

Experiment No. 4

Aim : WAA to design GUI component using database.

Theory :

Step 1 : Create a new project

Step 2 : Add permission to access storage in `AndroidManifest.xml` file.

Step 3 : Work on the `ActivityMain.xml` file
<Button> are UI components that uses intercrucial role in the user interface, serving as entry point for various functionalities within an app.

<EditText> is a versatile UI component for capturing user input. It allows users to enter text, numbers, data types making it a fundamental element for forms and data input scenarios.

Step 4 : Creating a new java class for performing SQLite operations.

Step 5 : Working with the `MainActivity.java` file.

- Database in Android:

- ⇒ In android, we make use of a different version of SQL databases. The database we use in native Android application is SQLite.
- In this experiment, we use one java file for insertion and another Java file for retrieval.
 - There is also a database helper file to facilitate CRUD operations.
 - We define a schema (model) for storing the user details in the database.
 - In this app, we take the details of a user via a form and save it in database for persistent storage.
 - Once we restart the app, the details remain in the database, are not erased and can be retrieved conveniently.

- Conclusion:

Hence, we had successfully created a form and stored the data in the database.

Jain (AT)

Code:

(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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <ScrollView
        android:id="@+id/sv_registration_form"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_margin="10dp"
            android:orientation="vertical">
            <com.google.android.material.textfield.TextInputLayout
                android:id="@+id/til_name"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_marginTop="20dp">

<com.google.android.material.textfield.TextInputEditText
            android:id="@+id/tiet_name"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Name" />
        </com.google.android.material.textfield.TextInputLayout>
        <com.google.android.material.textfield.TextInputLayout
            android:id="@+id/til_email"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_marginTop="20dp">

<com.google.android.material.textfield.TextInputEditText
            android:id="@+id/tiet_email"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"

```



```

        android:hint="Email"
        android:inputType="textEmailAddress"/>
</com.google.android.material.textfield.TextInputLayout>
<com.google.android.material.textfield.TextInputLayout
    android:id="@+id/til_contact_no"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginTop="20dp">

<com.google.android.material.textfield.TextInputEditText
    android:id="@+id/tiet_contact_no"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Contact No."
    android:inputType="number"
    android:maxLength="10"/>
</com.google.android.material.textfield.TextInputLayout>
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Gender"
    android:textSize="18sp"
    android:layout_marginTop="20dp"/>
<RadioGroup
    android:id="@+id/rg_gender"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >
    <RadioButton
        android:id="@+id/rb_male"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Male"
        android:textSize="15sp"/>
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    <RadioButton
        android:id="@+id/rb_female"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Female"
        android:textSize="15sp" />
</RadioGroup>
<Button

```

```

        android:id="@+id/btn_insert_data"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Insert Data"
        android:textAllCaps="false"
        android:layout_gravity="center"
        android:layout_marginTop="20dp"/>
    <Button
        android:id="@+id/btn_view_users"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="View Users"
        android:textAllCaps="false"
        android:layout_gravity="center"
        android:layout_marginTop="20dp"/>
    </LinearLayout>
</ScrollView>
</LinearLayout>

```

(MainActivity.java)

```

package com.example.mccexp3;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioGroup;
import android.widget.ScrollView;
import android.widget.Toast;
import com.google.android.material.textfield.TextInputEditText;
import com.google.android.material.textfield.TextInputLayout;

public class MainActivity extends AppCompatActivity {
    Context context;
    DatabaseHelper databaseHelper;
    ScrollView svRegistrationForm;
    TextInputLayout tilName, tilEmail, tilContactNo;
    TextInputEditText tietName, tietEmail, tietContactNo;
    RadioGroup rgGender;
}

```

```

Button btnSignUp, btnViewUsers;
String name, email, contactNo, gender;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_first);
    context = MainActivity.this;
    databaseHelper = new DatabaseHelper(context);
    svRegistrationForm = findViewById(R.id.sv_registration_form);
    tilName = findViewById(R.id.til_name);
    tilEmail = findViewById(R.id.til_email);
    tilContactNo = findViewById(R.id.til_contact_no);
    tietName = findViewById(R.id.tiet_name);
    tietEmail = findViewById(R.id.tiet_email);
    tietContactNo = findViewById(R.id.tiet_contact_no);
    rgGender = findViewById(R.id.rg_gender);
    btnSignUp = findViewById(R.id.btn_insert_data);
    btnViewUsers = findViewById(R.id.btn_view_users);
    rgGender.setOnCheckedChangeListener(new
RadioGroup.OnCheckedChangeListener() {
        @Override
        public void onCheckedChanged(RadioGroup group, int
checkedId) {
            if(checkedId == R.id.rb_male) {
                gender = "Male";
            } else {
                gender = "Female";
            }
        }
    });
    btnSignUp.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if(validateForm()) {
                name = tietName.getText().toString();
                email = tietEmail.getText().toString();
                contactNo = tietContactNo.getText().toString();
                boolean insertResult =
databaseHelper.insertUserDetails(email, name,
                                contactNo,
                                gender);
                if(insertResult) {

```

```

        Toast.makeText(context, "Data inserted
succesfully",
                        Toast.LENGTH_SHORT).show();
    } else {
        Toast.makeText(context, "Data not inserted",
                        Toast.LENGTH_SHORT).show();
    }
    Intent intent = new Intent(context,
MainActivity.class);
        startActivity(intent);
    }
}
});
btnViewUsers.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent intent = new Intent(context,
SecondActivity.class);
        startActivity(intent);
    }
});
}

public boolean validateForm() {
    if(tietName.getText().toString().isEmpty()) {
        tilName.setError("Enter Name");
        focusOnView(tilName);
        return false;
    } else if(tietEmail.getText().toString().isEmpty()) {
        tilEmail.setError("Enter Email");
        focusOnView(tilEmail);
        return false;
    } else if(tietContactNo.getText().toString().isEmpty()) {
        tilContactNo.setError("Enter Contact no");
        focusOnView(tilContactNo);
        return false;
    } else if(rgGender.getCheckedRadioButtonId() == -1) {
        Toast.makeText(context, "Select Gender",
Toast.LENGTH_SHORT).show();
        focusOnView(rgGender);
        return false;
    } else {
        return true;
    }
}

```

```

    }

    public void focusOnView(final View view) {
        svRegistrationForm.post(new Runnable() {
            @Override
            public void run() {
                svRegistrationForm.smoothScrollTo(0, view.getTop()-50);
            }
        });
    }
}

```

Output:

