EX1-GUI

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    EditText name,address,age,phone;
    DatePicker dob;
    RadioButton male,female;
    Spinner marital;
    TimePicker time;
    CheckBox alcohol,smoking;
    Button submit,reset;
    String gender="";
    String addiction="";
    String maritall="";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name=findViewById(R.id.name);
        address=findViewById(R.id.address);
        age=findViewById(R.id.age);
        phone=findViewById(R.id.phone);
        dob=findViewById(R.id.dob);
        male=findViewById(R.id.male);
        female=findViewById(R.id.female);
        marital=findViewById(R.id.marital);
        time=findViewById(R.id.time);
        alcohol=findViewById(R.id.alcohol);
        smoking=findViewById(R.id.smoking);
        submit=findViewById(R.id.submit);
        reset=findViewById(R.id.reset);

        ArrayAdapter<CharSequence>
adapter=ArrayAdapter.createFromResource(this,R.array.marital_status,
                android.R.layout.simple_spinner_item);

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        marital.setAdapter(adapter);
        marital.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener()
{
            @Override
            public void onItemSelected(AdapterView<?> adapterView, View view, int
i, long l) {
                maritall = adapterView.getItemAtPosition(i).toString();
```

```java
                }

                @Override
                public void onNothingSelected(AdapterView<?> adapterView) {
                }

        });
        submit.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(male.isChecked())
                {gender="male";}
                if(female.isChecked())
                {gender="female";}
                if(smoking.isChecked()){
                    addiction=addiction+" smoking";
                }
                if(alcohol.isChecked()){
                    addiction=addiction+" alcohol";
                }
                Intent i=new Intent(MainActivity.this,Table_test.class);
                i.putExtra("name",name.getText().toString());
                i.putExtra("address",address.getText().toString());
                i.putExtra("age", Integer.parseInt(age.getText().toString()));
                i.putExtra("phone",phone.getText().toString());

i.putExtra("dob",dob.getDayOfMonth()+"-"+dob.getMonth()+"-"+dob.getYear());
                i.putExtra("gender",gender);
                i.putExtra("marital",maritall);

i.putExtra("time",time.getCurrentHour()+":"+time.getCurrentMinute());
                i.putExtra("addiction",addiction);
                startActivity(i);
                //Log.i("Messssssssssssss","hello test");

            }
        });
        reset.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                name.setText("");
                address.setText("");
                age.setText("");
                phone.setText("");
                male.setChecked(false);
                female.setChecked(false);
                alcohol.setChecked(false);
```

```
                smoking.setChecked(false);
            }
        });
    }
}
```

Table_test.java

```java
public class Table_test extends AppCompatActivity {
    Button back;
    TextView name,address,age,phone,dob,gender,marital,time,addiction;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_table_test);
        name=findViewById(R.id.name);
        address=findViewById(R.id.address);
        age=findViewById(R.id.age);
        phone=findViewById(R.id.phone);
        dob=findViewById(R.id.dob);
        marital=findViewById(R.id.marital);
        time=findViewById(R.id.time);
        addiction=findViewById(R.id.addiction);
        back=findViewById(R.id.back);

        Intent i=getIntent();
        name.setText(i.getStringExtra("name"));
        address.setText(i.getStringExtra("address"));
        age.setText(String.valueOf(i.getIntExtra("age",0)));
        phone.setText(i.getStringExtra("phone"));
        dob.setText(i.getStringExtra("dob"));
        marital.setText(i.getStringExtra("marital"));
        time.setText(i.getStringExtra("time"));
        addiction.setText(i.getStringExtra("addiction"));
        back.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                finish();
            }
        });
    }
}
```

Add marital_status array in string.xml

activity_main.xml

```xml
<ScrollView ....>
<LinearLayout
        android:orientation="vertical"
        >
        <TextView
            android:text="Hospital Management System"></TextView>
    <LinearLayout
        android:orientation="horizontal"
        >
    <TextView
        android:text="Name :"
        />
    <EditText
        android:id="@+id/name"
        ></EditText>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Address :"
            />
        <EditText
            android:id="@+id/address"
            ></EditText>
    </LinearLayout>
        <LinearLayout
            android:orientation="horizontal">
            <TextView
                android:text="Age :"
                />
            <EditText
                android:id="@+id/age"
                android:inputType="number"
                android:maxLength="3"
                ></EditText>
        </LinearLayout>
        <LinearLayout
            android:orientation="horizontal">
            <TextView
                android:text="DOB :"/>
            <DatePicker
                android:calendarViewShown="false"
                android:id="@+id/dob"
                android:datePickerMode="spinner"></DatePicker>
        </LinearLayout>
```

```xml
<LinearLayout
    android:orientation="horizontal">
    <TextView
        android:text="GENDER :"
        />
    <RadioGroup
        android:orientation="horizontal">
        <RadioButton
            android:text="MALE :"
            android:id="@+id/male">
        </RadioButton>
        <RadioButton
            android:text="FEMALE :"
            android:id="@+id/female">
        </RadioButton>
    </RadioGroup>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal">
    <TextView
        android:text="MARITAL STATUS :"/>
    <Spinner
        android:id="@+id/marital"></Spinner>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal">
    <TextView
        android:text="Phone :"
        />
    <EditText
        android:id="@+id/phone"
        android:inputType="number"
        android:maxLength="10"
        ></EditText>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal">
    <TextView
        android:text="Time :"
        />
    <TimePicker
        android:timePickerMode="spinner"
        android:id="@+id/time"></TimePicker>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal"
    >
```

```xml
        <TextView
            android:text="Addiction :"
            />
        <CheckBox
            android:id="@+id/alcohol"
            android:text="Alcohol"></CheckBox>
        <CheckBox
            android:id="@+id/smoking"
            android:text="Smoking"></CheckBox>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <Button
            android:text="SUBMIT"
            android:id="@+id/submit"></Button>
        <Button
            android:text="RESET"
            android:id="@+id/reset"></Button>
    </LinearLayout>
    </LinearLayout>
</ScrollView>
```

activity_table_test.xml

```xml
<TableLayout ..>
<TableRow>
        <TextView
            android:text="Name :"/>
        <TextView
            android:text=""
            android:id="@+id/name"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="Address :"/>
        <TextView
            android:text=""
            android:id="@+id/address"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="Age :"/>
        <TextView
            android:text=""
            android:id="@+id/age"/>
    </TableRow>
```

```xml
    <TableRow>
        <TextView
            android:text="Phone"/>
        <TextView
            android:text=""
            android:id="@+id/phone"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="DOB :"/>
        <TextView
            android:text=""
            android:id="@+id/dob"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="Gender :"/>
        <TextView
            android:text=""
            android:id="@+id/gender"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="Marital Status :"/>
        <TextView
            android:text=""
            android:id="@+id/marital"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="Registration time"/>
        <TextView
            android:text=""
            android:id="@+id/time"/>
    </TableRow>
    <TableRow>
        <TextView
            android:text="Addiction"/>
        <TextView
            android:text=""
            android:id="@+id/addiction"/>
    </TableRow>
        <Button
            android:text="BACK"
            android:id="@+id/back"/>
            />
</TableLayout>
```

EX2

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    Button toggle;
    TextView tv;
    LinearLayout caps,small;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        toggle=findViewById(R.id.toggle);
        tv=findViewById(R.id.tv);
        caps=findViewById(R.id.caps);
        small=findViewById(R.id.small);
        toggle.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(caps.getVisibility()==View.VISIBLE){
                    caps.setVisibility(View.INVISIBLE);
                    small.setVisibility(View.VISIBLE);
                }
                else{
                    caps.setVisibility(View.VISIBLE);
                    small.setVisibility(View.INVISIBLE);
                }
            }
        });


    }
    public void click(View v){

        tv.setText(tv.getText().toString()+v.getTag().toString());

    }
}
```

activity_main.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text=""
        android:id="@+id/tv"/>
```

```xml
<RelativeLayout
    >
    <LinearLayout
        android:orientation="vertical"
        android:id="@+id/caps"
        android:visibility="invisible">
        <LinearLayout
            android:orientation="horizontal">
            <Button
                android:tag="A"
                android:onClick="click"
                android:text="A"/>
            <Button
                android:tag="B"
                android:onClick="click"
                android:text="B"/>
            <Button
                android:tag="C"
                android:onClick="click"
                android:text="C"/>
            <Button
                android:tag="D"
                android:onClick="click"
                android:text="D"/>
            <Button
                android:tag="E"
                android:onClick="click"
                android:text="E"/>
        </LinearLayout>
        <LinearLayout
            android:orientation="horizontal">
            <Button
                android:tag="F"
                android:onClick="click"
                android:text="F"/>
            <Button
                android:tag="G"
                android:onClick="click"
                android:text="G"/>
            <Button
                android:tag="H"
                android:onClick="click"
                android:text="H"/>
            <Button
                android:tag="I"
                android:onClick="click"
                android:text="I"/>
```

```xml
        <Button
            android:tag="J"
            android:onClick="click"
            android:text="J"/>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <Button
            android:tag="K"
            android:onClick="click"
            android:text="K"/>
        <Button
            android:tag="L"
            android:onClick="click"
            android:text="L"/>
        <Button
            android:tag="M"
            android:onClick="click"
            android:text="M"/>
        <Button
            android:tag="N"
            android:onClick="click"
            android:text="N"/>
        <Button
            android:tag="O"
            android:onClick="click"
            android:text="O"/>
    </LinearLayout>
</LinearLayout>
<LinearLayout
    android:orientation="vertical"
    android:id="@+id/small"
    android:visibility="visible">
    <LinearLayout
        android:orientation="horizontal">
        <Button
            android:tag="a"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="a"/>
        <Button
            android:tag="b"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="b"/>
        <Button
            android:tag="c"
```

```xml
            android:onClick="click"
            android:textAllCaps="false"
            android:text="c"/>
        <Button
            android:tag="d"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="d"/>
        <Button
            android:tag="e"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="e"/>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <Button
            android:tag="f"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="f"/>
        <Button
            android:tag="g"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="g"/>
        <Button
            android:tag="h"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="h"/>
        <Button
            android:tag="i"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="i"/>
        <Button
            android:tag="j"
            android:onClick="click"
            android:textAllCaps="false"
            android:text="j"/>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <Button
            android:tag="k"
            android:textAllCaps="false"
```

```
                    android:onClick="click"
                    android:text="k"/>
            <Button
                    android:tag="l"
                    android:onClick="click"
                    android:textAllCaps="false"
                    android:text="l"/>
            <Button
                    android:tag="m"
                    android:textAllCaps="false"
                    android:onClick="click"
                    android:text="m"/>
            <Button
                    android:tag="n"
                    android:textAllCaps="false"
                    android:onClick="click"
                    android:text="n"/>
            <Button
                    android:tag="o"
                    android:onClick="click"
                    android:textAllCaps="false"
                    android:text="o"/>
        </LinearLayout>
    </LinearLayout>
  </RelativeLayout>
  <Button
        android:layout_gravity="center"
        android:id="@+id/toggle"
        android:text="!"/>
</LinearLayout>
```

EX3

zoom.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:fillAfter="true">
    <scale
        android:duration="3000"
        android:fromXScale="0"
        android:fromYScale="0"
        android:pivotX="50%"
        android:pivotY="50%"
        android:toXScale="1"
        android:toYScale="1"
        />
</set>
```

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    Bitmap bg;
    ImageView iv;
    Button zoom,rotate;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        iv=findViewById(R.id.iv);
        zoom=findViewById(R.id.zoom);
        rotate=findViewById(R.id.rotate);

        bg=Bitmap.createBitmap(720,1280,Bitmap.Config.RGB_565);
        iv.setImageBitmap(bg);
        Canvas canvas=new Canvas(bg);
        canvas.drawColor(Color.WHITE);
        Paint paint=new Paint();
        Path path=new Path();
        paint.setColor(Color.BLUE);
        paint.setTextSize(50);
        canvas.drawRect(50,700,650,900,paint);
        paint.setColor(Color.YELLOW);
        canvas.drawRect(200,550,550,700,paint);
        canvas.drawCircle(200,900,75,paint);
        canvas.drawCircle(500,900,75,paint);

        //iv.animate().translationX(2000).setDuration(3000);
        rotate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                iv.animate().rotation(360).setDuration(3000);
            }
        });
        zoom.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                iv.startAnimation(AnimationUtils.loadAnimation(
                        getApplicationContext(),R.anim.zoom
                ));
            }
        });
    }
}
```

activity_main.xml

```xml
<LinearLayout .. v..>
    <ImageView
        android:id="@+id/iv"
        />
    <Button
        android:text="Zoom"
        android:id="@+id/zoom"
        />
    <Button
        android:text="Rotate"
        android:id="@+id/rotate"
        />
</LinearLayout>
```

EX4

Add dept_list string array in values

activity_main.java

```xml
<LinearLayout ..v..>
<TextView
        android:text="DATABASE OPERATIONS"
      />
    <Button
        android:id="@+id/create"
        android:text="CREATE"
        />
    <Button
        android:id="@+id/insert"
        android:text="INSERT"
        />
    <Button
        android:id="@+id/update"
        android:text="UPDATE"
        />
    <Button
        android:id="@+id/delete"
        android:text="DELETE"
        />
    <Button
        android:id="@+id/retrieve_id"
        android:text="RETRIEVE BY ID"
        />
    <Button
```

```
        android:id="@+id/retrieve_dept"
        android:text="RETRIEVE BY DEPT"
        />
</LinearLayout>
```

activity_insert.xml

```
<LinearLayout ..v..>
    <TextView
        android:text="Insert into Employees"
        />
    <LinearLayout
        android:orientation="horizontal"
        >
        <TextView
            android:text="ID"
        />
        <EditText
            android:text=""
            android:id="@+id/id"
            android:inputType="number"/>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal"
      >
        <TextView
            android:text="Name"/>
            android:text=""
            android:id="@+id/name" />
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Salary"/>
        <EditText
            android:text=""
            android:id="@+id/salary"
            android:inputType="number"
            />
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Gender"/>
    <RadioGroup
        android:id="@+id/gender">
        <RadioButton
```

```xml
                android:text="Male"
                android:id="@+id/male"/>
            <RadioButton
                android:text="Female"
                android:id="@+id/female"/>
        </RadioGroup>
        </LinearLayout>
        <LinearLayout
            android:orientation="horizontal"
            >
        <TextView
            android:text="Department"
            android:id="@+id/dept"/>
        <Spinner
            android:id="@+id/dept_list"
            android:entries="@array/dept_list"/>
    </LinearLayout>
        <Button
            android:text="INSERT"
            android:id="@+id/ins"/>
    </LinearLayout>
```

activity_update.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text="Update Table"
      />
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="ID"/>
        <EditText
            android:text=""
            android:id="@+id/id"
            android:inputType="number"/>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Name"/>
        <EditText
            android:text=""
            android:id="@+id/name" />
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
```

```xml
        <TextView
            android:text="Salary"/>
        <EditText
            android:text=""
            android:id="@+id/salary"
            android:inputType="number"
            />
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Gender"/>
        <RadioGroup
            android:id="@+id/gender">
            <RadioButton
                android:text="Male"
                android:id="@+id/male"/>
            <RadioButton
                android:text="Female"
                android:id="@+id/female"/>
        </RadioGroup>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Department"
            android:id="@+id/dept"/>
        <Spinner
            android:id="@+id/dept_list"
            android:entries="@array/dept_list"/>
    </LinearLayout>
    <Button
        android:text="UPDATE"
        android:id="@+id/update"/>
</LinearLayout>
```

activity_delete.xml
```xml
<LinearLayout ..v..>
<TextView
        android:text="Update Table"/>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="ID"/>
        <EditText
            android:text=""
            android:id="@+id/id"
```

```xml
                android:inputType="number"/>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Name"/>
        <EditText
            android:text=""
            android:id="@+id/name" />
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Salary"/>
        <EditText
            android:text=""
            android:id="@+id/salary"
            android:inputType="number"
            />
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Gender"/>
        <RadioGroup
            android:id="@+id/gender">
            <RadioButton
                android:text="Male"
                android:id="@+id/male"/>
            <RadioButton
                android:text="Female"
                android:id="@+id/female"/>
        </RadioGroup>
    </LinearLayout>
    <LinearLayout
        android:orientation="horizontal">
        <TextView
            android:text="Department"
            android:id="@+id/dept"/>
        <Spinner
            android:id="@+id/dept_list"
            android:entries="@array/dept_list"/>
    </LinearLayout>
    <Button
        android:text="UPDATE"
        android:id="@+id/update"/>
```

```
</LinearLayout>
<TextView
        android:text="DELETE EMPLOYEE RECORD"
/>
    <EditText
        android:hint="ID"
        android:text=""
        android:id="@+id/id"/>
    <Button
        android:text="DELETE"
        android:id="@+id/delete"/>
</LinearLayout>
```

activity_retreive_id.xml

```
<LinearLayout ..v..>
    <TextView
        android:text="RETRIEVE EMPLOYEE RECORD"/>
    <EditText
        android:hint="ID"
        android:text=""
        android:id="@+id/id"/>
    <Button
        android:text="RETRIEVE"
        android:id="@+id/retrieve_id"/>
    <TextView
        android:id="@+id/result"/>
</LinearLayout>
```

activity_retreive_dept.xml

```
<LinearLayout ..v..>
    <TextView
        android:text="RETRIEVE EMPLOYEE RECORD"/>
    <Spinner
        android:hint="DEPT"
        android:entries="@array/dept_list"
        android:id="@+id/dept_id"/>
    <Button
        android:text="RETRIEVE"
        android:id="@+id/retrieve_id"/>
    <TextView
        android:id="@+id/result"/>
</LinearLayout>
```

MainActivity.java

```
    Button create,insert,update,delete,retrieve_id,retrieve_dept;
```

```java
    SQLiteDatabase db;

        create=findViewById(R.id.create);
        insert=findViewById(R.id.insert);
        update=findViewById(R.id.update);
        delete=findViewById(R.id.delete);
        retrieve_id=findViewById(R.id.retrieve_id);
        retrieve_dept=findViewById(R.id.retrieve_dept);
        db=openOrCreateDatabase("db",MODE_PRIVATE,null);
        create.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                db.execSQL("DROP TABLE IF EXISTS EMPLOYEES;");
                db.execSQL("CREATE TABLE EMPLOYEES(NAME VARCHAR(20)," +
                        "GENDER VARCHAR(20)," +
                        "ID VARCHAR(20)," +
                        "DEPT VARCHAR(20)," +
                        "SALARY VARCHAR(20));");
                Toast.makeText(getApplicationContext(), "Table Created!",
Toast.LENGTH_SHORT).show();
            }
        });
        insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(getApplicationContext(),Insert.class);
                MainActivity.this.startActivity(i);
            }
        });
        update.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(getApplicationContext(),Update.class);
                MainActivity.this.startActivity(i);
            }
        });
        delete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(getApplicationContext(),Delete.class);
                MainActivity.this.startActivity(i);
            }
        });
        retrieve_id.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(getApplicationContext(),Retrieve_id.class);
```

```
                MainActivity.this.startActivity(i);
            }
        });
        retrieve_dept.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(getApplicationContext(),Retrieve_dept.class);
                MainActivity.this.startActivity(i);
            }
        });
    }
}
```

Insert.java

```
    Button ins;
    EditText id,name,salary;
    RadioGroup gender;
    RadioButton male,female,sel;
    Spinner dept_list;
    SQLiteDatabase db;

        db=openOrCreateDatabase("db",MODE_PRIVATE,null);
        ins=findViewById(R.id.ins);
        id=findViewById(R.id.id);
        name=findViewById(R.id.name);
        salary=findViewById(R.id.salary);
        gender=findViewById(R.id.gender);
        male=findViewById(R.id.male);
        female=findViewById(R.id.female);
        dept_list=findViewById(R.id.dept_list);

        ins.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String msg="";
                if(!id.getText().toString().matches("[A-Za-z0-9]+")) msg+="ID
error!";
                if(!name.getText().toString().matches("[A-Za-z]+")) msg+="Name
error!";
                if(!salary.getText().toString().matches("[0-9]+")) msg+="Salary
error!";
                if(gender.getCheckedRadioButtonId()==-1) msg+="Select gender!";
                else sel=findViewById(gender.getCheckedRadioButtonId());
                if(msg.equals("")){
                    msg="Inserted!";
                    db.execSQL("INSERT INTO EMPLOYEES VALUES(?,?,?,?,?);",
```

```
                                new
String[]{name.getText().toString(),sel.getText().toString(),
                                id.getText().toString(),
dept_list.getSelectedItem().toString(),
                                salary.getText().toString()});
                }
                Toast.makeText(getApplicationContext(), msg,
Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

Update.java

```
    Button update;
    EditText id,name,salary;
    RadioGroup gender;
    RadioButton male,female,sel;
    Spinner dept_list;
    SQLiteDatabase db;

        db=openOrCreateDatabase("db",MODE_PRIVATE,null);
        update=findViewById(R.id.update);
        id=findViewById(R.id.id);
        name=findViewById(R.id.name);
        salary=findViewById(R.id.salary);
        gender=findViewById(R.id.gender);
        male=findViewById(R.id.male);
        female=findViewById(R.id.female);
        dept_list=findViewById(R.id.dept_list);

        update.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String msg="";
                if(!name.getText().toString().matches("[A-Za-z]+")) msg+="Name
error!";
                if(!salary.getText().toString().matches("[0-9]+")) msg+="Salary
error!";
                if(gender.getCheckedRadioButtonId()==-1) msg+="Select gender!";
                else sel=findViewById(gender.getCheckedRadioButtonId());
                Cursor c=db.rawQuery("SELECT * FROM EMPLOYEES WHERE ID=?;",new
String[]{id.getText().toString()});
                if(!id.getText().toString().matches("[A-Za-z0-9]+") || !((Cursor)
c).moveToNext()){
                    msg="ID error or doesn't exist!!";
```

```
                }
                else if(msg.equals("")){
                    msg="Updated!";
                    db.execSQL("UPDATE EMPLOYEES SET
NAME=?,GENDER=?,DEPT=?,SALARY=? WHERE ID=?;", new
String[]{name.getText().toString(),sel.getText().toString(),dept_list.getSelectedIt
em().toString(), salary.getText().toString() ,id.getText().toString()});
                }
                Toast.makeText(getApplicationContext(), msg,
Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

Delete.java

```
    EditText idd;
    Button delete;
    SQLiteDatabase db;

        idd=findViewById(R.id.id);
        delete=findViewById(R.id.delete);
        db=openOrCreateDatabase("db",MODE_PRIVATE,null);

        delete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String id= idd.getText().toString();
                Cursor c=db.rawQuery("SELECT * FROM EMPLOYEES WHERE ID=?;",
                        new String[]{id});
                if(!c.moveToNext()){
                    Toast.makeText(getApplicationContext(), "Doesn't exist",
Toast.LENGTH_SHORT).show();
                }else{
                    db.execSQL("DELETE FROM EMPLOYEES WHERE ID=?;",new
String[]{id});
                    Toast.makeText(getApplicationContext(), "Deleted!",
Toast.LENGTH_SHORT).show();
                }
            }
        });

    }
}
```

Retreive_id.java

```java
    Button retreive_id;
    TextView result;
    EditText idd;
    SQLiteDatabase db;
        retreive_id=findViewById(R.id.retreive_id);
        result=findViewById(R.id.result);
        idd=findViewById(R.id.id);
        db=openOrCreateDatabase("db",MODE_PRIVATE,null);

        retreive_id.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String id=idd.getText().toString();
                Cursor rs=db.rawQuery("SELECT * FROM EMPLOYEES WHERE ID=?;",new
String[]{id});
                rs.moveToFirst();
                try{
                    result.setText(rs.getString(0)+" "+rs.getString(1)+"
"+rs.getString(2)+" "
                    +rs.getString(3)+" "+rs.getString(4));
                }
                catch (Exception ex){

                    result.setText("No such Employee!!");
                    ex.printStackTrace();
                }
            }
        });
    }
}
```

Retreive_dept.java

```java
    Button retreive_id;
    TextView result;
    Spinner dept_id;
    SQLiteDatabase db;
        retreive_id=findViewById(R.id.retreive_id);
        result=findViewById(R.id.result);
        dept_id=findViewById(R.id.dept_id);
        db=openOrCreateDatabase("db",MODE_PRIVATE,null);
        retreive_id.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String dept=dept_id.getSelectedItem().toString();
```

```
                Cursor rs=db.rawQuery("SELECT * FROM EMPLOYEES WHERE DEPT=?;",new
String[]{dept});
                String msg="";
                try{
                    while(rs.moveToNext()) {
                        msg += rs.getString(0) + " " + rs.getString(1) + " " +
rs.getString(2) + " "
                            + rs.getString(3) + " " + rs.getString(4)+"     ";
                    }
                    result.setText(msg);
                    if(msg.equals("")){
                        result.setText("No such employee!");
                    }
                }
                catch (Exception ex){
                    ex.printStackTrace();
                }
            }
        });
    }
}
```

EX5

activity_main.xml

```
<LinearLayout ..v..>
 <ProgressBar
        style="@style/Widget.AppCompat.ProgressBar.Horizontal"
        android:id="@+id/p"
        tools:ignore="InvalidId"/>
    <TextView
        android:text="0%"
        android:id="@+id/tv"/>
    <Button
        android:text="START"
        android:id="@+id/start"/>
</LinearLayout>
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity {
    Button start;
    TextView tv;
    ProgressBar p;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```java
        setContentView(R.layout.activity_main);
        start=findViewById(R.id.start);
        tv=findViewById(R.id.tv);
        p=findViewById(R.id.p);

        start.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Thread t=new Thread(new Runnable() {
                    @Override
                    public void run() {
                        check();
                    }
                });
                t.start();
            }
        });
    }
    public void check(){
        p.setProgressTintList(ColorStateList.valueOf(Color.YELLOW));
        for(int i=0;i<=100;i++){
            p.setProgress(i);
            if(i==25){
                p.setProgressTintList(ColorStateList.valueOf(Color.BLACK));
            }
            if(i==50){
                p.setProgressTintList(ColorStateList.valueOf(Color.BLUE));
            }
            if(i==75){
                p.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
            }
            int finalI = i;
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    tv.setText(String.valueOf(finalI)+"%");
                }
            });
            try{
                Thread.sleep(250);
            }
            catch(Exception e){
                e.printStackTrace();
            }
        }
    }
}
```

EX 6.1

Manifest add permissions
```
<uses-permission android:name="android.permission.INTERNET"/>
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
```

MainActivity.java

```java
public class MainActivity extends AppCompatActivity implements LocationListener{
    Button coord;
    TextView lat, lon;
    LocationManager lmanager;
    String provider;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        coord = findViewById(R.id.coord);
        lat = findViewById(R.id.lat);
        lon = findViewById(R.id.lon);
        coord.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                lmanager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);
                Criteria criteria = new Criteria();
                provider = lmanager.getBestProvider(criteria,false);
                if (provider != null && !provider.equals("")) {

                    if (ActivityCompat.checkSelfPermission(MainActivity.this,
Manifest.permission.ACCESS_FINE_LOCATION) != PackageManager.PERMISSION_GRANTED &&
ActivityCompat.checkSelfPermission(MainActivity.this,
Manifest.permission.ACCESS_COARSE_LOCATION) != PackageManager.PERMISSION_GRANTED) {
                        // TODO: Consider calling
                        //    ActivityCompat#requestPermissions
                        //here to request the missing permissions, and then overriding
    //public void onRequestPermissionsResult(int requestCode, String[] permissions,
                        //   int[] grantResults)
 // to handle the case where the user grants the permission. See the documentation
                        // for ActivityCompat#requestPermissions for more details.
                        return;
                    }
                    Location location = lmanager.getLastKnownLocation(provider);
                    lmanager.requestLocationUpdates(provider, 20000, 1,
(LocationListener) MainActivity.this);
                    if(location!=null){
                        onLocationChanged(location);
```

```java
                    }else{
                        Toast.makeText(MainActivity.this, "Location not available",
Toast.LENGTH_SHORT).show();
                    }
                }else{
                    Toast.makeText(MainActivity.this, "No provider Found",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
    @Override
    public void onLocationChanged(@NonNull Location location) {

            TextView lat=(TextView)findViewById(R.id.lat);
            TextView lon=(TextView)findViewById(R.id.lon);
            lat.setText("Latitude :"+location.getLatitude());
            lon.setText("Longitude :"+location.getLongitude());
        }
    @Override
    public void onLocationChanged(@NonNull List<Location> locations) {}
    @Override
    public void onFlushComplete(int requestCode) {}
    @Override
    public void onStatusChanged(String provider, int status, Bundle extras) {}
    @Override
    public void onProviderEnabled(@NonNull String provider) {}
    @Override
    public void onProviderDisabled(@NonNull String provider) {}
    @Override
    public void onPointerCaptureChanged(boolean hasCapture) {}
    }
```

activity_main.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text="Latitude:"
        android:id="@+id/lat"
        tools:ignore="InvalidId"/>
    <TextView
        android:text="Longitude:"
        android:id="@+id/lon"
        tools:ignore="InvalidId"/>
    <Button
        android:text="GET COORDINATES"
        android:id="@+id/coord"/>
</LinearLayout>
```

EX6.2

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    Button coord;
    TextView lat,lon;
    EditText place;
    double latitude,longitude;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        place=(EditText)findViewById(R.id.place);
        coord=(Button)findViewById(R.id.coord);
        lat=(TextView)findViewById(R.id.lat);
        lon=(TextView)findViewById(R.id.lon);
        coord.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Geocoder geocoder=new Geocoder(getBaseContext(),
Locale.getDefault());
                List<Address> address;
                try {
                address=geocoder.getFromLocationName(place.getText().toString(),1);
                    if(address.size()>=0){
                        latitude=address.get(0).getLatitude();
                        longitude=address.get(0).getLongitude();
                        lat.setText("Latitude:"+latitude);
                        lon.setText("Longitude:"+longitude);
                    }
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });
    }
}
```

activity_main.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text="Place Location"/>
    <EditText
        android:text=""
        android:hint="Enter place name"
        android:id="@+id/place"/>
    <Button
```

```
        android:text="GET COORDINATES"
        android:id="@+id/coord"/>
    <TextView
        android:text="Latitude:"
        android:id="@+id/lat"
        tools:ignore="InvalidId"/>
    <TextView
        android:text="Longitude:"
        android:id="@+id/lon"
        tools:ignore="InvalidId"/>
</LinearLayout>
```

EX7

Manifest add permissions

```
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
<uses-permission android:name="android.permission.READ_INTERNAL_STORAGE"/>
<uses-permission android:name="android.permission.WRITE_INTERNAL_STORAGE"/>
<uses-permission android:name="android.permission.MANAGE_EXTERNAL_STORAGE"/>
```

MainActivity.java

```java
import static android.Manifest.permission.ACCESS_FINE_LOCATION;
public class MainActivity extends AppCompatActivity {
    EditText filetext,filename,filename2;
    Button read,write;
    TextView file_con;
    String fn,text_con;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        filetext=findViewById(R.id.filetext);
        filename=findViewById(R.id.filename);
        filename2=findViewById(R.id.filename2);
        read=findViewById(R.id.read);
        write=findViewById(R.id.write);
        file_con=findViewById(R.id.file_con);
        write.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                fn=filename.getText().toString();
                text_con=filetext.getText().toString();
                File f=new
File(Environment.getExternalStorageDirectory().toString()+"/"+fn);
                //Nexus 6 API 30
                //File f=new File("/mnt/extSdCard"+"/"+fn);
                //Toast.makeText(MainActivity.this, fn,
Toast.LENGTH_SHORT).show();
                try {
```

```java
                        //Toast.makeText(MainActivity.this, "testt",
Toast.LENGTH_SHORT).show();
                        f.createNewFile();
                        //Toast.makeText(MainActivity.this, "testt",
Toast.LENGTH_SHORT).show();
                        FileOutputStream fos=new FileOutputStream(f);
                        OutputStreamWriter mout=new OutputStreamWriter(fos);
                        mout.append(text_con);
                        mout.close();
                        fos.close();
                        Toast.makeText(MainActivity.this, "Data written to SD
card", Toast.LENGTH_SHORT).show();
                    } catch (IOException e) {
                        e.printStackTrace();
                    }
                }
            });
        read.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                File f=new File("/sdcard/"+filename2.getText().toString());
                try {
                    FileInputStream fin=new FileInputStream(f);
                    BufferedReader bf=new BufferedReader(new
InputStreamReader(fin));
                    String drow="",dbuf="";
                    while((drow=bf.readLine())!=null){
                        dbuf+=drow+"\n";
                    }
                    file_con.setText(dbuf);
                    bf.close();
                    fin.close();
                } catch (FileNotFoundException e) {
                    e.printStackTrace();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        });
    }
}
```

activity_main.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text="Enter file contents"
        />
    <EditText
        android:id="@+id/filetext"/>
```

```xml
    <TextView
        android:text="Enter file name:"
        />
    <EditText
        android:id="@+id/filename"/>
    <Button
        android:text="WRITE"
        android:id="@+id/write"
        />
    <TextView
        android:text="Enter file name:"
        />
    <EditText
        android:id="@+id/filename2"/>
    <Button
        android:text="READ"
        android:id="@+id/read"
        />
    <TextView
        android:text=""
        android:id="@+id/file_con"
        />
</LinearLayout>
```

EX9

Add food_items as string_array in values.xml

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    Spinner food_spinner;
    TextView tv;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        food_spinner=findViewById(R.id.food_spinner);
        tv=findViewById(R.id.tv);

        ArrayAdapter<CharSequence> adapter=ArrayAdapter.createFromResource(this,
                R.array.food_item,android.R.layout.simple_spinner_item);
adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        food_spinner.setAdapter(adapter);
        food_spinner.setOnItemSelectedListener(new
AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> adapterView, View view, int
i, long l) {
```

```java
                String item = adapterView.getItemAtPosition(i).toString();
                Toast.makeText(MainActivity.this, item, Toast.LENGTH_SHORT).show();
                if (item.equals("Rasagulla")) {
                    Intent f = new Intent(MainActivity.this, Rasagulla.class);
                    startActivity(f);
                }
                if (item.equals("GulabJamun")) {
                    Intent j = new Intent(MainActivity.this, Gulab_jamun.class);
                    startActivity(j);
                }
                if (item.equals("Panipuri")) {
                    Intent k = new Intent(MainActivity.this, Pani_puri.class);
                    startActivity(k);
                }
                if (item.equals("Momos")) {
                    Intent m = new Intent(MainActivity.this, Momos.class);
                    startActivity(m);
                }
            }
            @Override
            public void onNothingSelected(AdapterView<?> adapterView) {
            }
        });

    }
}
```

activity_main.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text="Select food item:"
        android:id="@+id/tv"/>
    <Spinner
        android:entries="@array/food_item"
        android:id="@+id/food_spinner"
        />
</LinearLayout>
```

activity_rasagulla.xml

```xml
<LinearLayout ..v..>
<TextView
        android:text="Rasagulla is white gulab jamun"/>
</LinearLayout>
```

EX11

MainActivity.java

```java
    Button btn;
    WebView wv;
        btn=findViewById(R.id.btn);
        wv=findViewById(R.id.wv);
        String content="<html><head>This is head</head>" +
                "<h1>header 1</h1>" +
                "<body>THis is body text</body>" +
                "</html>";
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                wv.loadData(content,"text/html","UTF-8");
            }
        });
    }
}
```

activity_main.xml

```xml
<LinearLayout ..v..>
<Button
        android:text="Click"
        android:id="@+id/btn"/>
    <WebView
        android:id="@+id/wv"/>
</LinearLayout>
```