

# CA321 - Basics of Mobile Applications

17BCA076 - Set 6

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**Set** - 6

**Definition** - Write an android application with splash screen and one time login using menu. Create a dashboard activity with three buttons Insert Electricity Bill Detail, Display Customer and Exit. Add activity to insert Electricity Bill detail to table Electricity\_Bill (Customer\_No, Customer\_Name, No\_of\_units\_consumed, Price\_per\_unit). Display the details of all customers in the listview on click of Display Customer detail form the dashboard. Set appropriate background to all activities. Make buttons with a round corner and proper background. You are allowed to use PHP or SQLite database connectivity as per your convenience.

**Git Hub Link For the Solution** - <https://github.com/gamble4846/BCAExternalsAndroid2020>

## Code Explanation:

### Files (KT,XML) -

1. DataBaseHandler.kt
2. DataBaseHandler\_ElecBills.kt
3. DisplayElectricityBill.kt
4. ElecBill.kt
5. HomeActivity.kt
6. insertElectricityBill.kt
7. LoginActivity.kt
8. MainActivity.kt
9. MyListAdapter.kt
10. Register.kt
11. User.kt
12. rectangle.xml
13. rectangle2.xml
14. rectangle3.xml
15. rounded\_edittext.xml
16. activity\_display\_electricity\_bill.xml
17. activity\_home.xml

- 18. activity\_insert\_electricity\_bill.xml
- 19. activity\_log\_in.xml
- 20. activity\_main.xml
- 21. activity\_register.xml
- 22. row.xml
- 23. colors.xml

## 1) DataBaseHandler.kt

```

1 //17bca076
2 package com.gamble846.bcaexternals076
3
4 import ...
5
6
7
8
9
10 val DATABASE_NAME = "MyDB"
11 val TABLE_NAME = "Users"
12 //17bca076
13 val COL_USERNAME = "username"
14 val COL_PASSWORD = "password"
15 val COL_ID = "id"
16
17 class DataBaseHandler(var context: Context) : SQLiteOpenHelper(context, DATABASE_NAME, factory: null, version: 1) {
18     override fun onCreate(db: SQLiteDatabase?) {
19
20         val createTable = "CREATE TABLE " + TABLE_NAME + " (" +
21             COL_ID + " INTEGER PRIMARY KEY AUTOINCREMENT," +
22             //17bca076
23             COL_USERNAME + " VARCHAR(256)," +
24             COL_PASSWORD + " VARCHAR(256))"
25
26         db?.execSQL(createTable)
27     }
28 }
29
30 override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int, newVersion: Int) {
31     TODO("reason: 'not implemented'") //To change body of created functions use File | Settings | File Templates.
32     //17bca076
33 }
34

```

DataBaseHandler.kt files is created to handle SQLite DataBase for the Users (Saving Usernames And Passwords in DataBase)

**Line 4-8 :** Importing Files

**Line 10-15 :** Declaring variable That are needed in creating Database and Table

**Line 17 :** We are Creating class DataBaseHandler which is Inheriting SQLiteOpenHelper which takes DATABASE\_NAME(we created in line 10) as a Argument, Version is the version of database we need to change version when we update the DataBase.

**Line 20-24 :** Creating Query to Create Table

**Line 26 :** Executing Query

**Line 30-32 :** OnUpgrade Method is used when we need to update the table but we don't need it now however we need to define it because we are inheriting SQLiteOpenHelper.

```

35 fun insertData(user: User) {
36     val db = this.writableDatabase
37     var cv = ContentValues()
38     cv.put(COL_USERNAME, user.username)
39     cv.put(COL_PASSWORD, user.password)
40     var result = db.insert(TABLE_NAME, nullColumnHack: null, cv)
41     if (result == -1.toLong())
42         //17bca076
43         Toast.makeText(context, text: "Failed", Toast.LENGTH_SHORT).show()
44     else
45         Toast.makeText(context, text: "Success", Toast.LENGTH_SHORT).show()
46 }
47
48 fun readData() : MutableList<User>{
49     var list : MutableList<User> = ArrayList()
50
51     val db = this.readableDatabase
52     //17bca076
53     val query = "Select * from " + TABLE_NAME
54     val result = db.rawQuery(query, selectionArgs: null)
55     if(result.moveToFirst()){
56         do {
57             var user = User()
58             user.id = result.getString(result.getColumnIndex(COL_ID)).toInt()
59             user.username = result.getString(result.getColumnIndex(COL_USERNAME))
60             user.password = result.getString(result.getColumnIndex(COL_PASSWORD))
61             list.add(user)
62             //17bca076
63         }while (result.moveToNext())
64     }

```

**Line 35 :** Creating Function To insert data

**Line 36 :** As we are going to Insert Data we will get The Writable Database

**Line 37-39 :** Creating ContentValues to Insert

**Line 40 :** Inserting Data in DataBase \*DB.INSERT return row id if it is -1 there is some error

**Line 41-46 :** Checking if the Data Has been inserted or not

**Line 48 :** Creating Function to read data

**Line 49 :** Creating Mutable List to Store Data

**Line 51 :** This time we need to read the data from database so we will use readable database

**Line 53 :** Creating Query

**Line 54 :** Executing Query and storing it in result

**Line 55 :** Checking if There is data in Result \*if there is no data in result "result.moveToFirst()" will return false\*

**Line 56-63 :** Getting Data from DataBase And Storing it in The List

```

65
66         result.close()
67         db.close()
68         return list
69     }
70 }
71 //17bca076

```

**Line 66 & 67 :** Closing both database and the result

**Line 68 :** returning List with All Data.

## 2) DataBaseHandler\_ElecBills.kt

```

1 //17bca076
2 package com.gamble846.bcaexternals076
3
4 import ...
5
6
7 //17bca076
8 val DATABASE_NAME2 = "MyDB2"
9 val TABLE_NAME2 = "ElecBills"
10 val COL_Customer_No = "Customer_No"
11 val COL_Customer_Name = "Customer_Name"
12 val COL_No_of_units_consumed = "No_of_units_consumed"
13 val COL_Price_per_unit = "Price_per_unit"
14
15 class DataBaseHandler ElecBills(var context: Context) : SQLiteOpenHelper(context, DATABASE_NAME2, factory: null, version: 1) {
16     override fun onCreate(db: SQLiteDatabase?) {
17         //17bca076
18         val createTable = "CREATE TABLE " + TABLE_NAME2 + " (" +
19             COL_Customer_No + " VARCHAR(256)," +
20             COL_Customer_Name + " VARCHAR(256)," +
21             COL_No_of_units_consumed + " VARCHAR(256)," +
22             COL_Price_per_unit + " VARCHAR(256))"
23         db?.execSQL(createTable)
24     }
25 }
26 //17bca076
27 override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int, newVersion: Int) {
28     TODO("reason: \"not implemented\") //To change body of created functions use File | Settings | File Templates.
29 }
30
31
32
33
34

```

```

35 fun insertData(elebill: ElecBill) {
36     val db = this.writableDatabase
37     var cv = ContentValues()
38     cv.put(COL_Customer_No, elebill.Customer_No)
39     cv.put(COL_Customer_Name, elebill.Customer_Name)
40     //17bca076
41     cv.put(COL_No_of_units_consumed, elebill.No_of_units_consumed)
42     cv.put(COL_Price_per_unit, elebill.Price_per_unit)
43
44     var result = db.insert(TABLE_NAME2, nullColumnHack: null, cv)
45     if (result == -1.toLong())
46         Toast.makeText(context, text: "Failed", Toast.LENGTH_SHORT).show()
47     else
48         Toast.makeText(context, text: "Success", Toast.LENGTH_SHORT).show()
49 }
50 //17bca076
51 fun readData(): MutableList<ElecBill> {
52     var list: MutableList<ElecBill> = ArrayList()
53
54     val db = this.readableDatabase
55     val query = "Select * from " + TABLE_NAME2
56     val result = db.rawQuery(query, selectionArgs: null)
57     if (result.moveToFirst()) {
58         do {
59             var ElecBillsVar = ElecBill()
60             //17bca076
61             ElecBillsVar.Customer_No = result.getString(result.getColumnIndex(COL_Customer_No))
62             ElecBillsVar.Customer_Name =
63                 result.getString(result.getColumnIndex(COL_Customer_Name))
64             ElecBillsVar.No_of_units_consumed =
65                 result.getString(result.getColumnIndex(COL_No_of_units_consumed))
66             ElecBillsVar.Price_per_unit =
67                 result.getString(result.getColumnIndex(COL_Price_per_unit))
68             list.add(ElecBillsVar)
69         } while (result.moveToNext())
70     //17bca076
71     }
72
73     result.close()
74     db.close()
75     return list
76 }
77 }

```

**Line 1 - 77 :** DataBaseHandler\_ElecBills.kt does the same job as DataBaseHandler.kt the only thing which is different is that this is new database and this is to store electricity details and not usernames and password

### 3) DisplayElectricityBill.kt

```

1  package com.gamble846.bcaexternals076
2
3  import ...
4
5
6
7
8
9  class DisplayElectricityBill : AppCompatActivity() {
10     //17bca076
11     override fun onCreate(savedInstanceState: Bundle?) {
12         super.onCreate(savedInstanceState)
13         setContentView(R.layout.activity_display_electricity_bill)
14         var db = DataBaseHandler_ElecBills( context: this)
15         var data = db.readData()
16
17         val Customer_No: MutableList<String> = ArrayList()
18         val Customer_Name: MutableList<String> = ArrayList()
19         val No_of_units_consumed: MutableList<String> = ArrayList()
20         //17bca076
21         val Price_per_unit: MutableList<String> = ArrayList()
22
23         for (i in 0..(data.size - 1)) {
24             Customer_No.add(data.get(i).Customer_No.toString())
25             Customer_Name.add(data.get(i).Customer_Name.toString())
26             No_of_units_consumed.add(data.get(i).No_of_units_consumed.toString())
27             Price_per_unit.add(data.get(i).Price_per_unit.toString())
28         }
29
30         //17bca076
31         val myListAdapter = MyListAdapter( context: this, Customer_Name, Customer_No, No_of_units_consumed, Price_per_unit)
32         listView.adapter = myListAdapter
33     }
34 }
35

```

This activity is created to display All Electricity Details

**Line 14-15 :** We are Accessing DataBaseHandler\_ElecBills Class to Get All data from database

**Line 17-21 :** Creating MutableLists To Store Data We get from database in different Parts

**Line 23-28 :** Saving All Data in Lists

**Line 31 :** Sending All List to MyListAdapter and Getting Adapter in Return

**Line 32 :** Defining Adapter for the List

### 4) ElecBill.kt

```

1  package com.gamble846.bcaexternals076
2
3  class ElecBill{
4
5      var Customer No : String = ""
6      var Customer Name : String = ""
7      var No of units consumed : String = ""
8      var Price per unit: String = ""
9
10     //17bca076
11     constructor(Customer_No:String, Customer_Name:String, No_of_units_consumed:String, Price_per_unit:String){
12         this.Customer No = Customer_No
13         this.Customer Name = Customer_Name
14         this.No of units consumed = No_of_units_consumed
15         this.Price per unit = Price_per_unit
16     }
17
18     constructor(){
19     }
20     //17bca076{
21 }

```

ElecBill class is created to store data in specific manner when needed and save the class object in list to use in future

**Line 5-8 :** Declaring All variable that we will be needing to store/retrieve in/from database

**Line 11-16 :** Defining a parameterized constructor that we will use while inserting data in case and saving in lists

**Line 18-19 :** Defining non-parameterized constructor that we will need when we just want to use this class as template for storing data.

## 5) HomeActivity.kt



```

1  package com.gamble846.bcaexternals076
2
3  import ...
4
5
6
7
8
9
10 //17bca076
11 class HomeActivity : AppCompatActivity() {
12
13     override fun onCreate(savedInstanceState: Bundle?) {
14         super.onCreate(savedInstanceState)
15         setContentView(R.layout.activity_home)
16
17         var preference=getSharedPreferences( name: "MyPref", Context.MODE_PRIVATE)
18         var editor=preference.edit()
19
20 //17bca076
21         var str=preference.getString( key: "uname", defValue: "Wrong")
22         usernameText.text="Welcome : $str"
23
24         insertElectricityBillDetail.setOnClickListener{ it:View!
25             var intent = Intent( packageContext: this, insertElectricityBill::class.java)
26             startActivity(intent)
27         }
28
29         DisplayElectricityBillDetail.setOnClickListener{ it:View!
30 //17bca076
31             var intent = Intent( packageContext: this, DisplayElectricityBill::class.java)
32             startActivity(intent)
33         }
34
35         LogOut.setOnClickListener{ it:View!
36             editor.putString("uname", "Wrong");
37             editor.commit()

```

HomeActivity.kt is a activity that acts as an dashboard for this project

**Line 17-21 :** Getting UserName that is stored in MyPref

**Line 24-27 :** Using Intent to change activity when user clicks button

**Line 29-33 :** Using Intent to change activity when user clicks button

**Line 35-37 :** Change The uname stored in MyPred to "Wrong" when user click LogOut Button

```

38
39         var intent = Intent( packageContext: this, LogInActivity::class.java)
40 //17bca076
41         startActivity(intent)
42         finish()
43     }
44 }
45
46

```

**Line 39-42 :** Changing Activity Back to LogIn Screen



## 6) insertElectricityBill.kt

```

1  package com.gamble846.bcaexternals076
2
3  import ...
4
5
6
7
8
9  class insertElectricityBill : AppCompatActivity() {
10     //17bca076
11     override fun onCreate(savedInstanceState: Bundle?) {
12         super.onCreate(savedInstanceState)
13         setContentView(R.layout.activity_insert_electricity_bill)
14
15         insert_act_btn.setOnClickListener { it: View!
16
17             if(Customer_No.text.toString().length>0 &&
18                 Customer_Name.text.toString().length>0 &&
19                 No_of_units_consumed.text.toString().length>0 &&
20                 //17bca076
21                 Price_per_unit.text.toString().length>0)
22             {
23                 var elecbill = ElecBill(
24                     Customer_No.text.toString(),
25                     Customer_Name.text.toString(),
26                     No_of_units_consumed.text.toString(),
27                     Price_per_unit.text.toString()
28                 )
29                 var db = DataBaseHandler_ElecBills( context: this)
30                 //17bca076
31                 db.insertData(elecbill)
32
33                 var intent = Intent( packageContext: this, HomeActivity::class.java)
34                 startActivity(intent)
35                 finish()
36             }
37             else

```

insertElectricityBill.kt is created to insert new electricity bill details of Customer in The DataBase

**Line 15 :** Setting onclickListener to Insert Button

**Line 17-21 :** Confirming if the user has enter all required data

**Line 23-27 :** Saving All entered data By User in a var by Using the ElecBill Class we Created

**Line 29-31 :** using DataBaseHandler\_ElecBills to Insert Data in DataBase

**Line 33-35 :** Changing Activity back to Home Screen

```

37         else
38         {
39             Toast.makeText( context: this, text: "Please Enter Data!!", Toast.LENGTH_LONG).show()
40             //17bca076
41         }
42     }
43
44     cancel_NA_btn.setOnClickListener{ it: View!
45         var intent = Intent( packageContext: this, HomeActivity::class.java)
46         startActivity(intent)
47         finish()
48     }
49
50     //17bca076
51 }
52
53

```

**Line 37-41 :** giving Toast if the user has not entered some values

**Line 44-48 :** Changing Activity Back to Home if User Clicks on Cancel.

## 7) LoginActivity.kt

```

1  package com.gamble846.bcaexternals076
2
3  import ...
4
5
6
7
8
9
10 //17bca076
11 class LoginActivity : AppCompatActivity() {
12
13     override fun onCreate(savedInstanceState: Bundle?) {
14         super.onCreate(savedInstanceState)
15         setContentView(R.layout.activity_log_in)
16
17         registerbtn.setOnClickListener{ it: View!
18             var intent= Intent( packageContext: this,Register::class.java)
19             startActivity(intent)
20             //17bca076
21         }
22
23         fun Checking(username_check : String,password_check : String) : Boolean {
24             var db = DataBaseHandler( context: this)
25             var data = db.readData()
26             var m = 0
27             for (i in 0..(data.size - 1)) {
28                 if(data.get(i).username.toString() == username_check && data.get(i).password.toString() == password_check)
29                     m++;
30             }
31             //17bca076
32             return m>0
33         }
34     }
35 }

```

Login Activity is created so that user can use it and login into the app

**Line 17-21 :** Setting OnClickListener for Register Button and Changing Activity

**Line 23-32 :** Created a function that we check if the user entered Username and password exist in the DataBase or Not (Returns Boolean)

```

35 loginbtn.setOnClickListener { it:View!
36     if(!username.text.toString().equals("") && !password.text.toString().equals(""))
37     {
38         if(Checking(username.text.toString(),password.text.toString()))
39         {
40             //17bca076
41             Toast.makeText( context: this, text: "Login Successful!!", Toast.LENGTH_LONG).show()
42             var preference=getSharedPreferences( name: "MyPref", Context.MODE_PRIVATE)
43             var editor=preference.edit()
44             editor.putString("uname",username.text.toString());
45             editor.commit()
46             var intent= Intent( packageContext: this,HomeActivity::class.java)
47             startActivity(intent)
48             finish()
49         }
50         //17bca076
51         else
52         {
53             Toast.makeText( context: this, text: "Invalid Username/Password", Toast.LENGTH_LONG).show()
54         }
55     }
56     else
57     {
58         Toast.makeText( context: this, text: "Please Enter Data!!", Toast.LENGTH_LONG).show()
59     }
60     //17bca076
61 }
62 }
63 }
64

```

**Line 35 :** Setting OnClickListener on Login Button

**Line 36 :** Checking if User has entered both Username and password or not

**Line 38 :** Calling Checking Method Explained Above

**Line 41-48 :** putting Login user in MyPref And changing Activity

**Line 51-59 :** Displaying Errors in Toasts

## 8) MainActivity.kt

```

1  package com.gamble846.bcaexternals076
2
3  import ...
4
5
6
7
8
9  class MainActivity : AppCompatActivity() {
10     //17bca076
11     override fun onCreate(savedInstanceState: Bundle?) {
12         super.onCreate(savedInstanceState)
13         setContentView(R.layout.activity_main)
14
15         Handler().postDelayed({
16             var preference=getSharedPreferences( name: "MyPref", Context.MODE_PRIVATE)
17             var str=preference.getString( key: "uname", defValue: "Wrong")
18             if(str.equals( other: "Wrong")) {
19                 var intent = Intent( packageContext: this, LoginActivity::class.java)
20                 //17bca076
21                 startActivity(intent)
22                 finish()
23             }
24             else
25             {
26                 var intent = Intent( packageContext: this, HomeActivity::class.java)
27                 startActivity(intent)
28                 finish()
29             }
30             //17bca076
31         },
32             delayMillis: 3000)
33     }
34 }
35

```

**Line 15 :** Handler for Delay

**Line 16&17 :** Checking If User is already logged in

**Line 21&28 :** Changing Activity Accordingly

## 9) MyListAdapter.kt

```

1 package com.gamble846.bcaexternals076
2
3 import android.app.Activity
4 import android.view.View
5 import android.view.ViewGroup
6 import android.widget.*
7 class MyListAdapter(private val context: Activity, private val title: MutableList<String>, private val SubText1: MutableList<String>,
8                    private val SubText2: MutableList<String>, private val SubText3: MutableList<String>))
9 : ArrayAdapter<String>(context, R.layout.row, title) {
10
11 //17bca076
12 override fun getView(position: Int, view: View?, parent: ViewGroup): View {
13     val inflater = context.layoutInflater
14     val rowView = inflater.inflate(R.layout.row, root: null, attachToRoot: true)
15
16     val titleText = rowView.findViewById(R.id.textView1) as TextView
17     val SubText_1 = rowView.findViewById(R.id.textView2) as TextView
18     val SubText_2 = rowView.findViewById(R.id.textView3) as TextView
19     val SubText_3 = rowView.findViewById(R.id.textView4) as TextView
20
21 //17bca076
22     titleText.text = "Name: " + title[position]
23     SubText_1.text = "Customer No: " + SubText1[position]
24     SubText_2.text = "NOU consumed: " + SubText2[position]
25     SubText_3.text = "Price Per Unit: " + SubText3[position]
26
27     return rowView
28 }
29 }

```

MyListAdapter.kt is created to return adapter that can be used with the listview

**Line 7-9 :** Creating A Class that Accepts 4 Mutable list and inherits ArrayAdapter

**Line 12-25 :** Creating a function that will use that mutable lists and create adapter

**Line 27 :** return Adapter

## 10) Register.kt

```

1  package com.gamble846.bcaexternals076
2
3  import android.content.Intent
4  import androidx.appcompat.app.AppCompatActivity
5  import android.os.Bundle
6  import android.widget.Toast
7  import kotlinx.android.synthetic.main.activity_register.*
8
9  class Register : AppCompatActivity() {
10     //17bca076
11     override fun onCreate(savedInstanceState: Bundle?) {
12         super.onCreate(savedInstanceState)
13         setContentView(R.layout.activity_register)
14
15         btnRegister.setOnClickListener { it View!
16             if(username_reg.text.toString().length>0 && password_reg.text.toString().length>0)
17             {
18                 var user = User(username_reg.text.toString(),password_reg.text.toString())
19                 var db = DataBaseHandler( context: this)
20                 //17bca076
21                 db.insertData(user)
22
23                 var intent = Intent( packageContext: this, LoginActivity::class.java)
24                 startActivity(intent)
25                 finish()
26             }
27             else
28             {
29                 Toast.makeText( context: this, text: "Please Enter Data!!", Toast.LENGTH_LONG).show()
30                 //17bca076
31             }
32         }
33     }

```

Register Activity is created so that if user don't have account he can create one

**Line 15 :** Setting OnClickListener for Register Button

**Line 16 :** Checking if user has entered all data

**Line 18-21 :** Adding New User in Database

**Line 23-25 :** Changing Activity

**Line 27-31 :** Displaying Errors

## 11) User.kt

```

1  package com.gamble846.bcaexternals076
2
3  class User{
4
5      var id : Int = 0
6      var username : String = ""
7      var password : String = ""
8
9      constructor(username:String,password:String){
10         //17bca076
11         this.username = username
12         this.password = password
13     }
14
15     constructor(){
16     }
17
18 }

```

This file has same use as ElecBill.kt file and both work in same manner

## 12) rectangle.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <selector xmlns:android="http://schemas.android.com/apk/res/android">
3      <item>
4          <shape xmlns:android="http://schemas.android.com/apk/res/android" android:shape="rectangle">
5              <solid android:color="@color/OurBlue" />
6              <corners android:radius="20dp" />
7          </shape>
8      </item>
9  </selector>

```

This is xml file created to Add background to button

**Line 4 :** Creating Shape of the button

**Line 5 :** Giving Background Color

**Line 6 :** Giving Radius to the shape to make curve Edges



### 13) rectangle2.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <selector xmlns:android="http://schemas.android.com/apk/res/android">
3      <item>
4          <shape xmlns:android="http://schemas.android.com/apk/res/android" android:shape="rectangle">
5              <solid android:color="@color/NotBlue" />
6              <corners android:radius="20dp" />
7          </shape>
8      </item>
9  </selector>

```

Everything same as 12)rectangle.xml but Background Color is Different

### 14) rectangle3.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <selector xmlns:android="http://schemas.android.com/apk/res/android">
3      <item>
4          <shape xmlns:android="http://schemas.android.com/apk/res/android" android:shape="rectangle">
5              <solid android:color="@color/Orange" />
6              <corners android:radius="20dp" />
7          </shape>
8      </item>
9  </selector>

```

Everything same as 12)rectangle.xml but Background Color is Different

### 15) rounded\_edittext.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <shape xmlns:android="http://schemas.android.com/apk/res/android" >
3
4      <solid android:color="#FFFFFF" />
5
6      <stroke
7          android:width="1dp"
8          android:color="#2f6699" />
9
10     <corners
11         android:radius="10dp"
12     />
13 </shape>

```

This is used for the editText

**Line 4 :** Giving Background Color

**Line 6-8 :** Giving Border to The editText And giving color to border

**Line 9-11 :** Giving Radius for curved edges

## 16) activity\_display\_electricity\_bill.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      tools:context=".DisplayElectricityBill">
8
9      <ListView
10         android:layout_width="match_parent"
11         android:layout_height="match_parent"
12         android:id="@+id/listView">
13     </ListView>
14
15 </LinearLayout>
```

Everything is default in this XML file we are only adding ListView That Can be dynamically changed to display electricity details

## 17) activity\_home.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      tools:context=".HomeActivity">
8
9      <Button
10         android:id="@+id/insertElectricityBilldetail"
11         android:layout_width="379dp"
12         android:layout_height="wrap_content"
13         android:layout_marginStart="16dp"
14         android:layout_marginLeft="16dp"
15         android:layout_marginTop="32dp"
16         android:layout_marginEnd="16dp"
17         android:layout_marginRight="16dp"
18         android:background="@drawable/rectangle3"
19         android:text="Insert Electricity Bill Details"
20         android:textColor="#FFFFFF"
21         android:textSize="18sp"
22         android:textStyle="bold"
23         app:layout_constraintEnd_toEndOf="parent"
24         app:layout_constraintStart_toStartOf="parent"
25         app:layout_constraintTop_toBottomOf="@+id/DisplayElectricityBilldetail" />
26
27      <Button
28         android:id="@+id/DisplayElectricityBilldetail"
29         android:layout_width="379dp"
30         android:layout_height="wrap_content"
31         android:layout_marginStart="16dp"
32         android:layout_marginLeft="16dp"
33         android:layout_marginTop="200dp"
34         android:layout_marginEnd="16dp"
35         android:layout_marginRight="16dp"
36         android:background="@drawable/rectangle3"
37         android:text="Display Electricity Bill Details"
38         android:textColor="#FFFFFF"
39         android:textSize="18sp"
40         android:textStyle="bold"
41         app:layout_constraintEnd_toEndOf="parent"
42         app:layout_constraintStart_toStartOf="parent"
43         app:layout_constraintTop_toTopOf="parent" />
44
45      <Button
46         android:id="@+id/LogOut"
47         android:layout_width="379dp"
48         android:layout_height="wrap_content"
49         android:layout_marginStart="16dp"
50         android:layout_marginLeft="16dp"
51         android:layout_marginTop="100dp"
52         android:layout_marginEnd="16dp"
53         android:layout_marginRight="16dp"
54         android:background="@drawable/rectangle3"
55         android:text="LogOut"
56         android:textColor="#FFFFFF"
57         android:textSize="18sp"
58         android:textStyle="bold"
59         app:layout_constraintEnd_toEndOf="parent"
60         app:layout_constraintStart_toStartOf="parent"
61         app:layout_constraintTop_toBottomOf="@+id/insertElectricityBilldetail" />

```

```

62
63     <TextView
64         android:id="@+id/username_text"
65         android:layout_width="wrap_content"
66         android:layout_height="wrap_content"
67         android:text="TextView"
68         app:layout_constraintBottom_toTopOf="@+id/DisplayElectricityBilldetail"
69         app:layout_constraintEnd_toEndOf="parent"
70         app:layout_constraintStart_toStartOf="parent"
71         app:layout_constraintTop_toTopOf="parent" />
72 </androidx.constraintlayout.widget.ConstraintLayout>

```

Home activity has 4 Views (1 TextView And 3 Buttons)

Only Thing We do in this is Giving background to the button that is on lines 18,36,54 everything else is because of layout margin and size and details of the views.

## 18) activity\_insert\_electricity\_bill.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      tools:context=".insertElectricityBill">
8
9      <EditText
10         android:id="@+id/Customer_No"
11         android:layout_width="379dp"
12         android:layout_height="wrap_content"
13         android:layout_marginStart="16dp"
14         android:layout_marginLeft="16dp"
15         android:layout_marginTop="120dp"
16         android:layout_marginEnd="16dp"
17         android:layout_marginRight="16dp"
18         android:background="@drawable/rounded_edittext"
19         android:ems="10"
20         android:hint="Enter Customer No"
21         android:inputType="textPersonName"
22         android:paddingLeft="20dp"
23         android:paddingTop="5dp"
24         android:paddingBottom="5dp"
25         android:textSize="24sp"
26         app:layout_constraintEnd_toEndOf="parent"
27         app:layout_constraintStart_toStartOf="parent"
28         app:layout_constraintTop_toTopOf="parent" />
29
30      <EditText
31         android:id="@+id/No_of_units_consumed"
32         android:layout_width="379dp"

```

```
33     android:layout_height="wrap_content"
34     android:layout_marginStart="16dp"
35     android:layout_marginLeft="16dp"
36     android:layout_marginTop="16dp"
37     android:layout_marginEnd="16dp"
38     android:layout_marginRight="16dp"
39     android:background="@drawable/rounded_edittext"
40     android:ems="10"
41     android:hint="Enter No of Units Consumed,"
42     android:inputType="number"
43     android:paddingLeft="20dp"
44     android:paddingTop="5dp"
45     android:paddingBottom="5dp"
46     android:textSize="24sp"
47     app:layout_constraintEnd_toEndOf="parent"
48     app:layout_constraintStart_toStartOf="parent"
49     app:layout_constraintTop_toBottomOf="@+id/Customer_Name" />
50
51 <Button
52     android:id="@+id/insert_act_btn"
53     android:layout_width="379dp"
54     android:layout_height="wrap_content"
55     android:layout_marginStart="16dp"
56     android:layout_marginLeft="16dp"
57     android:layout_marginTop="50dp"
58     android:layout_marginEnd="16dp"
59     android:layout_marginRight="16dp"
60     android:background="@drawable/rectangle3"
61     android:text="Insert"
62     android:textColor="#FFFFFF"
```

```
63   android:textColorHighlight="#FFFFFF"
64   android:textSize="18sp"
65   android:textStyle="bold"
66   app:layout_constraintEnd_toEndOf="parent"
67   app:layout_constraintStart_toStartOf="parent"
68   app:layout_constraintTop_toBottomOf="@+id/Price_per_unit" />
69
70   <Button
71       android:id="@+id/cancel_NA_btn"
72       android:layout_width="379dp"
73       android:layout_height="wrap_content"
74       android:layout_marginStart="16dp"
75       android:layout_marginLeft="16dp"
76       android:layout_marginTop="32dp"
77       android:layout_marginEnd="16dp"
78       android:layout_marginRight="16dp"
79       android:background="@drawable/rectangle3"
80       android:text="Cancel"
81       android:textColor="#FFFFFF"
82       android:textColorHighlight="#FFFFFF"
83       android:textSize="18sp"
84       android:textStyle="bold"
85       app:layout_constraintEnd_toEndOf="parent"
86       app:layout_constraintStart_toStartOf="parent"
87       app:layout_constraintTop_toBottomOf="@+id/insert_act_btn" />
88
89   <EditText
90       android:id="@+id/Customer_Name"
91       android:layout_width="379dp"
92       android:layout_height="wrap_content"
```



```

93         android:layout_marginStart="16dp"
94         android:layout_marginLeft="16dp"
95         android:layout_marginTop="16dp"
96         android:layout_marginEnd="16dp"
97         android:layout_marginRight="16dp"
98         android:background="@drawable/rounded_edittext"
99         android:ems="10"
100        android:hint="Enter Customer Name"
101        android:paddingLeft="20dp"
102        android:paddingTop="5dp"
103        android:paddingBottom="5dp"
104        android:textSize="24sp"
105        app:layout_constraintEnd_toEndOf="parent"
106        app:layout_constraintStart_toStartOf="parent"
107        app:layout_constraintTop_toBottomOf="@+id/Customer_No" />
108
109    <EditText
110        android:id="@+id/Price_per_unit"
111        android:layout_width="379dp"
112        android:layout_height="wrap_content"
113        android:layout_marginStart="16dp"
114        android:layout_marginLeft="16dp"
115        android:layout_marginTop="16dp"
116        android:layout_marginEnd="16dp"
117        android:layout_marginRight="16dp"
118        android:background="@drawable/rounded_edittext"
119        android:ems="10"
120        android:hint="Enter Price Per Unit"
121        android:inputType="number"
122        android:paddingLeft="20dp"
123        android:paddingTop="5dp"
124        android:paddingBottom="5dp"
125        android:textSize="24sp"
126        app:layout_constraintEnd_toEndOf="parent"
127        app:layout_constraintStart_toStartOf="parent"
128        app:layout_constraintTop_toBottomOf="@+id/No_of_units_consumed" />
129    </androidx.constraintlayout.widget.ConstraintLayout>

```

Nothing New in this Xml file either This has total of 6 views and only new thing is giving background to button and edittexts

## 19) activity\_log\_in.xml



```

1  <?xml version="1.0" encoding="utf-8"?>
2  <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      tools:context=".Main2Activity">
8
9
10     <EditText
11         android:id="@+id/username"
12         android:layout_width="0dp"
13         android:layout_height="wrap_content"
14         android:layout_marginStart="16dp"
15         android:layout_marginLeft="16dp"
16         android:layout_marginTop="150dp"
17         android:layout_marginEnd="16dp"
18         android:layout_marginRight="16dp"
19         android:background="@drawable/rounded_edittext"
20         android:ems="10"
21         android:hint="Enter Username"
22         android:inputType="textPersonName"
23         android:paddingLeft="20dp"
24         android:paddingTop="5dp"
25         android:paddingBottom="5dp"
26         android:textSize="30sp"
27         app:layout_constraintEnd_toEndOf="parent"
28         app:layout_constraintStart_toStartOf="parent"
29         app:layout_constraintTop_toTopOf="parent" />
30

```

```

31
32     <EditText
33         android:id="@+id/password"
34         android:layout_width="0dp"
35         android:layout_height="wrap_content"
36         android:layout_marginStart="16dp"
37         android:layout_marginLeft="16dp"
38         android:layout_marginTop="24dp"
39         android:layout_marginEnd="16dp"
40         android:layout_marginRight="16dp"
41         android:background="@drawable/rounded_edittext"
42         android:ems="10"
43         android:hint="Enter Password"
44         android:inputType="textPassword"
45         android:paddingLeft="20dp"
46         android:paddingTop="5dp"
47         android:paddingBottom="5dp"
48         android:textSize="30sp"
49         app:layout_constraintEnd_toEndOf="parent"
50         app:layout_constraintStart_toStartOf="parent"
51         app:layout_constraintTop_toBottomOf="@+id/username" />
52
53     <Button
54         android:id="@+id/loginbtn"
55         android:layout_width="0dp"
56         android:layout_height="wrap_content"
57         android:layout_marginStart="16dp"
58         android:layout_marginLeft="16dp"
59         android:layout_marginTop="50dp"
60         android:layout_marginEnd="16dp"
61         android:layout_marginRight="16dp"

```

```

62     android:background="@drawable/rectangle"
63     android:text="LogIn"
64     android:textColor="#FFFFFF"
65     android:textSize="18sp"
66     android:textStyle="bold"
67     app:layout_constraintEnd_toEndOf="parent"
68     app:layout_constraintStart_toStartOf="parent"
69     app:layout_constraintTop_toBottomOf="@+id/password" />
70
71     <Button
72         android:id="@+id/registerbtn"
73         android:layout_width="0dp"
74         android:layout_height="wrap_content"
75         android:layout_marginStart="16dp"
76         android:layout_marginLeft="16dp"
77         android:layout_marginTop="50dp"
78         android:layout_marginEnd="16dp"
79         android:layout_marginRight="16dp"
80         android:background="@drawable/rectangle"
81         android:text="Register"
82         android:textColor="#FFFFFF"
83         android:textSize="18sp"
84         android:textStyle="bold"
85         app:layout_constraintEnd_toEndOf="parent"
86         app:layout_constraintStart_toStartOf="parent"
87         app:layout_constraintTop_toBottomOf="@+id/loginbtn" />
88 </androidx.constraintlayout.widget.ConstraintLayout>

```

Same As all XML Files Nothing New here too

## 20) activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".MainActivity">
8
9     <ImageView
10         android:id="@+id/imageView"
11         android:layout_width="155dp"
12         android:layout_height="215dp"
13         app:layout_constraintBottom_toBottomOf="parent"
14         app:layout_constraintEnd_toEndOf="parent"
15         app:layout_constraintStart_toStartOf="parent"
16         app:layout_constraintTop_toTopOf="parent"
17         app:srcCompat="@drawable/imageforsplash" />
18
19     <TextView
20         android:id="@+id/textView"
21         android:layout_width="wrap_content"
22         android:layout_height="wrap_content"
23         android:layout_marginTop="100dp"
24         android:text="17BCA076"
25         app:layout_constraintEnd_toEndOf="parent"
26         app:layout_constraintStart_toStartOf="parent"
27         app:layout_constraintTop_toBottomOf="@+id/imageView" />
28
29 </androidx.constraintlayout.widget.ConstraintLayout>
```

Same as Others

## 21) activity\_register.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".Register">
8
9     <EditText
10         android:id="@+id/password_reg"
11         android:layout_width="0dp"
12         android:layout_height="wrap_content"
13         android:layout_marginStart="16dp"
14         android:layout_marginLeft="16dp"
15         android:layout_marginTop="32dp"
16         android:layout_marginEnd="16dp"
17         android:layout_marginRight="16dp"
18         android:background="@drawable/rounded_edittext"
19         android:ems="10"
20         android:hint="Enter Password"
21         android:inputType="textPersonName"
22         android:paddingLeft="20dp"
23         android:paddingTop="5dp"
24         android:paddingBottom="5dp"
25         android:textSize="30sp"
26         app:layout_constraintEnd_toEndOf="parent"
27         app:layout_constraintStart_toStartOf="parent"
28         app:layout_constraintTop_toBottomOf="@+id/username_reg" />
29
30     <EditText
31         android:id="@+id/username_reg"
32         android:layout_width="0dp"
```

```

31         android:id="@+id/username_reg"
32         android:layout_width="0dp"
33         android:layout_height="wrap_content"
34         android:layout_marginStart="16dp"
35         android:layout_marginLeft="16dp"
36         android:layout_marginTop="200dp"
37         android:layout_marginEnd="16dp"
38         android:layout_marginRight="16dp"
39         android:background="@drawable/rounded_edittext"
40         android:ems="10"
41         android:hint="Enter User Name"
42         android:inputType="textPersonName"
43         android:paddingLeft="20dp"
44         android:paddingTop="5dp"
45         android:paddingBottom="5dp"
46         android:textSize="30sp"
47         app:layout_constraintEnd_toEndOf="parent"
48         app:layout_constraintStart_toStartOf="parent"
49         app:layout_constraintTop_toTopOf="parent" />
50
51     <Button
52         android:id="@+id/btnRegister"
53         android:layout_width="0dp"
54         android:layout_height="wrap_content"
55         android:layout_marginStart="16dp"
56         android:layout_marginLeft="16dp"
57         android:layout_marginTop="80dp"
58         android:layout_marginEnd="16dp"
59         android:layout_marginRight="16dp"
60         android:background="@drawable/rectangle"
61         android:text="Register"
62         android:textColor="#FFFFFF"

```

```

63         android:textSize="18sp"
64         android:textStyle="bold"
65         app:layout_constraintEnd_toEndOf="parent"
66         app:layout_constraintStart_toStartOf="parent"
67         app:layout_constraintTop_toBottomOf="@+id/password_reg" />
68
69     <Button
70         android:id="@+id/btnCancel_reg"
71         android:layout_width="0dp"
72         android:layout_height="wrap_content"
73         android:layout_marginStart="16dp"
74         android:layout_marginLeft="16dp"
75         android:layout_marginTop="32dp"
76         android:layout_marginEnd="16dp"
77         android:layout_marginRight="16dp"
78         android:background="@drawable/rectangle"
79         android:text="Cancel"
80         android:textColor="#FFFFFF"
81         android:textColorHighlight="#FFFFFF"
82         android:textSize="18sp"
83         android:textStyle="bold"
84         app:layout_constraintEnd_toEndOf="parent"
85         app:layout_constraintStart_toStartOf="parent"
86         app:layout_constraintTop_toBottomOf="@+id/btnRegister" />
87 </androidx.constraintlayout.widget.ConstraintLayout>

```

Same As other Xml Only Contains Buttons And Edit Texts

## 22) row.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout
3      xmlns:android="http://schemas.android.com/apk/res/android"
4      android:layout_width="match_parent"
5      android:layout_height="wrap_content"
6      android:orientation="horizontal"
7      android:padding="16dp"
8  >
9
10     <LinearLayout
11         android:layout_width="match_parent"
12         android:layout_height="wrap_content"
13         android:orientation="vertical"
14     >
15
16         <TextView
17             android:layout_width="match_parent"
18             android:layout_height="wrap_content"
19             android:text="Main Title"
20             android:textColor="#000"
21             android:textStyle="bold"
22             android:layout_margin="5dp"
23             android:textSize="20sp"
24             android:id="@+id/textView1"
25         />
26
27         <LinearLayout
28             android:layout_width="match_parent"
29             android:layout_height="wrap_content"
30             android:orientation="horizontal"
31             android:weightSum="2"
32         >
```



```

33     <TextView
34         android:layout_width="match_parent"
35         android:layout_height="wrap_content"
36         android:text="Sub Title"
37         android:textColor="#a9a9a9"
38         android:textStyle="bold"
39         android:layout_margin="5dp"
40         android:textSize="15sp"
41         android:id="@+id/textView2"
42         android:layout_weight="1"
43     />
44
45     <TextView
46         android:layout_width="match_parent"
47         android:layout_height="wrap_content"
48         android:text="Sub Title"
49         android:textColor="#a9a9a9"
50         android:textStyle="bold"
51         android:layout_margin="5dp"
52         android:textSize="15sp"
53         android:id="@+id/textView3"
54         android:layout_weight="1"
55     />
56 </LinearLayout>

```

```

57 <LinearLayout
58     android:layout_width="match_parent"
59     android:layout_height="wrap_content"
60     android:orientation="horizontal"
61     android:weightSum="1"
62 >
63     <TextView
64         android:layout_width="match_parent"
65         android:layout_height="wrap_content"
66         android:text="Sub Title"
67         android:textColor="#a9a9a9"
68         android:textStyle="bold"
69         android:layout_margin="5dp"
70         android:textSize="15sp"
71         android:id="@+id/textView4"
72         android:layout_weight="1"
73     />
74 </LinearLayout>
75 </LinearLayout>
76
77 </LinearLayout>

```

Row.xml file is created to use it as template for the list view There are 3 Linear layout in this 1 vertical and 2 horizontal

For horizontal you can use weightsSum to divide space between views



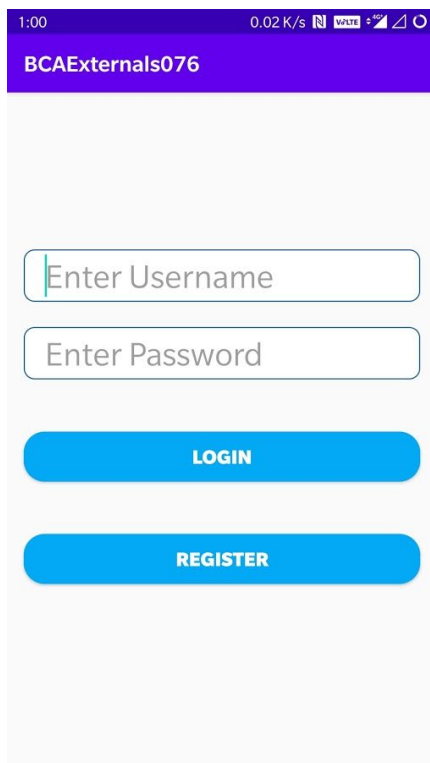
## 23) colors.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <resources>
3      <color name="colorPrimary">#6200EE</color>
4      <color name="colorPrimaryDark">#3700B3</color>
5      <color name="colorAccent">#03DAC5</color>
6      <color name="OurBlue">#03A9F4</color>
7      <color name="NotBlue">#009688</color>
8      <color name="Orange">#FF5722</color>
9  </resources>
10
```

Added New Colors to be used as backgrounds of Buttons

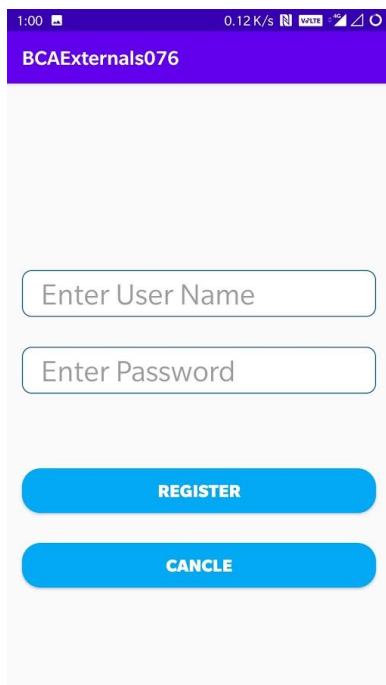
## ScreenShots of Activities

### 1) Login Activity



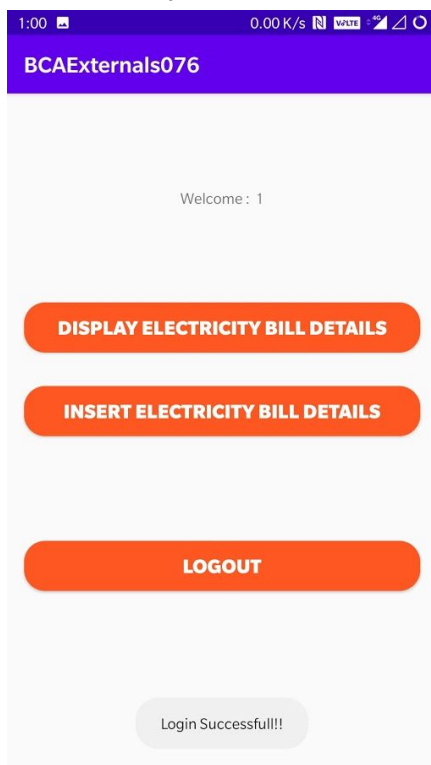
17BCA076

## 2) Register Activity



A screenshot of a mobile application's registration screen. The status bar at the top shows the time as 1:00, a battery level of 0.12 K/s, and various system icons. The app's title bar is purple and displays 'BCAExternals076'. The main content area has a light gray background and contains two white input fields with rounded corners. The first field is labeled 'Enter User Name' and the second is labeled 'Enter Password'. Below these fields are two blue buttons with white text: 'REGISTER' and 'CANCEL'.

## 3) Home Activity



A screenshot of a mobile application's home screen. The status bar at the top shows the time as 1:00, a battery level of 0.00 K/s, and various system icons. The app's title bar is purple and displays 'BCAExternals076'. The main content area has a light gray background. At the top, it says 'Welcome : 1'. Below this are three orange buttons with white text: 'DISPLAY ELECTRICITY BILL DETAILS', 'INSERT ELECTRICITY BILL DETAILS', and 'LOGOUT'. At the bottom, there is a light gray button with the text 'Login Successfull!!'.

CA321

## 4) Display Activity

1:00 0.00 K/s

**BCAExternals076**

**Name: Rohan**  
Customer No: 1 NOU consumed: 5  
Price Per Unit: 5

**Name: Vinit**  
Customer No: 2 NOU consumed: 6  
Price Per Unit: 6

**Name: john**  
Customer No: 6 NOU consumed: 1  
Price Per Unit: 1

**Name: cena**  
Customer No: 5 NOU consumed: 8  
Price Per Unit: 8

Login Successfull!!

## 5) Insert Activity

1:00 0.00 K/s

**BCAExternals076**

Enter Customer No

Enter Customer Name

Enter No of Units Consumed,

Enter Price Per Unit

**INSERT**

**CANCLE**

17BCA076

CA321