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;
}}
```