *else* {  
 resultTextView.setText("Please enter both numbers");  
 }  
 }  
 *public void* performMultiplication(View view) {  
 String num1Str = number1EditText.getText().toString();  
 String num2Str = number2EditText.getText().toString();  
  
 *if* (!num1Str.isEmpty() && !num2Str.isEmpty()) {  
 *double* num1 = Double.*parseDouble*(num1Str);  
 *double* num2 = Double.*parseDouble*(num2Str);  
  
 *double* result = num1 \* num2;  
 resultTextView.setText("Result: " + result);  
 } *else* {  
 resultTextView.setText("Please enter both numbers");  
 }  
 }  
 *public void* performDivision(View view) {  
 String num1Str = number1EditText.getText().toString();  
 String num2Str = number2EditText.getText().toString();  
  
 *if* (!num1Str.isEmpty() && !num2Str.isEmpty()) {  
 *double* num1 = Double.*parseDouble*(num1Str);  
 *double* num2 = Double.*parseDouble*(num2Str);  
  
 *double* result = num1 / num2;  
 resultTextView.setText("Result: " + result);  
 } *else* {  
 resultTextView.setText("Please enter both numbers");  
 }  
 }  
}

Q2. Create an Android Application that sends the Notification on click of the button and displays the notification message on the second activity.

* Open your AndroidManifest.xml file and add the ResultActivity declaration within code.

<application

<!-- Other application configurations -->

<activity android:name=".ResultActivity"/>

</application>

activity\_main.xml

<?*xml version*="1.0" *encoding*="utf-8"?>  
<RelativeLayout *xmlns:android*="http://schemas.android.com/apk/res/android"  
 *xmlns:tools*="http://schemas.android.com/tools"  
 *android:layout\_width*="match\_parent"  
 *android:layout\_height*="match\_parent"  
 *android:padding*="16dp"  
 *tools:context*=".MainActivity">  
  
 <Button  
 *android:id*="@+id/btnSendNotification"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:layout\_centerInParent*="true"  
 *android:text*="Send Notification" />  
  
</RelativeLayout>

MainActivity.java

*package* com.example.activitylifecycle;

*import* android.content.Intent;  
*import* android.os.Bundle;  
*import* android.view.View;  
*import* android.widget.Button;  
*import* androidx.appcompat.app.AppCompatActivity;  
  
*public class* MainActivity *extends* AppCompatActivity {  
  
 @Override  
 *protected void* onCreate(Bundle savedInstanceState) {  
 *super*.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Button btnSendNotification = findViewById(R.id.*btnSendNotification*);  
 btnSendNotification.setOnClickListener(*new* View.OnClickListener() {  
 @Override  
 *public void* onClick(View v) {  
 sendNotification();  
 }  
 });  
 }  
  
 *private void* sendNotification() {  
 *// Create an Intent to navigate to the DisplayNotificationActivity* Intent intent = *new* Intent(*this*, ResultActivity.*class*);  
 *// Add the notification message as an extra to the Intent* intent.putExtra("notification\_message", "This is a notification message!");  
  
 *// Start the DisplayNotificationActivity* startActivity(intent);  
 }  
}

ResultActivity.java

*package* com.example.activitylifecycle;  
  
*import* android.os.Bundle;  
*import* android.widget.TextView;  
*import* androidx.appcompat.app.AppCompatActivity;  
*public class* ResultActivity *extends* AppCompatActivity {  
  
 @Override  
 *protected void* onCreate(Bundle savedInstanceState) {  
 *super*.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_result*);  
  
 TextView textViewNotificationMessage = findViewById(R.id.*textViewNotificationMessage*);  
  
 *// Retrieve the notification message from the Intent* String notificationMessage = getIntent().getStringExtra("notification\_message");  
 *if* (notificationMessage != *null*) {  
 *// Set the notification message to the TextView* textViewNotificationMessage.setText(notificationMessage);  
 }  
 }  
}

activity\_result.xml

<?*xml version*="1.0" *encoding*="utf-8"?>  
<RelativeLayout *xmlns:android*="http://schemas.android.com/apk/res/android"  
 *xmlns:tools*="http://schemas.android.com/tools"  
 *android:layout\_width*="match\_parent"  
 *android:layout\_height*="match\_parent"  
 *android:padding*="16dp"  
 *tools:context*=".ResultActivity">  
  
 <TextView  
 *android:id*="@+id/textViewNotificationMessage"  
 *android:layout\_width*="wrap\_content"  
 *android:layout\_height*="wrap\_content"  
 *android:layout\_centerInParent*="true"  
 *android:text*="Notification Message"  
 *android:textSize*="18sp" />  
  
</RelativeLayout>