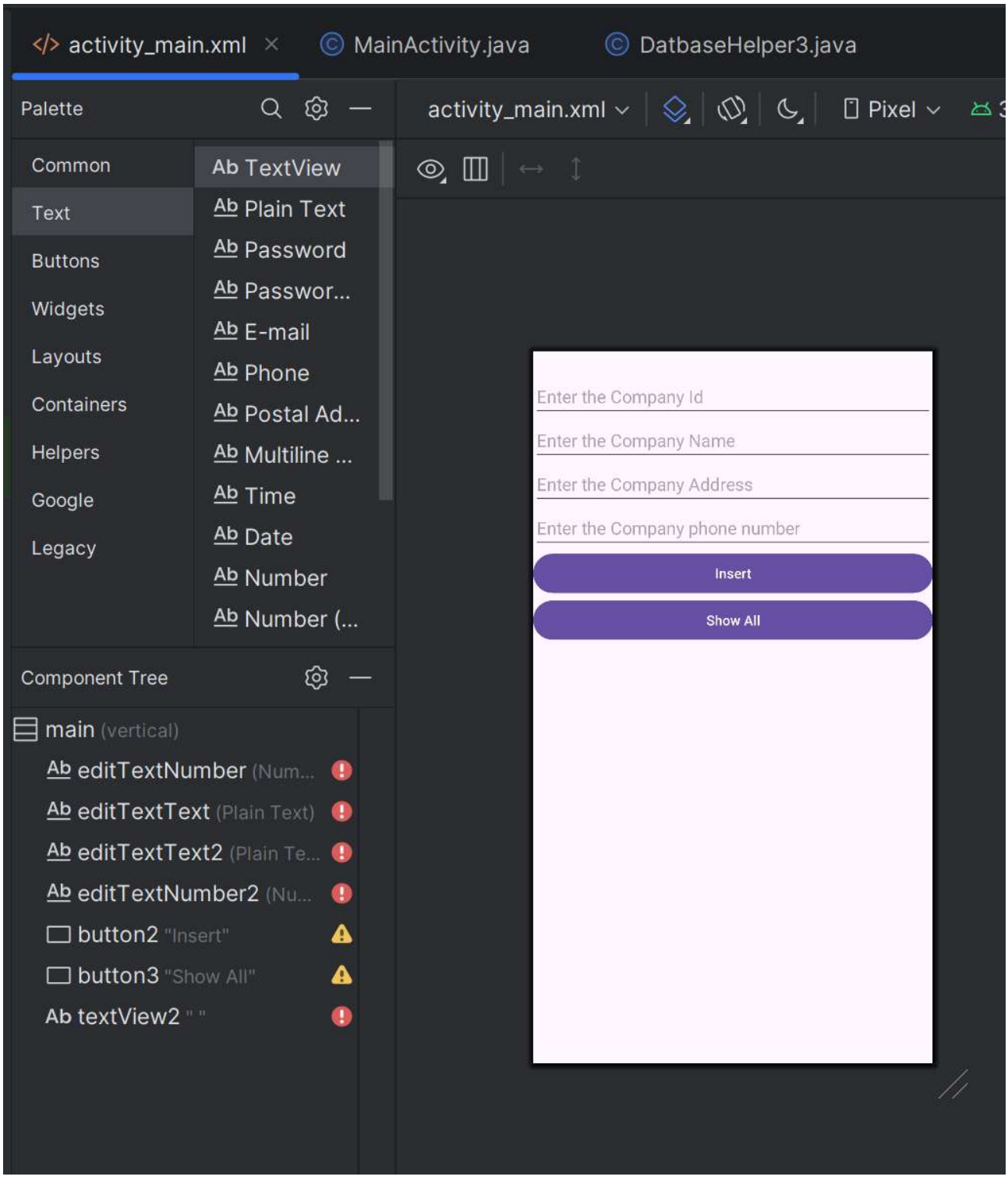
Android Programming Assignment 4

SET A :-

Q1) Create table Company (id, name, address, phno). Create Application for performing the following operation on the table
i) Insert New Company Details
ii) Show All the Company Details

UI Design :



Code:

MainActivity.java :-

```
package com.example.experiment;
import android.database.Cursor; import android.database.DatabaseUtils;
import android.database.sqlite.SQLiteOpenHelper;
import android.os.Bundle; import android.view.View;
import android.widget.Button; import android.widget.EditText;
import android.widget.TextView; import android.widget.Toast;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets; import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

    EditText id,name,add,num;
    Button insert,show;
    TextView result;
    DatbaseHelper3 dbHelper;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);

        id = findViewById(R.id.editTextNumber);
        name = findViewById(R.id.editTextText);
        add = findViewById(R.id.editTextText2);
        num = findViewById(R.id.editTextNumber2);
        insert = findViewById(R.id.button2);
        show = findViewById(R.id.button3);
        result = findViewById(R.id.textView2);

        dbHelper = new DatbaseHelper3(this);

        insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                insertCompany();
            }
        });
```

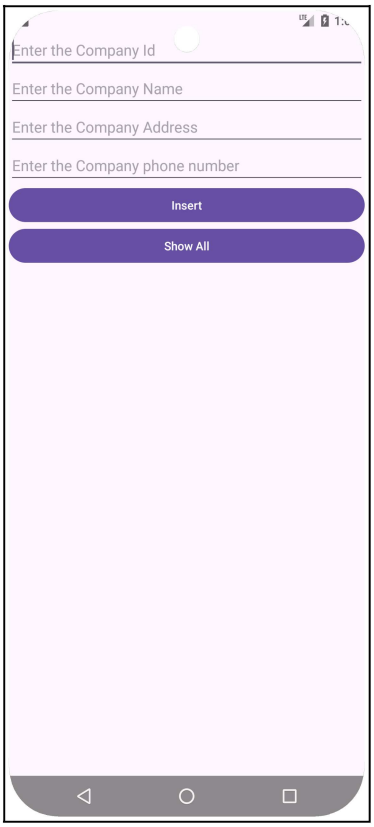
```
        show.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                showData();

            }
        });

    }

    private void insertCompany(){
        String Cid = id.getText().toString();
        String cname = name.getText().toString();
        String address = add.getText().toString();
        String phone = num.getText().toString();

        if (!Cid.isEmpty() && !cname.isEmpty() && !address.isEmpty() && !
phone.isEmpty()){
            boolean inserted = dbHelper.insertData(Cid,cname,address,phone);

            if (inserted){
                Toast.makeText(this, "Data inserted successfully",
Toast.LENGTH_SHORT).show();
            }
            else {
                Toast.makeText(this, "Insertion Failed", Toast.LENGTH_SHORT).show();
            }



        }
        else {
            Toast.makeText(this, "Please fill all fields", Toast.LENGTH_SHORT).show();
        }

    }
```

```
  private void showData(){
     Cursor cursor = dbHelper.getReadableDatabase().rawQuery("SELECT * FROM
Company",null);

     if (cursor.getCount() == 0){
        result.setText("No Data Found");
        return;
     }

     StringBuilder data = new StringBuilder();
     while (cursor.moveToNext()){
        data.append("ID: ").append(cursor.getString(0)).append("\n");
        data.append("Name: ").append(cursor.getString(1)).append("\n");
        data.append("Address: ").append(cursor.getString(2)).append("\n");
        data.append("Phone: ").append(cursor.getString(3)).append("\n");

     }
     cursor.close();
     result.setText(data.toString());

  }

}
```

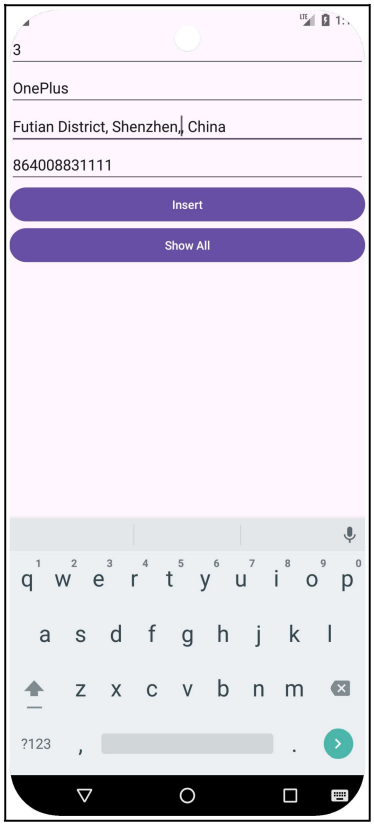
DatbaseHelper2.java :-

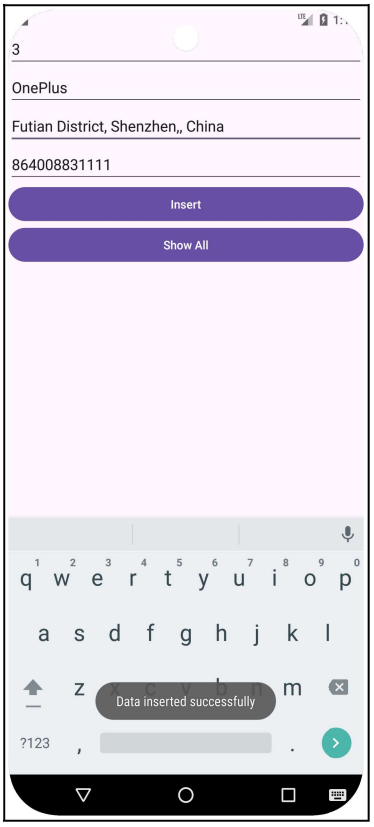
```
package com.example.experiment;

import android.content.ContentValues;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DatbaseHelper3 extends SQLiteOpenHelper {
    private static final String DB_NAME = "CompanyDB";
    private static final int DB_VERSION = 1;
    private static final String TABLE_NAME = "Company";

    private static final String CREATE_TABLE = "CREATE TABLE "
+TABLE_NAME+"(id TEXT PRIMARY KEY,name TEXT,address TEXT,phone
TEXT)";

    public DatbaseHelper3(Context con){
        super(con,DB_NAME,null,DB_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL(CREATE_TABLE);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {

        db.execSQL("DROP TABLE IF EXISTS "+TABLE_NAME);
        onCreate(db);

    }
 public boolean insertData(String id,String name,String address,String phone){
        SQLiteDatabase db = this.getWritableDatabase();
     ContentValues values = new ContentValues();
     values.put("id",id);
     values.put("name",name);
     values.put("address",address);
     values.put("phone",phone);
     long result = db.insert(TABLE_NAME,null,values);
     return result != -1;
    }
}
```

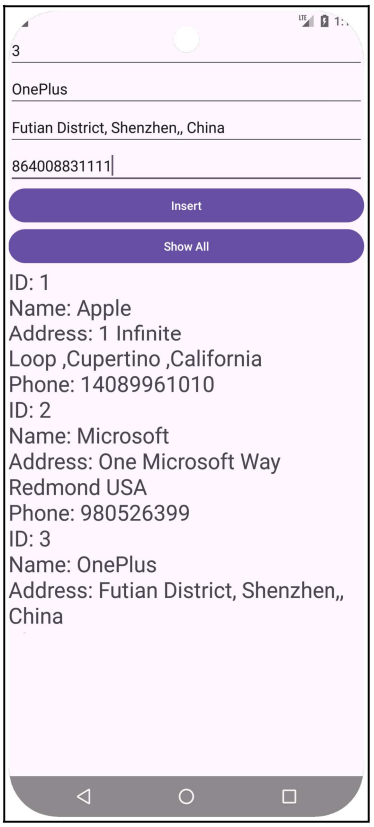
Output


Enter the Company Id
Enter the Company Name
Enter the Company Address
Enter the Company phone number
Insert
Show All


Enter the Company Id
Enter the Company Name
Enter the Company Address
Enter the Company phone number
Insert
Show All
Please fill all fields

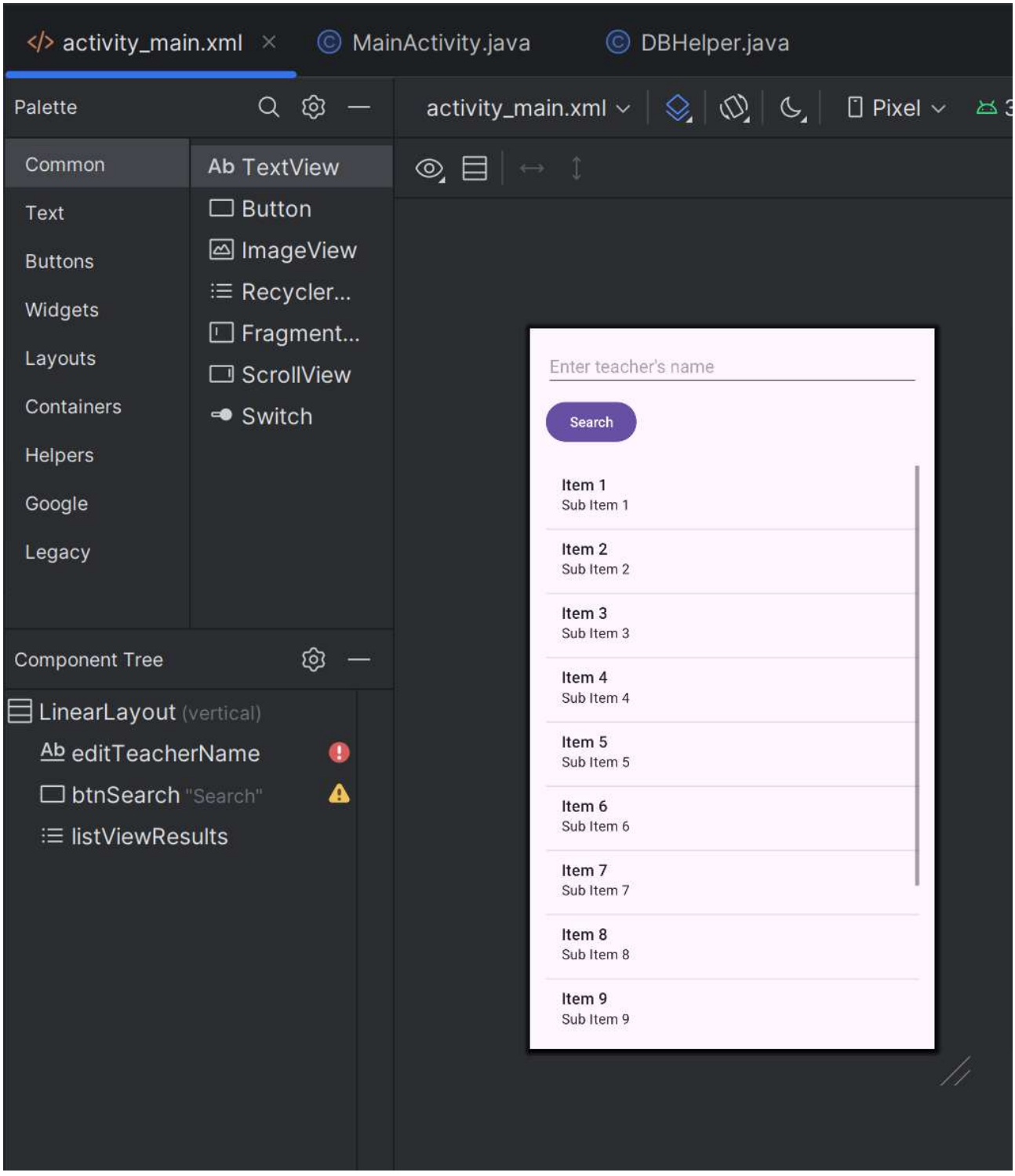

3
OnePlus
Futian District, Shenzhen,, China
864008831111
Insert
Show All


3
OnePlus
Futian District, Shenzhen,, China
864008831111
Insert
Show All
Data inserted successfully


3
OnePlus
Futian District, Shenzhen,, China
864008831111
Insert
Show All
ID: 1
Name: Apple
Address: 1 Infinite
Loop ,Cupertino ,California
Phone: 14089961010
ID: 2
Name: Microsoft
Address: One Microsoft Way
Redmond USA
Phone: 980526399
ID: 3
Name: OnePlus
Address: Futian District, Shenzhen,,
China

Q2) Create table :-
Student (sno , s_name,s_class,s_addr)
Teacher (tno, t_name, qualification, experience)
Student-Teacher has many to many relationship.
Using above database Write Application to accept a teacher name from user and display the names of students along with subjects to whom teacher is teaching

UI Design :



MainActivity.java :-

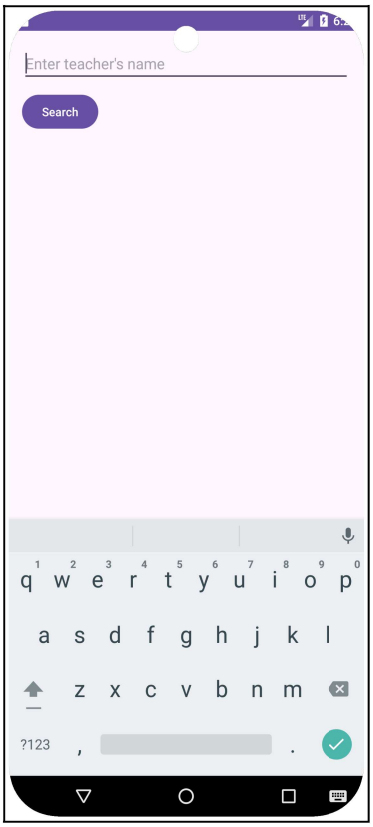
```
package com.example.experiment;

import android.os.Bundle; import android.view.View;
import android.widget.ArrayAdapter; import android.widget.Button;
import android.widget.EditText; import android.widget.ListView;
import android.widget.Toast; import androidx.appcompat.app.AppCompatActivity;
import java.util.List;

public class MainActivity extends AppCompatActivity {
   private EditText editTeacherName;  private Button btnSearch;
   private ListView listViewResults;   private DBHelper dbHelper;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      editTeacherName = findViewById(R.id.editTeacherName);
      btnSearch = findViewById(R.id.btnSearch);
      listViewResults = findViewById(R.id.listViewResults);
      dbHelper = new DBHelper(this);

      btnSearch.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            String teacher = editTeacherName.getText().toString().trim();
            if (teacher.isEmpty()) {
               Toast.makeText(MainActivity.this, "Enter teacher name",
Toast.LENGTH_SHORT).show();
               return;
            }
            List<String> results = dbHelper.getStudentSubjectForTeacher(teacher);
            if (results.isEmpty()) {
               Toast.makeText(MainActivity.this, "No records found for " + teacher,
Toast.LENGTH_SHORT).show();
               listViewResults.setAdapter(null);
            } else {
               listViewResults.setAdapter(new ArrayAdapter<>(MainActivity.this,
                     android.R.layout.simple_list_item_1, results));
            }
         }
      });
   }  }
```

DBHelper.java

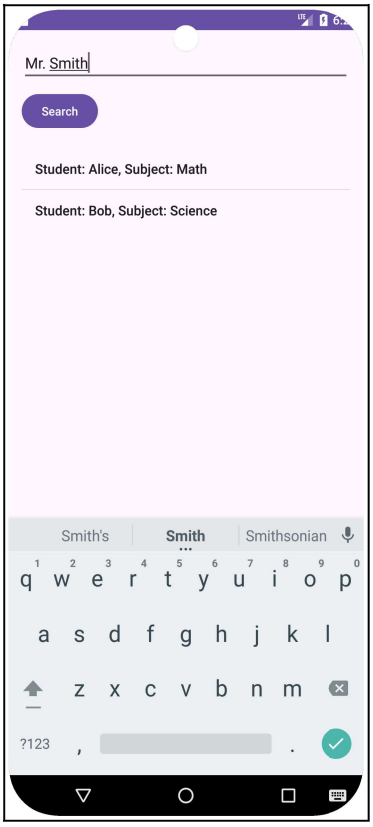
```
package com.example.experiment;

import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import java.util.ArrayList;
import java.util.List;

public class DBHelper extends SQLiteOpenHelper {
    public DBHelper(Context context) {
        super(context, "school.db", null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("CREATE TABLE Student(sno INTEGER PRIMARY KEY
AUTOINCREMENT, s_name TEXT, s_class TEXT, s_addr TEXT)");
        db.execSQL("CREATE TABLE Teacher(tno INTEGER PRIMARY KEY
AUTOINCREMENT, t_name TEXT, qualification TEXT, experience INTEGER)");
        db.execSQL("CREATE TABLE StudentTeacher(id INTEGER PRIMARY KEY
AUTOINCREMENT, sno INTEGER, tno INTEGER, subject TEXT, " +
                "FOREIGN KEY(sno) REFERENCES Student(sno), FOREIGN KEY(tno)
REFERENCES Teacher(tno))");

        db.execSQL("INSERT INTO Student(s_name, s_class, s_addr)
VALUES('Alice', '10th', 'Address1')");
        db.execSQL("INSERT INTO Student(s_name, s_class, s_addr) VALUES('Bob',
'10th', 'Address2')");
        db.execSQL("INSERT INTO Teacher(t_name, qualification, experience)
VALUES('Mr. Smith', 'M.Sc', 10)");
        db.execSQL("INSERT INTO Teacher(t_name, qualification, experience)
VALUES('Mrs. Johnson', 'M.A', 8)");
        db.execSQL("INSERT INTO StudentTeacher(sno, tno, subject) VALUES(1, 1,
'Math')");
        db.execSQL("INSERT INTO StudentTeacher(sno, tno, subject) VALUES(2, 1,
'Science')");
        db.execSQL("INSERT INTO StudentTeacher(sno, tno, subject) VALUES(1, 2,
'History')");
    }
```

```
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS StudentTeacher");
        db.execSQL("DROP TABLE IF EXISTS Teacher");
        db.execSQL("DROP TABLE IF EXISTS Student");
        onCreate(db);
    }

    public List<String> getStudentSubjectForTeacher(String teacherName) {
        List<String> list = new ArrayList<>();
        SQLiteDatabase db = getReadableDatabase();
        Cursor cursor = db.rawQuery(
                "SELECT s.s_name, st.subject FROM Teacher t " +
                        "INNER JOIN StudentTeacher st ON t.tno = st.tno " +
                        "INNER JOIN Student s ON s.sno = st.sno " +
                        "WHERE t.t_name = ?", new String[]{teacherName});

        while (cursor.moveToNext()) {
            list.add("Student: " + cursor.getString(0) + ", Subject: " + cursor.getString(1));
        }
        cursor.close();
        db.close();
        return list;
    }
}
```

Output


Enter teacher's name
Search

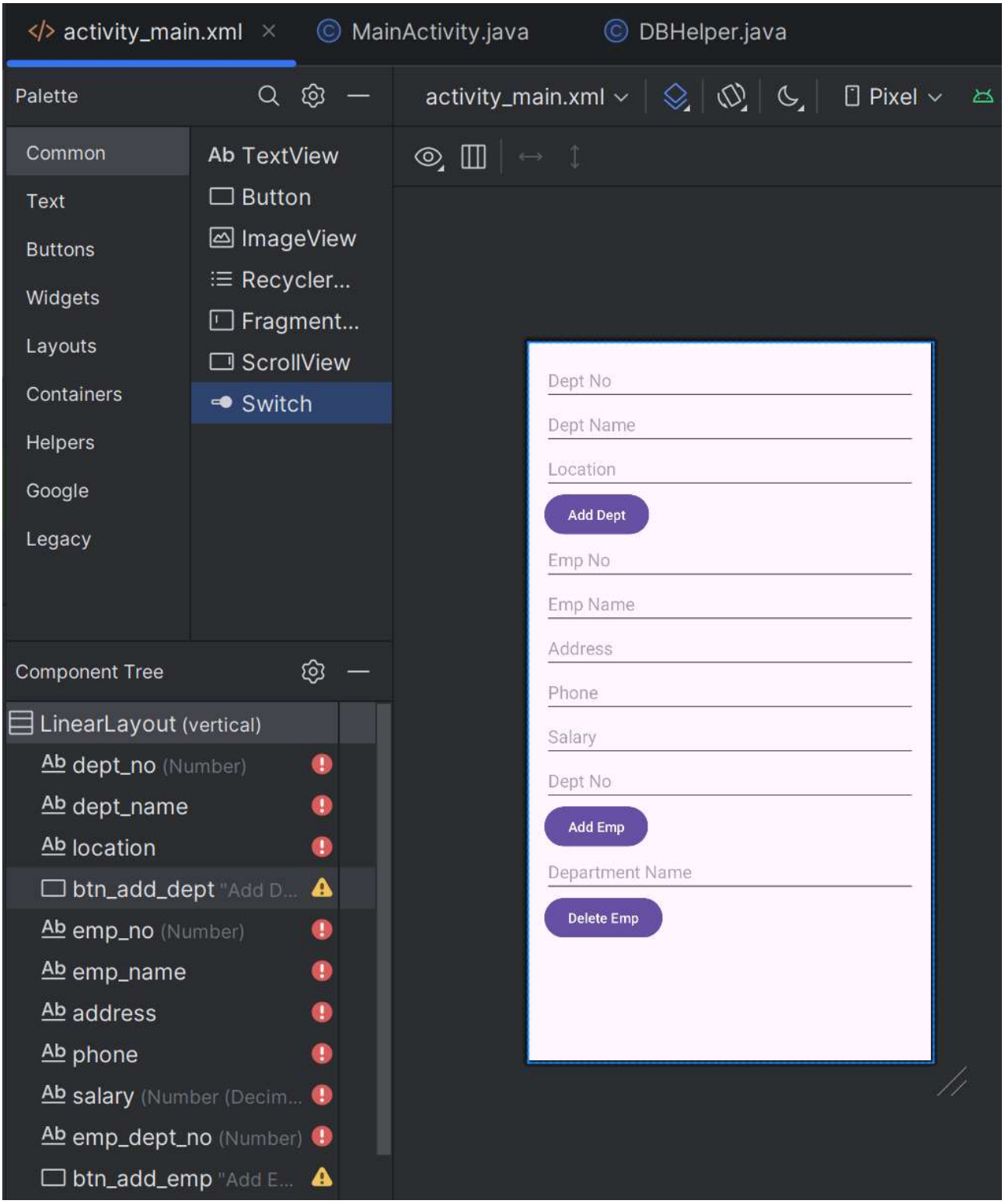

Enter teacher's name
Search
Enter teacher name


Mr. Smith
Search
Student: Alice, Subject: Math
Student: Bob, Subject: Science

Q3) Create Following Table:
Emp (emp_no,emp_name,address,phone,salary)
Dept (dept_no,dept_name,location)

Emp-Dept is related with one-many relationship.
Create application for performing the following Operation on the table
1) Add Records into Emp and Dept table.
2) Accept Department name from User and delete employee information which belongs to that department.

UI Design :



XML :

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

   <!-- Department Section -->
   <EditText
      android:id="@+id/dept_no"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Dept No"
      android:inputType="number" />

   <EditText
      android:id="@+id/dept_name"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Dept Name" />

   <EditText
      android:id="@+id/location"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Location" />

   <Button
      android:id="@+id/btn_add_dept"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Add Dept" />

   <!-- Employee Section -->
   <EditText
      android:id="@+id/emp_no"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Emp No"
      android:inputType="number" />
```

```
<EditText
   android:id="@+id/emp_name"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Emp Name" />

<EditText
   android:id="@+id/address"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Address" />

<EditText
   android:id="@+id/phone"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Phone" />

<EditText
   android:id="@+id/salary"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Salary"
   android:inputType="numberDecimal" />

<EditText
   android:id="@+id/emp_dept_no"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Dept No"
   android:inputType="number" />

<Button
   android:id="@+id/btn_add_emp"
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:text="Add Emp" />


 <EditText
   android:id="@+id/del_dept_name"
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:hint="Department Name" />
```

```
    <Button
        android:id="@+id/btn_delete"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Delete Emp" />

</LinearLayout>
```

MainActivity.java :-

```
package com.example.experiment;



import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    DBHelper db;
    EditText etDeptNo, etDeptName, etLocation, etEmpNo, etEmpName, etAddress,
etPhone, etSalary, etEmpDeptNo, etDelDept;
    Button btnAddDept, btnAddEmp, btnDelete;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        db = new DBHelper(this);

        // Bind Dept views
        etDeptNo    = findViewById(R.id.dept_no);
        etDeptName  = findViewById(R.id.dept_name);
        etLocation  = findViewById(R.id.location);
        btnAddDept  = findViewById(R.id.btn_add_dept);
```

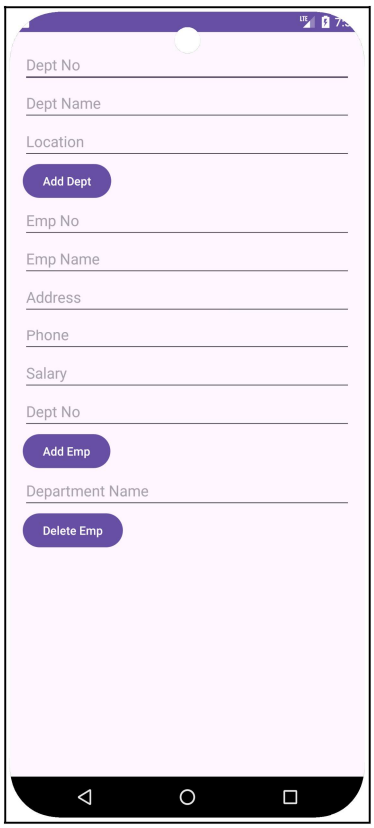
```
 // Bind Emp views
        etEmpNo     = findViewById(R.id.emp_no);
        etEmpName   = findViewById(R.id.emp_name);
        etAddress   = findViewById(R.id.address);
        etPhone     = findViewById(R.id.phone);
        etSalary    = findViewById(R.id.salary);
        etEmpDeptNo = findViewById(R.id.emp_dept_no);
        btnAddEmp   = findViewById(R.id.btn_add_emp);

        // Bind Delete views
        etDelDept   = findViewById(R.id.del_dept_name);
        btnDelete   = findViewById(R.id.btn_delete);

        btnAddDept.setOnClickListener(v -> {
            int dno = Integer.parseInt(etDeptNo.getText().toString());
            db.addDept(dno, etDeptName.getText().toString(),
etLocation.getText().toString());
            Toast.makeText(this, "Department added", Toast.LENGTH_SHORT).show();
        });

        btnAddEmp.setOnClickListener(v -> {
            int eno = Integer.parseInt(etEmpNo.getText().toString());
            double sal = Double.parseDouble(etSalary.getText().toString());
            int dno = Integer.parseInt(etEmpDeptNo.getText().toString());
            db.addEmp(eno, etEmpName.getText().toString(),
etAddress.getText().toString(), etPhone.getText().toString(), sal, dno);
            Toast.makeText(this, "Employee added", Toast.LENGTH_SHORT).show();
        });

        btnDelete.setOnClickListener(v -> {
            String dept = etDelDept.getText().toString();
            db.deleteEmpByDept(dept);
            Toast.makeText(this, "Employees from " + dept + " deleted",
Toast.LENGTH_SHORT).show();
        });
    }
}
```

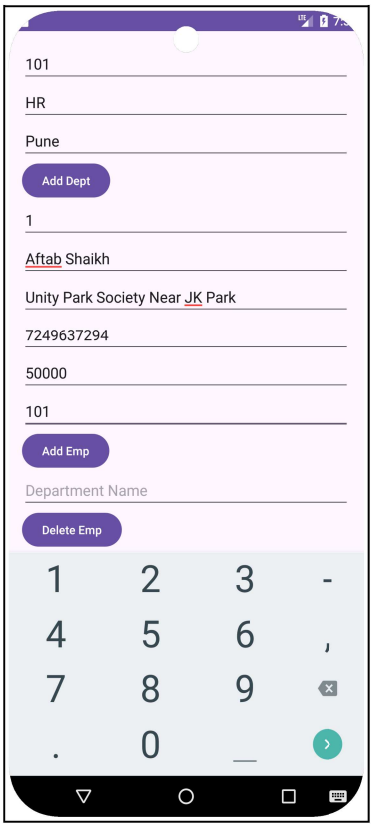
DBHelper.java :-

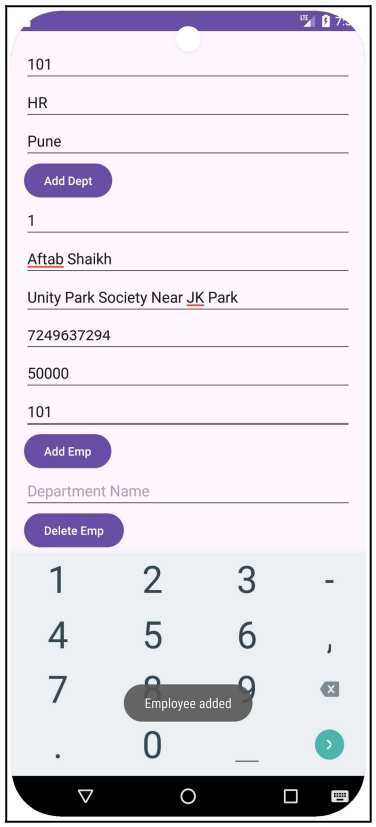
```
package com.example.experiment;



import android.content.ContentValues;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DBHelper extends SQLiteOpenHelper {
    public DBHelper(Context context) {
        super(context, "company.db", null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("CREATE TABLE Dept (dept_no INTEGER PRIMARY KEY,
dept_name TEXT, location TEXT)");
        db.execSQL("CREATE TABLE Emp (emp_no INTEGER PRIMARY KEY,
emp_name TEXT, address TEXT, phone TEXT, salary REAL, dept_no INTEGER,
FOREIGN KEY(dept_no) REFERENCES Dept(dept_no))");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS Emp");
        db.execSQL("DROP TABLE IF EXISTS Dept");
        onCreate(db);
    }

    public void addDept(int dno, String dname, String loc) {
        ContentValues cv = new ContentValues();
        cv.put("dept_no", dno);
        cv.put("dept_name", dname);
        cv.put("location", loc);
        getWritableDatabase().insert("Dept", null, cv);
    }
```

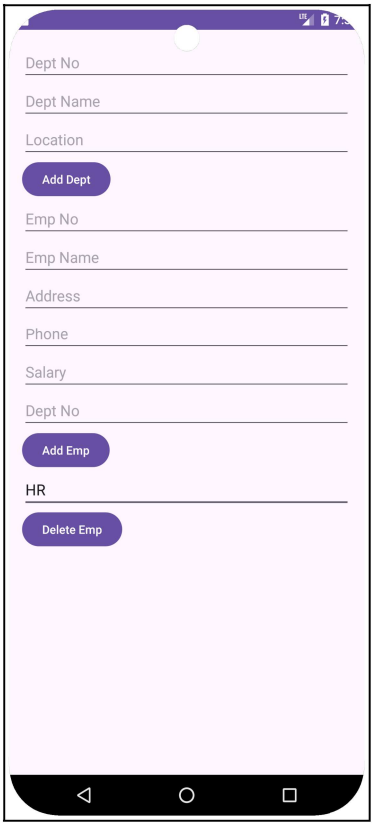
```
    public void addEmp(int eno, String ename, String addr, String phone, double sal,
int dno) {
        ContentValues cv = new ContentValues();
        cv.put("emp_no", eno);
        cv.put("emp_name", ename);
        cv.put("address", addr);
        cv.put("phone", phone);
        cv.put("salary", sal);
        cv.put("dept_no", dno);
        getWritableDatabase().insert("Emp", null, cv);
    }

    public void deleteEmpByDept(String deptName) {
        String sql = "DELETE FROM Emp WHERE dept_no IN (SELECT dept_no
FROM Dept WHERE dept_name=?)";
        getWritableDatabase().execSQL(sql, new String[]{deptName});
    }
}
```

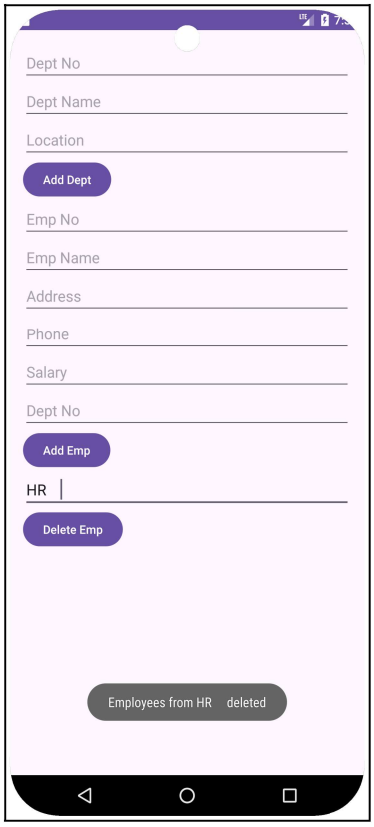
Output


Dept No
Dept Name
Location
Add Dept
Emp No
Emp Name
Address
Phone
Salary
Dept No
Add Emp
Department Name
Delete Emp


101
HR
Pune
Add Dept
1
Aftab Shaikh
Unity Park Society Near JK Park
7249637294
50000
101
Add Emp
Department Name
Delete Emp


101
HR
Pune
Add Dept
1
Aftab Shaikh
Unity Park Society Near JK Park
7249637294
50000
101
Add Emp
Department Name
Delete Emp
Employee added


Dept No
Dept Name
Location
Add Dept
Emp No
Emp Name
Address
Phone
Salary
Dept No
Add Emp
HR
Delete Emp


Dept No
Dept Name
Location
Add Dept
Emp No
Emp Name
Address
Phone
Salary
Dept No
Add Emp
HR
Delete Emp
Employees from HR deleted