**1. Name, Address, and Mobile Number (LinearLayout - Vertical)**

**activity\_main.xml**:

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

android:padding="16dp">

<TextView android:text="Name: John Doe"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

<TextView android:text="Address: Pune"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

<TextView android:text="Mobile: 9876543210"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

</LinearLayout>

**2. Name, Age and Mobile (Centrally using Constraint Layout)**

**activity\_main.xml**:

<androidx.constraintlayout.widget.ConstraintLayout

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<TextView

android:id="@+id/infoText"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Name: John\nAge: 22\nMobile: 9876543210"

android:textAlignment="center"

android:textSize="18sp"

app:layout\_constraintTop\_toTopOf="parent"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>

**3. Frame Layout**

**activity\_main.xml**:

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<ImageView

android:src="@android:drawable/ic\_menu\_camera"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent" />

<TextView

android:text="Camera Overlay"

android:textColor="#FFFFFF"

android:textSize="24sp"

android:layout\_gravity="center" />

</FrameLayout>

**4. Table Layout for 8 Employees**

**activity\_main.xml**:

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:stretchColumns="\*">

<TableRow>

<TextView android:text="EmpID" />

<TextView android:text="EmpName" />

<TextView android:text="Salary" />

</TableRow>

<TableRow>

<TextView android:text="101" />

<TextView android:text="John" />

<TextView android:text="50000" />

</TableRow>

<!-- Repeat for 7 more rows -->

</TableLayout>

**5. UI like WhatsApp (RelativeLayout)**

**activity\_main.xml**:

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="10dp">

<TextView

android:id="@+id/userName"

android:text="John"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:textSize="18sp"

android:layout\_alignParentTop="true"

android:layout\_centerHorizontal="true" />

<EditText

android:id="@+id/messageInput"

android:hint="Type a message"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_alignParentBottom="true"/>

<Button

android:text="Send"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignBottom="@id/messageInput"

android:layout\_alignParentEnd="true"/>

</RelativeLayout>

**6. Username & Password - Toast**

**activity\_main.xml**:

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

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="16dp">

<EditText

android:id="@+id/username"

android:hint="Username"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<EditText

android:id="@+id/password"

android:hint="Password"

android:inputType="textPassword"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<Button

android:text="Login"

android:onClick="showToast"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void showToast(View view) {

EditText user = findViewById(R.id.username);

EditText pass = findViewById(R.id.password);

Toast.makeText(this, "User: " + user.getText() + "\nPass: " + pass.getText(), Toast.LENGTH\_SHORT).show();

}

}

**7. AutoComplete for MAD Questions**

**activity\_main.xml**:

<AutoCompleteTextView

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

android:id="@+id/autoComplete"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Ask MAD Question"

android:completionThreshold="1"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

String[] questions = {"What is an Intent?", "What is an Activity?", "Explain Layouts", "What is Fragment?"};

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

AutoCompleteTextView act = findViewById(R.id.autoComplete);

ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple\_dropdown\_item\_1line, questions);

act.setAdapter(adapter);

}

}

**8. Addition of 2 Numbers and Toast**

**activity\_main.xml**:

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

android:orientation="vertical"

android:padding="16dp"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<EditText android:id="@+id/num1"

android:hint="Enter number 1"

android:inputType="number"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

<EditText android:id="@+id/num2"

android:hint="Enter number 2"

android:inputType="number"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

<Button android:text="Add"

android:onClick="addNumbers"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void addNumbers(View view) {

EditText n1 = findViewById(R.id.num1);

EditText n2 = findViewById(R.id.num2);

int a = Integer.parseInt(n1.getText().toString());

int b = Integer.parseInt(n2.getText().toString());

Toast.makeText(this, "Sum: " + (a + b), Toast.LENGTH\_SHORT).show();

}

}

**9. Student Personal Info using All Views**

**activity\_main.xml**:

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<LinearLayout

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:padding="16dp">

<EditText android:hint="Name" />

<EditText android:hint="Age" android:inputType="number"/>

<EditText android:hint="Email" android:inputType="textEmailAddress"/>

<EditText android:hint="Phone" android:inputType="phone"/>

<CheckBox android:text="Agree to Terms"/>

<Button android:text="Submit"/>

</LinearLayout>

</ScrollView>

**10. Bill Payment using EditText, CheckBox, Button**

**activity\_main.xml**:

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

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="16dp">

<EditText android:id="@+id/amount" android:hint="Enter Amount" android:inputType="number" />

<CheckBox android:id="@+id/elec" android:text="Electricity" />

<CheckBox android:id="@+id/water" android:text="Water Bill" />

<CheckBox android:id="@+id/internet" android:text="Internet Bill" />

<Button android:text="Pay" android:onClick="payBill" />

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void payBill(View view) {

EditText amt = findViewById(R.id.amount);

CheckBox elec = findViewById(R.id.elec);

CheckBox water = findViewById(R.id.water);

CheckBox internet = findViewById(R.id.internet);

String msg = "Paid Rs." + amt.getText() + " for ";

if (elec.isChecked()) msg += "Electricity ";

if (water.isChecked()) msg += "Water ";

if (internet.isChecked()) msg += "Internet ";

Toast.makeText(this, msg, Toast.LENGTH\_LONG).show();

}

}

**11. Toggle Button – ON / OFF Light**

**activity\_main.xml**:

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

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="16dp">

<ToggleButton

android:id="@+id/toggleButton"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:textOn="Light ON"

android:textOff="Light OFF" />

<ImageView

android:id="@+id/lightImage"

android:layout\_width="200dp"

android:layout\_height="200dp"

android:src="@android:drawable/btn\_star\_big\_off"

android:layout\_marginTop="20dp"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

ToggleButton toggleButton;

ImageView lightImage;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

toggleButton = findViewById(R.id.toggleButton);

lightImage = findViewById(R.id.lightImage);

toggleButton.setOnCheckedChangeListener((buttonView, isChecked) -> {

if (isChecked) {

lightImage.setImageResource(android.R.drawable.btn\_star\_big\_on);

} else {

lightImage.setImageResource(android.R.drawable.btn\_star\_big\_off);

}

});

}

}

**12. Login Form – Open Second Activity After Login**

**activity\_main.xml**:

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

android:orientation="vertical"

android:padding="16dp"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<EditText android:id="@+id/user" android:hint="Username"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content"/>

<EditText android:id="@+id/pass" android:hint="Password" android:inputType="textPassword"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content"/>

<Button android:text="Login" android:onClick="login"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void login(View view) {

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

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

if (user.getText().toString().equals("admin") && pass.getText().toString().equals("admin")) {

Intent intent = new Intent(this, SecondActivity.class);

startActivity(intent);

} else {

Toast.makeText(this, "Login Failed", Toast.LENGTH\_SHORT).show();

}

}

}

**SecondActivity.java**:

public class SecondActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

TextView tv = new TextView(this);

tv.setText("Welcome to Second Activity!");

setContentView(tv);

}

}

**Add in AndroidManifest.xml:**

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

**13. Five Checkboxes – Show Selected with Toast**

**activity\_main.xml**:

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

android:orientation="vertical" android:padding="16dp"

android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<CheckBox android:id="@+id/c1" android:text="C++" />

<CheckBox android:id="@+id/c2" android:text="Java" />

<CheckBox android:id="@+id/c3" android:text="Python" />

<CheckBox android:id="@+id/c4" android:text="Android" />

<CheckBox android:id="@+id/c5" android:text="Flutter" />

<Button android:text="Submit" android:onClick="showSelected"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void showSelected(View view) {

String result = "";

int[] ids = {R.id.c1, R.id.c2, R.id.c3, R.id.c4, R.id.c5};

for (int id : ids) {

CheckBox cb = findViewById(id);

if (cb.isChecked()) result += cb.getText() + " ";

}

Toast.makeText(this, "Selected: " + result, Toast.LENGTH\_SHORT).show();

}

}

**14. Quiz with 4 Options (Radio Button)**

**activity\_main.xml**:

<RadioGroup

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

android:id="@+id/radioGroup"

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:padding="16dp">

<TextView android:text="Q: What is the extension of Java file?" />

<RadioButton android:id="@+id/r1" android:text=".java" />

<RadioButton android:id="@+id/r2" android:text=".class" />

<RadioButton android:id="@+id/r3" android:text=".py" />

<RadioButton android:id="@+id/r4" android:text=".txt" />

<Button android:text="Submit" android:onClick="checkAnswer"/>

</RadioGroup>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void checkAnswer(View view) {

RadioButton rb = findViewById(R.id.r1);

if (rb.isChecked()) {

Toast.makeText(this, "Correct Answer!", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Wrong Answer!", Toast.LENGTH\_SHORT).show();

}

}

}

**15. Horizontal Progress Bar**

**activity\_main.xml**:

<ProgressBar

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

style="?android:attr/progressBarStyleHorizontal"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:progress="50"

android:max="100"

android:layout\_margin="20dp"/>

**16. Cyclic (Indeterminate) Progress Bar**

**activity\_main.xml**:

<ProgressBar

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

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:indeterminate="true"

style="?android:attr/progressBarStyleLarge"

android:layout\_gravity="center"/>

**17. Change Image on Button Click**

**activity\_main.xml**:

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

android:orientation="vertical" android:layout\_width="match\_parent"

android:layout\_height="match\_parent" android:gravity="center">

<ImageView android:id="@+id/imageView"

android:layout\_width="200dp"

android:layout\_height="200dp"

android:src="@drawable/image1"/>

<Button android:text="Change Image" android:onClick="changeImage"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

boolean isChanged = false;

public void changeImage(View view) {

ImageView imageView = findViewById(R.id.imageView);

if (isChanged) {

imageView.setImageResource(R.drawable.image1);

} else {

imageView.setImageResource(R.drawable.image2);

}

isChanged = !isChanged;

}

}

*(Add image1.png and image2.png in drawable folder)*

**18. Dial Pad using GridView**

**activity\_main.xml**:

<GridView

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

android:id="@+id/gridView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:numColumns="3"

android:horizontalSpacing="10dp"

android:verticalSpacing="10dp"

android:padding="20dp"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

String[] numbers = {"1","2","3","4","5","6","7","8","9","\*","0","#"};

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

GridView grid = findViewById(R.id.gridView);

ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple\_list\_item\_1, numbers);

grid.setAdapter(adapter);

}

}

**19. ListView Showing Contacts**

*You’ll need READ\_CONTACTS permission + content resolver logic (simplified version here with sample names).*

**activity\_main.xml**:

<ListView

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

android:id="@+id/listView"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

String[] contacts = {"Alice", "Bob", "Charlie", "David"};

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

ListView listView = findViewById(R.id.listView);

ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple\_list\_item\_1, contacts);

listView.setAdapter(adapter);

}

}

**20. Horizontal Scroll View with Cartoon Images**

**activity\_main.xml**:

<HorizontalScrollView

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:scrollbars="horizontal">

<LinearLayout android:orientation="horizontal"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content">

<ImageView android:src="@drawable/cartoon1" android:layout\_width="150dp" android:layout\_height="150dp"/>

<ImageView android:src="@drawable/cartoon2" android:layout\_width="150dp" android:layout\_height="150dp"/>

<ImageView android:src="@drawable/cartoon3" android:layout\_width="150dp" android:layout\_height="150dp"/>

</LinearLayout>

</HorizontalScrollView>

**21. Custom Toast Alert**

**activity\_main.xml**:

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

android:id="@+id/showToast"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Show Custom Toast"

android:onClick="showCustomToast"

android:layout\_gravity="center"/>

**toast\_layout.xml** (New layout in res/layout/):

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

android:orientation="horizontal"

android:padding="10dp"

android:background="#AA000000"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content">

<ImageView android:src="@android:drawable/ic\_dialog\_info"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"/>

<TextView android:id="@+id/toastText"

android:text="This is Custom Toast"

android:textColor="#FFF"

android:paddingStart="10dp"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void showCustomToast(View view) {

LayoutInflater inflater = getLayoutInflater();

View layout = inflater.inflate(R.layout.toast\_layout, findViewById(R.id.toastText).getParent());

Toast toast = new Toast(getApplicationContext());

toast.setDuration(Toast.LENGTH\_SHORT);

toast.setView(layout);

toast.show();

}

}

**22. Time Picker**

**activity\_main.xml**:

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

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Pick Time"

android:onClick="showTimePicker"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void showTimePicker(View view) {

Calendar calendar = Calendar.getInstance();

int hour = calendar.get(Calendar.HOUR\_OF\_DAY);

int min = calendar.get(Calendar.MINUTE);

TimePickerDialog timePickerDialog = new TimePickerDialog(this,

(timePicker, selectedHour, selectedMinute) ->

Toast.makeText(this, selectedHour + ":" + selectedMinute, Toast.LENGTH\_SHORT).show(),

hour, min, true);

timePickerDialog.show();

}

}

**23. Date Picker**

**activity\_main.xml**:

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

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Pick Date"

android:onClick="showDatePicker"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void showDatePicker(View view) {

Calendar calendar = Calendar.getInstance();

int year = calendar.get(Calendar.YEAR);

int month = calendar.get(Calendar.MONTH);

int day = calendar.get(Calendar.DAY\_OF\_MONTH);

DatePickerDialog dialog = new DatePickerDialog(this,

(v, selectedYear, selectedMonth, selectedDay) ->

Toast.makeText(this, selectedDay + "/" + (selectedMonth+1) + "/" + selectedYear, Toast.LENGTH\_SHORT).show(),

year, month, day);

dialog.show();

}

}

**24. Calendar View**

**activity\_main.xml**:

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

android:id="@+id/calendarView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

CalendarView calendarView = findViewById(R.id.calendarView);

calendarView.setOnDateChangeListener((view, year, month, dayOfMonth) -> {

String date = dayOfMonth + "/" + (month + 1) + "/" + year;

Toast.makeText(this, "Selected: " + date, Toast.LENGTH\_SHORT).show();

});

}

}

**25. DateTime Picker Dialog**

**activity\_main.xml**:

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

android:orientation="vertical" android:padding="20dp"

android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<Button android:text="Pick DateTime" android:onClick="pickDateTime"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void pickDateTime(View view) {

Calendar calendar = Calendar.getInstance();

new DatePickerDialog(this, (dateView, year, month, day) -> {

new TimePickerDialog(this, (timeView, hour, minute) -> {

Toast.makeText(this, day + "/" + (month+1) + "/" + year + " " + hour + ":" + minute, Toast.LENGTH\_LONG).show();

}, calendar.get(Calendar.HOUR\_OF\_DAY), calendar.get(Calendar.MINUTE), true).show();

}, calendar.get(Calendar.YEAR), calendar.get(Calendar.MONTH), calendar.get(Calendar.DAY\_OF\_MONTH)).show();

}

}

**26. Hello World with All Lifecycle Methods (with Log)**

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

@Override protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

Log.d("LIFE", "onCreate");

Toast.makeText(this, "onCreate", Toast.LENGTH\_SHORT).show();

}

@Override protected void onStart() {

super.onStart();

Log.d("LIFE", "onStart");

}

@Override protected void onResume() {

super.onResume();

Log.d("LIFE", "onResume");

}

@Override protected void onPause() {

super.onPause();

Log.d("LIFE", "onPause");

}

@Override protected void onStop() {

super.onStop();

Log.d("LIFE", "onStop");

}

@Override protected void onDestroy() {

super.onDestroy();

Log.d("LIFE", "onDestroy");

}

}

**activity\_main.xml**:

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:text="Hello World!" android:gravity="center" android:textSize="20sp"/>

**27. Open Google via URL using Intent**

**activity\_main.xml**:

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

android:orientation="vertical" android:padding="20dp"

android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<EditText android:id="@+id/urlText" android:hint="Enter URL (e.g. www.google.com)"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content"/>

<Button android:text="Navigate" android:onClick="openURL"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void openURL(View view) {

EditText editText = findViewById(R.id.urlText);

String url = "https://" + editText.getText().toString();

Intent intent = new Intent(Intent.ACTION\_VIEW, Uri.parse(url));

startActivity(intent);

}

}

**28. Factorial in Second Screen**

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void getFactorial(View view) {

EditText numInput = findViewById(R.id.numberInput);

int number = Integer.parseInt(numInput.getText().toString());

Intent i = new Intent(this, SecondActivity.class);

i.putExtra("num", number);

startActivity(i);

}

}

**activity\_main.xml**:

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

android:orientation="vertical" android:padding="20dp"

android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<EditText android:id="@+id/numberInput" android:inputType="number" android:hint="Enter Number"/>

<Button android:text="Factorial" android:onClick="getFactorial"/>

</LinearLayout>

**SecondActivity.java**:

public class SecondActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

int num = getIntent().getIntExtra("num", 1);

int fact = 1;

for (int i = 1; i <= num; i++) fact \*= i;

TextView tv = new TextView(this);

tv.setText("Factorial: " + fact);

tv.setTextSize(22);

setContentView(tv);

}

}

**Add to AndroidManifest.xml:**

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

**29. System Broadcast – Airplane Mode Receiver**

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

BroadcastReceiver receiver;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

receiver = new BroadcastReceiver() {

@Override

public void onReceive(Context context, Intent intent) {

Toast.makeText(context, "Airplane Mode Changed", Toast.LENGTH\_SHORT).show();

}

};

registerReceiver(receiver, new IntentFilter(Intent.ACTION\_AIRPLANE\_MODE\_CHANGED));

}

@Override

protected void onDestroy() {

super.onDestroy();

unregisterReceiver(receiver);

}

}

**30. Light Sensor / Accelerometer**

**MainActivity.java**:

public class MainActivity extends AppCompatActivity implements SensorEventListener {

SensorManager sensorManager;

TextView sensorText;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

sensorText = new TextView(this);

sensorText.setTextSize(20);

setContentView(sensorText);

sensorManager = (SensorManager) getSystemService(SENSOR\_SERVICE);

Sensor sensor = sensorManager.getDefaultSensor(Sensor.TYPE\_ACCELEROMETER);

sensorManager.registerListener(this, sensor, SensorManager.SENSOR\_DELAY\_NORMAL);

}

@Override

public void onSensorChanged(SensorEvent event) {

sensorText.setText("X: " + event.values[0] + "\nY: " + event.values[1] + "\nZ: " + event.values[2]);

}

@Override

public void onAccuracyChanged(Sensor sensor, int accuracy) {}

}

**31. Capture Image using Camera**

**Permissions in AndroidManifest.xml:**

<uses-permission android:name="android.permission.CAMERA"/>

<uses-feature android:name="android.hardware.camera" android:required="true"/>

**activity\_main.xml**:

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

android:orientation="vertical" android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<Button android:text="Capture Image" android:onClick="captureImage"/>

<ImageView android:id="@+id/imageView" android:layout\_width="match\_parent" android:layout\_height="300dp"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

ImageView imageView;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

imageView = findViewById(R.id.imageView);

}

public void captureImage(View view) {

Intent i = new Intent(MediaStore.ACTION\_IMAGE\_CAPTURE);

startActivityForResult(i, 101);

}

@Override

protected void onActivityResult(int requestCode, int resultCode, Intent data) {

if (requestCode == 101 && resultCode == RESULT\_OK) {

Bitmap photo = (Bitmap) data.getExtras().get("data");

imageView.setImageBitmap(photo);

}

}

}

**32. Capture Video using Camera**

**Permissions:**

<uses-permission android:name="android.permission.CAMERA"/>

**activity\_main.xml**:

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

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:text="Capture Video" android:onClick="recordVideo"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void recordVideo(View view) {

Intent intent = new Intent(MediaStore.ACTION\_VIDEO\_CAPTURE);

startActivity(intent);

}

}

**33. Bluetooth ON, OFF, List Devices**

**Permissions:**

<uses-permission android:name="android.permission.BLUETOOTH"/>

<uses-permission android:name="android.permission.BLUETOOTH\_ADMIN"/>

**activity\_main.xml**:

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

android:orientation="vertical" android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<Button android:text="Turn ON" android:onClick="turnOn"/>

<Button android:text="Turn OFF" android:onClick="turnOff"/>

<Button android:text="List Paired Devices" android:onClick="listDevices"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

BluetoothAdapter bluetoothAdapter;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

bluetoothAdapter = BluetoothAdapter.getDefaultAdapter();

}

public void turnOn(View v) {

if (!bluetoothAdapter.isEnabled()) {

bluetoothAdapter.enable();

Toast.makeText(this, "Bluetooth ON", Toast.LENGTH\_SHORT).show();

}

}

public void turnOff(View v) {

if (bluetoothAdapter.isEnabled()) {

bluetoothAdapter.disable();

Toast.makeText(this, "Bluetooth OFF", Toast.LENGTH\_SHORT).show();

}

}

public void listDevices(View v) {

Set<BluetoothDevice> pairedDevices = bluetoothAdapter.getBondedDevices();

for (BluetoothDevice device : pairedDevices) {

Toast.makeText(this, "Device: " + device.getName(), Toast.LENGTH\_SHORT).show();

}

}

}

**34. SQLite Database Operation**

**activity\_main.xml**:

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

android:orientation="vertical" android:padding="10dp" android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<EditText android:id="@+id/name" android:hint="Enter Name"/>

<EditText android:id="@+id/email" android:hint="Enter Email"/>

<Button android:text="Insert" android:onClick="insertData"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

SQLiteDatabase db;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

db = openOrCreateDatabase("StudentDB", MODE\_PRIVATE, null);

db.execSQL("CREATE TABLE IF NOT EXISTS student(name VARCHAR, email VARCHAR);");

}

public void insertData(View view) {

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

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

db.execSQL("INSERT INTO student VALUES('" + name.getText() + "', '" + email.getText() + "');");

Toast.makeText(this, "Data Inserted", Toast.LENGTH\_SHORT).show();

}

}

**35. Login Module with Success/Failure**

**activity\_main.xml**:

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

android:orientation="vertical" android:padding="20dp"

android:layout\_width="match\_parent" android:layout\_height="match\_parent">

<EditText android:id="@+id/username" android:hint="Username"/>

<EditText android:id="@+id/password" android:hint="Password" android:inputType="textPassword"/>

<Button android:text="Login" android:onClick="login"/>

<TextView android:id="@+id/status"/>

</LinearLayout>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void login(View view) {

EditText uname = findViewById(R.id.username);

EditText pwd = findViewById(R.id.password);

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

if (uname.getText().toString().equals("admin") && pwd.getText().toString().equals("1234")) {

status.setText("Login Successful");

} else {

Toast.makeText(this, "Login Fail", Toast.LENGTH\_SHORT).show();

}

}

}

**36. Quiz with RadioButton and Score**

**activity\_main.xml**:

<RadioGroup android:id="@+id/radioGroup" xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content">

<RadioButton android:id="@+id/opt1" android:text="Java"/>

<RadioButton android:id="@+id/opt2" android:text="Python"/>

<RadioButton android:id="@+id/opt3" android:text="C++"/>

<RadioButton android:id="@+id/opt4" android:text="PHP"/>

<Button android:text="Submit" android:onClick="checkAnswer"/>

</RadioGroup>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void checkAnswer(View view) {

RadioGroup group = findViewById(R.id.radioGroup);

int id = group.getCheckedRadioButtonId();

RadioButton selected = findViewById(id);

String ans = selected.getText().toString();

if (ans.equals("Python")) {

Toast.makeText(this, "Correct! +1", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Wrong Answer", Toast.LENGTH\_SHORT).show();

}

}

}

**37. Send SMS**

**Permissions:**

<uses-permission android:name="android.permission.SEND\_SMS"/>

**activity\_main.xml**:

<EditText android:id="@+id/phone" android:hint="Phone Number"/>

<EditText android:id="@+id/message" android:hint="Message"/>

<Button android:text="Send SMS" android:onClick="sendSMS"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void sendSMS(View view) {

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

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

SmsManager sms = SmsManager.getDefault();

sms.sendTextMessage(phone.getText().toString(), null, message.getText().toString(), null, null);

Toast.makeText(this, "Message Sent", Toast.LENGTH\_SHORT).show();

}

}

**38. Send Email**

**activity\_main.xml**:

<EditText android:id="@+id/email" android:hint="Email Address"/>

<EditText android:id="@+id/subject" android:hint="Subject"/>

<EditText android:id="@+id/body" android:hint="Message"/>

<Button android:text="Send Email" android:onClick="sendEmail"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void sendEmail(View view) {

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

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

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

Intent emailIntent = new Intent(Intent.ACTION\_SENDTO, Uri.fromParts("mailto", email.getText().toString(), null));

emailIntent.putExtra(Intent.EXTRA\_SUBJECT, subject.getText().toString());

emailIntent.putExtra(Intent.EXTRA\_TEXT, body.getText().toString());

startActivity(Intent.createChooser(emailIntent, "Send Email"));

}

}

**39. Make a Call**

**Permissions:**

<uses-permission android:name="android.permission.CALL\_PHONE"/>

**activity\_main.xml**:

<EditText android:id="@+id/phone" android:hint="Phone Number"/>

<Button android:text="Call" android:onClick="makeCall"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void makeCall(View view) {

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

Intent intent = new Intent(Intent.ACTION\_CALL);

intent.setData(Uri.parse("tel:" + phone.getText().toString()));

startActivity(intent);

}

}

**40. Get Current Location (Google Maps)**

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"

tools:context=".MainActivity">

<fragment

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/GoogleMap"

android:name="com.google.android.gms.maps.SupportMapFragment"

></fragment>

</RelativeLayout>

Edit – buid.gradle (:app) from Gradle Scripts under Project directory

Under Dependencies- Add the following implementations and Sync your Project

implementation 'com.google.android.gms:play-services-maps:17.0.0'

implementation 'com.google.android.gms:play-services-location:17.0.0'

implementation 'com.karumi:dexter:6.2.1'

AndroidManifest.xml

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

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

package="com.example.googlemap">

<uses-permission android:name="android.permission.INTERNET"/>

<uses-permission

android:name="android.permission.ACCESS\_FINE\_LOCATION"/>

<uses-permission

android:name="android.permission.ACCESS\_COARSE\_LOCATION"/>

<application

android:allowBackup="true"

android:icon="@mipmap/ic\_launcher"

android:label="@string/app\_name"

android:roundIcon="@mipmap/ic\_launcher\_round"

android:supportsRtl="true"

android:theme="@style/Theme.GoogleMap">

<meta-data

android:name="com.google.android.geo.API\_KEY"

android:value="AIzaSyAqZIR66GxoqcpbMuba0XlqB\_fW1k5LfcQ" />

<activity android:name=".MainActivity">

<intent-filter>

<action android:name="android.intent.action.MAIN" />

<category

android:name="android.intent.category.LAUNCHER" />

</intent-filter>

</activity>

</application>

</manifest>

package com.example.googlemap;

MainActivity.java

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import androidx.core.app.ActivityCompat;

import android.Manifest;

import android.content.pm.PackageManager;

import android.location.Location;

import android.os.Bundle;

import com.google.android.gms.location.FusedLocationProviderClient;

import com.google.android.gms.location.LocationServices;

import com.google.android.gms.maps.CameraUpdateFactory;

import com.google.android.gms.maps.GoogleMap;

import com.google.android.gms.maps.OnMapReadyCallback;

import com.google.android.gms.maps.SupportMapFragment;

import com.google.android.gms.maps.model.LatLng;

import com.google.android.gms.maps.model.Marker;

import com.google.android.gms.maps.model.MarkerOptions;

import com.google.android.gms.tasks.OnSuccessListener;

import com.google.android.gms.tasks.Task;

public class MainActivity extends AppCompatActivity {

SupportMapFragment smf;

FusedLocationProviderClient client;

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

smf = (SupportMapFragment)

getSupportFragmentManager().findFragmentById(R.id.GoogleMap);

client =

LocationServices.getFusedLocationProviderClient(this);

getmyLocation();

}

private void getmyLocation() {

if (ActivityCompat.checkSelfPermission(this,

Manifest.permission.ACCESS\_FINE\_LOCATION) !=

PackageManager.PERMISSION\_GRANTED &&

ActivityCompat.checkSelfPermission(this,

Manifest.permission.ACCESS\_COARSE\_LOCATION) !=

PackageManager.PERMISSION\_GRANTED) {

// TODO: Consider calling

// ActivityCompat#requestPermissions.

return;

}

Task<Location> task = client.getLastLocation();

task.addOnSuccessListener(new OnSuccessListener<Location>() {

@Override

public void onSuccess(Location location) {

smf.getMapAsync(new OnMapReadyCallback() {

@Override

public void onMapReady(@NonNull GoogleMap googleMap) {

LatLng latLng=new

LatLng(location.getLatitude(),location.getLongitude());

MarkerOptions markerOptions=new

MarkerOptions().position(latLng).title("You are here");

googleMap.addMarker(markerOptions);

googleMap.animateCamera(CameraUpdateFactory.newLatLngZoom(latLng,15));

}

});

}

});

**41. Draw Route Between Source and Destination**

Activity\_main.xml

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

<LinearLayout

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:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="20dp"

tools:context=".MainActivity">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Draw Route Activity"

android:layout\_marginTop="20dp"

android:layout\_gravity="center\_horizontal"

style="@style/TextAppearance.AppCompat.Large"

/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/source"

android:hint="Enter Source"

android:layout\_marginTop="20dp"

android:layout\_gravity="start"

style="@style/TextAppearance.AppCompat.Large"/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/destination"

android:hint="Enter Destination"

android:layout\_marginTop="20dp"

android:layout\_gravity="start"

style="@style/TextAppearance.AppCompat.Large"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/Draw"

android:text="Draw"

android:layout\_gravity="center\_horizontal"

android:layout\_marginTop="20dp"

style="@style/TextAppearance.AppCompat.Large"

/>

</LinearLayout>

Edit – buid.gradle (:app) from Gradle Scripts under Project directory

Under Dependencies- Add the following implementations and Sync your Project

implementation 'com.google.android.gms:play-services-maps:17.0.0'

implementation 'com.google.android.gms:play-services-location:17.0.0'

implementation 'com.karumi:dexter:6.2.1'

AndroidManifest.xml

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

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

package="com.example.googlemap">

<uses-permission android:name="android.permission.INTERNET"/>

<uses-permission

android:name="android.permission.ACCESS\_FINE\_LOCATION"/>

<uses-permission

android:name="android.permission.ACCESS\_COARSE\_LOCATION"/>

<application

android:allowBackup="true"

android:icon="@mipmap/ic\_launcher"

android:label="@string/app\_name"

android:roundIcon="@mipmap/ic\_launcher\_round"

android:supportsRtl="true"

android:theme="@style/Theme.GoogleMap">

<meta-data

android:name="com.google.android.geo.API\_KEY"

android:value="AIzaSyAqZIR66GxoqcpbMuba0XlqB\_fW1k5LfcQ" />

<activity android:name=".MainActivity">

<intent-filter>

<action android:name="android.intent.action.MAIN" />

<category

android:name="android.intent.category.LAUNCHER" />

</intent-filter>

</activity>

</application>

</manifest>

MainActivity.java

package com.example.drawroute;

import androidx.appcompat.app.AppCompatActivity;

import android.content.ActivityNotFoundException;

import android.content.Intent;

import android.content.IntentFilter;

import android.net.Uri;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

EditText esource,edistination;

Button bdraw;

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

esource=findViewById(R.id.source);

edistination=findViewById(R.id.destination);

bdraw=findViewById(R.id.Draw);

bdraw.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String source=esource.getText().toString();

String destination=edistination.getText().toString();

if(source.equals("")&&(destination.equals("")))

{

Toast.makeText(getApplicationContext(),"Enter

Source and Destination",Toast.LENGTH\_LONG).show();

}

else

{

try {

Uri uri = Uri.parse("https://www.google.co.in/maps/dir/" + source +

"/" + destination)

Intent intent = new Intent(Intent.ACTION\_VIEW, uri);

intent.setFlags(Intent.FLAG\_ACTIVITY\_NEW\_TASK);

startActivity(intent);

catch(ActivityNotFoundException anf)

{

Uri uri =

Uri.parse("https://play.google.com/store/apps/details?id=com.google.an

droid.apps.maps");

Intent intent = new Intent(Intent.ACTION\_VIEW, uri);

intent.setFlags(Intent.FLAG\_ACTIVITY\_NEW\_TASK);

startActivity(intent);

}

}

}

});

}

}

**42. Translate and Rotate Image Using Animation**

**activity\_main.xml**:

<ImageView android:id="@+id/image" android:src="@drawable/ic\_launcher"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"/>

<Button android:text="Animate" android:onClick="animate"/>

**MainActivity.java**:

public class MainActivity extends AppCompatActivity {

public void animate(View view) {

ImageView image = findViewById(R.id.image);

Animation rotate = AnimationUtils.loadAnimation(this, R.anim.rotate);

image.startAnimation(rotate);

}

}

**res/anim/rotate.xml**:

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

android:duration="1000"

android:fromDegrees="0"

android:toDegrees="360"

android:pivotX="50%"

android:pivotY="50%" />