**MOBILE APPLICATION DEVELOPMENT LAB**

**CYCLE - 5**

1. **Create a registration and login page using SQLite database**

**PROGRAM**

**(REGISTRATION.xml)**

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

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

    android:orientation="vertical"

    android:layout\_width="match\_parent"

    android:layout\_height="match\_parent"

    android:minWidth="25px"

    android:minHeight="25px">

    <EditText

        android:hint="Username"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtusername"/>

    <EditText

        android:hint="Email"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtEmail"

         />

    <EditText

        android:hint="Password"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtpassword"

        android:inputType="textPassword" />

    <EditText

        android:hint="First Name"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtfname"/>

    <EditText

        android:hint="Last Name"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtlname"/>

     <EditText

        android:hint="Mobile"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtMobile"

        android:inputType="phone" />

    <EditText

        android:hint="Address"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtAddress"/>

    <EditText

        android:hint="Country"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/edtCountry"/>

    <Button

        android:text="Create"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/btnCreate" />

    <Button

        android:text="Back to Home"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/btnBack" />

</LinearLayout>

**Login (Main.xml)**

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

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

    android:orientation="vertical"

    android:layout\_width="match\_parent"

    android:layout\_height="match\_parent"

    android:minWidth="25px"

    android:minHeight="25px">

    <EditText

        android:hint="Username"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/txtusername"/>

    <EditText

        android:hint="Password"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/txtpassword"

        android:inputType="textPassword" />

    <Button

        android:text="Sign In"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/btnSign" />

    <TextView

        android:text="Or"

        android:textAppearance="?android:attr/textAppearanceMedium"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:textColor="#000"

        android:gravity="center"

        android:id="@+id/txtOr" />

    <Button

        android:text="Register"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/btnSignUp" />

</LinearLayout>

**WELCOME.XML**

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

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

    android:orientation="vertical"

    android:layout\_width="match\_parent"

    android:layout\_height="match\_parent"

    android:minWidth="25px"

    android:minHeight="25px">

     <TextView

        android:textAppearance="?android:attr/textAppearanceMedium"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:textColor="#000"

        android:gravity="left"

        android:id="@+id/txtWelcome" />

    <Button

        android:text="Logout"

        android:layout\_width="match\_parent"

        android:layout\_height="wrap\_content"

        android:layout\_marginLeft="20dp"

        android:layout\_marginRight="20dp"

        android:id="@+id/btnLogout" />

</LinearLayout>

**UserDetails.cs (DTO)**

**public** **class** UserDetails

    {

**public** **string** ID { **get**; **set**; }

**public** **string** Username { **get**; **set**; }

**public** **string** FirstName { **get**; **set**; }

**public** **string** LastName { **get**; **set**; }

**public** **string** Address { **get**; **set**; }

**public** **string** Country { **get**; **set**; }

**public** **string** Email { **get**; **set**; }

**public** **string** Password { **get**; **set**; }

**public** **string** Mobile { **get**; **set**; }

**public** UserDetails() { }

**public** UserDetails(**string** Id, **string** username, **string** fname,**string** lname,**string** address,**string** country, **string** email, **string** password, **string** mobile) //Constructor with all parameters

        {

            ID = Id;

            Username = username;

            FirstName = fname;

            LastName = lname;

            Address = address;

            Country = country;

            Email = email;

            Password = password;

            Mobile = mobile;

        }

**public** UserDetails(**string** Password) //Constructor with one parameter

{

**this**.Password = Password;

        }    }

**Helper.cs (Database Helper - SQLite Operations)**

**public** **class** Helper : SQLiteOpenHelper

   {

**private** **static** **string** \_DatabaseName = "clientDatabase";

**public** Helper(Context context) : **base**(context, \_DatabaseName, **null**, 1) { }

**public** **override** **void** OnCreate(SQLiteDatabase db)

       {

           db.ExecSQL(Helper.CreateQuery);

       }

**public** **override** **void** OnUpgrade(SQLiteDatabase db, **int** oldVersion, **int** newVersion)

       {

           db.ExecSQL(Helper.DeleteQuery);

           OnCreate(db);

       }

**private** **const** **string** TableName = "adminTable";

**private** **const** **string** ColumnID = "id";

**private** **const** **string** ColumnUsername = "username";

**private** **const** **string** ColumnFirstName = "firstname";

**private** **const** **string** ColumnLastName = "lastname";

**private** **const** **string** ColumnAddress = "address";

**private** **const** **string** ColumnCountry = "country";

**private** **const** **string** ColumnPassword = "password";

**private** **const** **string** ColumnEmail = "email";

**private** **const** **string** ColumnMobile = "mobile";

**public** **const** **string** CreateQuery = "CREATE TABLE " + TableName +

           " ( "

           + ColumnID + " INTEGER PRIMARY KEY,"

           + ColumnUsername + " TEXT,"

           + ColumnFirstName + " TEXT,"

           + ColumnLastName + " TEXT,"

           + ColumnAddress + " TEXT,"

           + ColumnCountry + " TEXT,"

           + ColumnPassword + " TEXT,"

           + ColumnEmail + " TEXT,"

           + ColumnMobile + " TEXT)";

**public** **const** **string** DeleteQuery = "DROP TABLE IF EXISTS " + TableName;

**public** **void** Register(Context context, UserDetails user)

       {

           SQLiteDatabase db = **new** Helper(context).WritableDatabase;

           ContentValues Values = **new** ContentValues();

           Values.Put(ColumnUsername, user.Username);

           Values.Put(ColumnFirstName, user.FirstName);

           Values.Put(ColumnLastName, user.LastName);

           Values.Put(ColumnCountry, user.Country);

           Values.Put(ColumnAddress, user.Address);

           Values.Put(ColumnPassword, user.Password);

           Values.Put(ColumnEmail, user.Email);

           Values.Put(ColumnMobile, user.Mobile);

           db.Insert(TableName, **null**, Values);

           db.Close();

       }

**public** UserDetails Authenticate(Context context, UserDetails user)

       {

           SQLiteDatabase db = **new** Helper(context).ReadableDatabase;

           ICursor cursor = db.Query(TableName, **new** **string**[]

           { ColumnID, ColumnFirstName,ColumnLastName,ColumnAddress,ColumnCountry, ColumnUsername, ColumnPassword, ColumnEmail, ColumnMobile },

           ColumnUsername + "=?", **new** **string**[] { user.Username }, **null**, **null**, **null**);

**if**(cursor != **null** && cursor.MoveToFirst() && cursor.Count > 0)

           {

               UserDetails user1 = **new** UserDetails(cursor.GetString(6));

**if** (user.Password.Equals(user1.Password))

**return** user1;

           }

**return** **null**;

       }

**public** List<UserDetails> GetUser(Context context)

       {

           List<UserDetails> users = **new** List<UserDetails>();

           SQLiteDatabase db = **new** Helper(context).ReadableDatabase;

**string**[] columns = **new** **string**[] {ColumnID,ColumnUsername,ColumnFirstName,ColumnLastName,ColumnAddress,ColumnCountry,ColumnPassword,ColumnEmail,ColumnMobile };

**using**(ICursor cursor = db.Query(TableName, columns, **null**, **null**, **null**, **null**, **null**))

           {

**while** (cursor.MoveToNext())

               {

                   users.Add(**new** UserDetails

                   {

                       ID = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnID)),

                       Username = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnUsername)),

                       FirstName = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnFirstName)),

                       Country = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnCountry)),

                       Address = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnAddress)),

                       LastName = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnLastName)),

                       Password = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnPassword)),

                       Email = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnEmail)),

                       Mobile = cursor.GetString(cursor.GetColumnIndexOrThrow(ColumnMobile))

                   });

               }

               db.Close();

**return** users;

           }

       }

   }

**ACTIVITY**

**MainActivity.cs**

[Activity(MainLauncher = **true**)]

**public** **class** MainActivity : Activity

    {

**private** EditText txtUsername, txtPassword;

**private** Button btnSignIn, btnCreate;

        Helper helper;

**protected** **override** **void** OnCreate(Bundle savedInstanceState)

        {

**base**.OnCreate(savedInstanceState);

            // Set our view from the "main" layout resource

            SetContentView(Resource.Layout.Main);

            txtUsername = FindViewById<EditText>(Resource.Id.txtusername);

            txtPassword = FindViewById<EditText>(Resource.Id.txtpassword);

            btnCreate = FindViewById<Button>(Resource.Id.btnSignUp);

            btnSignIn = FindViewById<Button>(Resource.Id.btnSign);

            helper = **new** Helper(**this**);

            btnCreate.Click += **delegate** { StartActivity(**typeof**(SignUp)); };

            btnSignIn.Click += **delegate**

            {

**try**

                {

**string** Username = txtUsername.Text.ToString();

**string** Password = txtPassword.Text.ToString();

                    var user = helper.Authenticate(**this**,**new** UserDetails(**null**,Username,**null**,**null**,**null**,**null**,**null**,Password,**null**));

**if** (user != **null**)

                    {

                        Toast.MakeText(**this**, "Login Successful", ToastLength.Short).Show();

                        Intent intent = **new** Intent(**this**, **typeof**(Welcome));

                        intent.PutExtra("UserName", Username);

                        StartActivity(**typeof**(Welcome));

                    }

**else**

                    {

                        Toast.MakeText(**this**, "Login Unsuccessful! Please verify your Username and Password", ToastLength.Short).Show();

                    }

                }

**catch** (SQLiteException ex)

                {

                    Toast.MakeText(**this**, ""+ex, ToastLength.Short).Show();

                }

            };

        }

    }

**REGISTRATION.CS**

**public** **class** SignUp : Activity

    {

**private** EditText edtfname,edtlname,edtCountry,edtAddress, edtUsername, edtEmail, edtPassword, edtMobile;

**private** Button btnCreate, btnBack;

        Helper helper;

**protected** **override** **void** OnCreate(Bundle savedInstanceState)

        {

**base**.OnCreate(savedInstanceState);

            // Create your application here

            SetContentView(Resource.Layout.SignUp);

            edtfname = FindViewById<EditText>(Resource.Id.edtfname);

            edtlname= FindViewById<EditText>(Resource.Id.edtlname);

            edtCountry= FindViewById<EditText>(Resource.Id.edtCountry);

            edtAddress= FindViewById<EditText>(Resource.Id.edtAddress);

            edtUsername = FindViewById<EditText>(Resource.Id.edtusername);

            edtPassword = FindViewById<EditText>(Resource.Id.edtpassword);

            edtEmail = FindViewById<EditText>(Resource.Id.edtEmail);

            edtMobile = FindViewById<EditText>(Resource.Id.edtMobile);

            btnCreate = FindViewById<Button>(Resource.Id.btnCreate);

            btnBack = FindViewById<Button>(Resource.Id.btnBack);

            helper = **new** Helper(**this**);

            btnBack.Click += **delegate** { StartActivity(**typeof**(MainActivity)); };

            btnCreate.Click += **delegate**

            {

                UserDetails user = **new** UserDetails()

                {

                    FirstName = edtfname.Text,

                    LastName=edtlname.Text,

                    Address=edtAddress.Text,

                    Country=edtCountry.Text,

                    Username = edtUsername.Text,

                    Password = edtPassword.Text,

                    Email = edtEmail.Text,

                    Mobile = edtMobile.Text

                };

**string** username = edtUsername.Text;

**string** password = edtPassword.Text;

**if**(**string**.IsNullOrEmpty(username) || **string**.IsNullOrEmpty(password))

                {

                    Toast.MakeText(**this**, "Username and Password should not be empty.", ToastLength.Short).Show();

                }

**else**

                {

                    helper.Register(**this**, user);

                    var data = helper.GetUser(**this**);

                    user = data[data.Count - 1];

                    Toast.MakeText(**this**, $"User {user.Username} registration successful!", ToastLength.Short).Show();

                    Clear();

                    Toast.MakeText(**this**, $"Total {data.Count} Users.", ToastLength.Short).Show();

                }

            };

        }

**void** Clear()

        {

            edtfname.Text = "";

            edtlname.Text = "";

            edtAddress.Text = "";

            edtCountry.Text = "";

            edtUsername.Text = "";

            edtPassword.Text = "";

            edtMobile.Text = "";

            edtEmail.Text = "";

        }

    }

**WELCOME.CS**

[Activity(Label = "Welcome")]

**public** **class** Welcome : Activity

    {

**string** loggedInUser { **get**; **set**; }

**private** TextView txtWelcome;

**private** Button btnLogout;

**protected** **override** **void** OnCreate(Bundle savedInstanceState)

        {

**base**.OnCreate(savedInstanceState);

            // Create your application here

            SetContentView(Resource.Layout.Welcome);

            txtWelcome = FindViewById<TextView>(Resource.Id.txtWelcome);

            txtWelcome.Text = $"Welcome {Intent.GetStringExtra("UserName") ?? "User" }";

            btnLogout = FindViewById<Button>(Resource.Id.btnLogout);

            btnLogout.Click+= **delegate** { StartActivity(**typeof**(MainActivity)); };

        }

    }