**1 Showing all 6 activity cycles in the application.**

**MainActivity.java :** ***package*** *com.example.my\_application;* ***import static*** *android.widget.Toast.makeText;* ***import***

*androidx.appcompat.app.AppCompatActivity;*

***import*** *android.content.Context;* ***import*** *android.os.Bundle;* ***import*** *android.view.View;* ***import*** *android.webkit.WebView;*

***import*** *android.webkit.WebViewClient;* ***import*** *android.widget.Button;* ***import*** *android.widget.EditText;* ***import*** *android.widget.ImageButton;* ***import*** *android.widget.ImageView;* ***import*** *android.widget.TextView;* ***import***

*android.widget.Toast;* ***public class*** *MainActivity* ***extends*** *AppCompatActivity {* *Button* ***bt\_p****,****bt\_n****; ImageView* ***iv****;* ***boolean flag****;* ***int images****[] = {R.drawable.****\_1****, R.drawable.****\_2****,R.drawable.****\_3****,R.drawable.****\_4****};* ***int i****=0;*

*@Override*

***protected void*** *onCreate(Bundle savedInstanceState) {* ***super****.onCreate(savedInstanceState); setContentView(R.layout.****activity\_main****);*

*Context context = getApplicationContext(); CharSequence text =* ***"App just created "****;* ***int*** *duration = Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();* ***iv*** *= (ImageView) findViewById(R.id.****img****);* ***bt\_p*** *= (Button) findViewById(R.id.****button\_previous****);* ***bt\_n*** *= (Button) findViewById(R.id.****button\_next****);* ***flag*** *=* ***true****;* ***bt\_p****.setOnClickListener(****new*** *View.OnClickListener() {*

*@Override*

***public void*** *onClick(View view) {* ***i*** *= (****i****-1) %* ***images****.****length****;* ***if****(****i****<0)* ***i*** *+=* ***images****.****length****;* ***iv****.setImageResource(****images****[****i****]);*

*} });*

***bt\_n****.setOnClickListener(****new*** *View.OnClickListener() {*

*@Override* ***public void*** *onClick(View view) {* ***i*** *= (****i****+1) %* ***images****.****length****;* ***iv****.setImageResource(****images****[****i****]);*

*}});*

*WebView myWebView = (WebView) findViewById(R.id.****webview****);* *myWebView.loadUrl(****"https://amazon.com"****); myWebView.getSettings().setJavaScriptEnabled(****true****); myWebView.setWebViewClient(****new*** *WebViewClient());*

*}*

*@Override* ***protected void*** *onStart() {* ***super****.onStart();*

*Context context = getApplicationContext(); CharSequence text =*

***"App just started !"****;* ***int*** *duration = Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();*

*}@Override* ***protected void*** *onResume() {* ***super****.onResume();*

*Context context = getApplicationContext(); CharSequence text =* ***"App just Resumed"****;* ***int*** *duration= Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();*

*}*

*@Override* ***protected void*** *onPause() {* ***super****.onPause();*

*Context context = getApplicationContext(); CharSequence text =* ***"App just Paused"****;* ***int*** *duration =Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();*

*}*

*@Override* ***protected void*** *onRestart() {* ***super****.onRestart();*

*Context context = getApplicationContext(); CharSequence text =* ***"App just Restarted"****;* ***int*** *duration = Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();*

*}*

*@Override* ***protected void*** *onStop() {* ***super****.onStop();*

*Context context = getApplicationContext(); CharSequence text =* ***"App just Stopped"****;* ***int*** *duration Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();*

*}*

*@Override* ***protected void*** *onDestroy() {* ***super****.onDestroy();*

*Context context = getApplicationContext(); CharSequence text =* ***"App just Destroyed"****;* ***int*** *duration = Toast.****LENGTH\_SHORT****;*

*Toast toast = makeText(context, text, duration); toast.show();*

*}}*

**. Make a Media player** Code:

MainActivity.java :

package com.example.ankit\_application; import androidx.appcompat.app.AppCompatActivity; import android.media.MediaPlayer; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.TextView; import android.widget.Toast; public class MainActivity extends AppCompatActivity {

// Media player program int startTime =0; int stopTime =0; int forwardTime = 5000; int backgroundTime = 5000; int currentpos = 0;

MediaPlayer mediaPlayer, mediaPlayerNew;

@Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*); mediaPlayer = MediaPlayer.*create*(this, R.raw.*song*); mediaPlayerNew = MediaPlayer.*create*(this, R.raw.*song*); TextView songTitle = findViewById(R.id.*song\_name*); songTitle.setText("Marylin manson song"); Button play = findViewById(R.id.*play*); play.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) { Toast.*makeText*(getApplicationContext(), "Playing Song",

Toast.LENGTH\_SHORT).show();

mediaPlayer.start();

}

});

Button pause = findViewById(R.id.*pause*); pause.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Toast.*makeText*(getApplicationContext(), "Pausing Song",

Toast.LENGTH\_SHORT).show();

mediaPlayer.pause();

}

});

Button forward = findViewById(R.id.*forward*); forward.setOnClickListener(new View.OnClickListener() {

@Override public void onClick(View view) { currentpos = mediaPlayer.getCurrentPosition(); if((currentpos+forwardTime)<=(stopTime = mediaPlayer.getDuration())){

mediaPlayer.seekTo(currentpos+forwardTime);

}

Toast.*makeText*(getApplicationContext(), "Forwarding the Song",

Toast.LENGTH\_SHORT).show();

}

});

Button rewind = findViewById(R.id.*rewind*); rewind.setOnClickListener(new View.OnClickListener() {

@Override public void onClick(View view) { currentpos = mediaPlayer.getCurrentPosition(); if((currentpos-backgroundTime) >= 0){

mediaPlayer.seekTo(currentpos+backgroundTime);

}

Toast.*makeText*(getApplicationContext(), "Rewinding the Song",

Toast.LENGTH\_SHORT).show();

}

});

Button stop = findViewById(R.id.*stop*); stop.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Toast.*makeText*(getApplicationContext(), "Stopping Song",

Toast.LENGTH\_SHORT).show(); mediaPlayer.stop();

mediaPlayer = mediaPlayerNew;

}

});

Button restart = findViewById(R.id.*restart*); restart.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Toast.*makeText*(getApplicationContext(), "Restarting the Song",

Toast.LENGTH\_SHORT).show(); mediaPlayer.seekTo(0);

mediaPlayer.start();

}});

}}

**1. (a) Demonstrating explicit intents** Code:

***package*** *com.example.my\_application;* ***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.TextView;*

***public class*** *MainActivity* ***extends*** *AppCompatActivity {* ***int sum*** *= 0;*

*@Override*

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

*{* ***super****.onCreate(savedInstanceState); setContentView(R.layout.****activity\_main****);*

*Button button = (Button) findViewById(R.id.****button****);*

*Intent intent =* ***new*** *Intent(****this****, MainActivity2.****class****);*

*EditText e1 = (EditText) findViewById(R.id.****editTextNumber****);* *EditText e2 = (EditText) findViewById(R.id.****editTextNumber2****);* *button.setOnClickListener(****new*** *View.OnClickListener() {*

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

***sum*** *= Integer.parseInt(e1.getText().toString()) + Integer.parseInt(e2.getText().toString());*

*intent.putExtra(****"ans"****,* ***sum****); startActivity(intent);*

*}});*

*}}*

**MainActivity2.java :**

**package** com.example.my\_application; **import** androidx.appcompat.app.AppCompatActivity; **import** android.content.Intent; **import** android.os.Bundle; **import** android.widget.TextView; **import** android.widget.Toast; **public class** MainActivity2 **extends** AppCompatActivit{

@Override

**protected void** onCreate(Bundle savedInstanceState) { **super**.onCreate(savedInstanceState); setContentView(R.layout.**activity\_main2**);

Bundle extras = getIntent().getExtras(); **int** sum = extras.getInt(**"ans"**);

Toast.makeText(**this**, **"The sum is "**+sum, Toast.**LENGTH\_SHORT**).show();

TextView t1 = (TextView) findViewById(R.id.**textView6**); t1.setText(**"The sum is "**+sum);

}

}

**2. Make a calculator app.**

**MainActivity.java :**

**Package** com.example.my\_application; **import** androidx.appcompat.app.AppCompatActivity; **import** android.os.Bundle; **import** android.view.View; **import** android.widget.EditText; **public class** MainActivity **extends** AppCompatActivity { **boolean isNewOp** = **true**; EditText **ed1**;

String **op**, **oldNumber**; @Override

**protected void** onCreate(Bundle savedInstanceState) { **super**.onCreate(savedInstanceState); setContentView(R.layout.***activity\_main***);

**ed1** = findViewById(R.id.editText);

}

**public void** numberEvent(View view){ **if**(**isNewOp**) **ed1**.setText(**""**); **isNewOp** = **false**;

String number = **ed1**.getText().toString(); **switch**(view.getId()){ **case** R.id.but\_1: number += **"1"**; **break**; **case** R.id.but\_2:  number += **"2"**; **break**; **case** R.id.but\_3: number += **"3"**; **break**; **case** R.id.but\_4: number += **"4"**; **break**; **case** R.id.but\_5: number += **"5"**;**break**; **case** R.id.but\_6: number += **"6"**;**break**; **case** R.id.but\_7: number += **"7"**; **break**; **case** R.id.but\_8: number += **"8"**; **break**; **case** R.id.but\_9: number += **"9"**; **break**; **case** R.id.but\_0: number += **"0"**; **break**; **case** R.id.but\_dot: number += **"."**; **break**; **case** R.id.but\_plus\_minus: number += **"-"**+number; **break**;

} **ed1**.setText(number);

}

**public void** operatorEvent(View view){ **isNewOp** = **true**; **oldNumber** = **ed1**.getText().toString(); **switch**(view.getId())

{

**case** R.id.but\_divide: **op** = **"/"**; **break**; **case** R.id.but\_star: **op** = **"\*"**; **break**; **case** R.id.but\_plus: **op** = **"+"**; **break**; **case** R.id.but\_minus: **op** = **"-"**; **break**;

} }

**public void** equalEvent(View view){ String newNumber = **ed1**.getText().toString();

**double** result = 0.0; **switch**(**op**){

**case "+"**: result = Double.*parseDouble*(**oldNumber**)+ Double.*parseDouble*(newNumber); **break**; **case "-"**:

result = Double.*parseDouble*(**oldNumber**) - Double.*parseDouble*(newNumber); **break**; **case "\*"**:

result = Double.*parseDouble*(**oldNumber**) \* Double.*parseDouble*(newNumber); **break**; **case "/"**:

result = Double.*parseDouble*(**oldNumber**) / Double.*parseDouble*(newNumber);

**break**;

}

**ed1**.setText(result+**""**);

}

**public void** acEvent(View view){ **ed1**.setText(**"0"**); **isNewOp** = **true**;

}

**public void** percentEvent(View view){ **double** no = Double.*parseDouble*(**ed1**.getText().toString())/100; **ed1**.setText(no+**""**);

**isNewOp** = **true**;

}}