IT2010 – Mobile Application Development
BSc (Hons) in Information Technology
2nd Year
Faculty of Computing
SLIT
2023 – Assessment 01
Phase 1 Report

Description	Student ID	Name
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Member 4	IT21219498	Vithanage C.S.

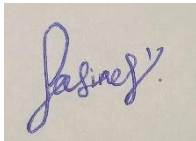|	
Application Topic	**ESPARK Electricity Management Application**
Group Name	**PACH Tech**

Project Declaration

We, the members of PACH Tech, hereby declare that our group project is entirely authentic and original. We have conducted thorough research and analysis to ensure that our work is not plagiarized or copied from any other sources.

We have followed all guidelines provided by our LIC and have complied with all ethical and academic standards.

We take full responsibility for the authenticity of our work and understand the implications of academic dishonesty. We have worked collaboratively to produce this project, and each member has contributed to the best of their abilities.

We hereby affirm that our project represents our honest effort and commitment to academic integrity, and we take pride in presenting it as our own.

Group Leader (Signature)
P.T.Jayasinghe

Description about the overall project

The issue regarding the rapid increase in household electricity bills became a key talking point through all levels of society recently. Our solution to help mitigates that burning issue is ESPARK. ESPARK is a revolutionary mobile application that provides users with the facility to calculate their monthly electricity bill themselves, by simply inserting the unit readings of the past month and current month to get rid of any doubts regarding how the bill was calculated. In addition to that, users can view and compare how their electricity bill fluctuated throughout the past months. Users will be provided with the facility of managing their power consumption by creating usage plans for their devices by simply inserting key details of their appliances which will tell them in advance how many units of electricity will be consumed if a certain appliance is switched on for a given time. Another key function provided by our system is keeping track of the warranty periods of electric appliances so that once an appliance is broken the users of our application will straightaway know whether the appliance's warranty is still valid or not. Also, through our mobile application users will get the facility having access to a unit converter that provides instant conversions between measurements of units related to electricity.

Logo

The logo of our application was designed with great attention to detail. The blue colored roof represents the idea of a home or the household of the users. The symbol 'e' represents the concept of electricity, whereas the rectangle captures the idea of the users of this mobile application being successful in setting a limitation to the power consumption managing their household power consumption in an efficient manner.

IT21234484 – User Management and Electrical Unit Converter

As my individual contribution I have designed the following user interfaces,

- Language select screen
- Login
- Sign up
- Electrical unit converter

When a new user downloads and opens the application, he will be able to select the preferred language from the UI that I have designed. Then he will be redirected to a page created by myself, from which he must choose whether to login or to register to the system. A new user can select the register option and he will be redirected to the register page whereas an already registered user can select the login option and login to the system using their login credentials. Also, I have created the UI for the electrical unit converter which would come in handy for users who want to make instant conversions between different measurement units related to electronics. Special attention was paid to making the User Interface pleasing to the eyes of the users while being efficient anduser friendly at the same time.

Email

Password

Confirm Password

Register

Already have an account? Sign In

Or

Register From

WELCOME

CHOOSE A LANGUAGE

සිංහල

ENGLISH

Android ▾

dimensions.xml ×   colors.xml ×

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    //Welcome Page
    <dimen name="welcome_title_layout_height">5dp</dimen>
    <dimen name="chose_language_layout_margin_left">80dp</dimen>
    <dimen name="chose_language_layout_margin_right">70dp</dimen>
    <dimen name="chose_language_layout_margin_top">110dp</dimen>
    <dimen name="sinhalabtn_layout_margin_left">62dp</dimen>
    <dimen name="sinhalabtn_layout_margin_right">62dp</dimen>
    <dimen name="sinhalabtn_layout_margin_top">30dp</dimen>
    <dimen name="englishbtn_layout_margin_left">62dp</dimen>
    <dimen name="englishbtn_layout_margin_right">62dp</dimen>
    <dimen name="englishbtn_layout_margin_top">18.5dp</dimen>
    //Login page
    <dimen name="activitymain_login_layout_margin_left">62dp</dimen>
    <dimen name="activitymain_login_layout_margin_right">62dp</dimen>
    <dimen name="activitymain_login_layout_margin_top">18.5dp</dimen>
    <dimen name="activitymain_forgotpwd_layout_margin_top">12dp</dimen>
    <dimen name="activitymain_googlebtn_layout_margin_left">20dp</dimen>
    <dimen name="activitymain_googlebtn_layout_margin_right">20dp</dimen>
    <dimen name="activitymain_facebookbtn_layout_margin_left">20dp</dimen>
    <dimen name="activitymain_facebookbtn_layout_margin_right">20dp</dimen>
    <dimen name="activitymain_instagrambtn_layout_margin_left">20dp</dimen>
    <dimen name="activitymain_instagrambtn_layout_margin_right">20dp</dimen>
    //Registration page
    <dimen name="registrationpg_regbtn_layout_margin_left">62dp</dimen>
    <dimen name="registrationpg_regbtn_layout_margin_right">62dp</dimen>
    <dimen name="registrationpg_regbtn_layout_margin_top">18.5dp</dimen>
```

resources › dimen

Android ▾

dimensions.xml ×   colors.xml ×   strings.xml ×

Edit translations for all locales in the translations editor.

```xml
<resources>
    <string name="app_name">LoginNregUi</string>
    <string name="email">Email</string>
    <string name="txtEmailAddress">textEmailAddress</string>
    <string name="pwd">Password</string>
    <string name="choicetxtor">Or\nLogin From</string>
    <string name="choicetxtor2">Or\nRegister From</string>
    <string name="loginbtn">LOGIN</string>
    <string name="forgotpwd">Forgot Password ?</string>
    <string name="registerbtn">Register</string>
    <string name="confirmpwd">Confirm Password</string>
    <string name="signin">Already have an account? Sign In</string>
    <string name="newuserreg">New User? Register Now</string>
    <string name="powerconverter">Simple Power Converter</string>
    <string name="horsepower">Horsepower</string>
    <string name="textRes">0.746</string>
    <string name="kilowatts">Kilowatt</string>
    <string name="regbtn">RESGISTER</string>
    <string name="welcome">WELCOME </string>
    <string name="chooselan">CHOOSE A LANGUAGE</string>
    <string name="sinhala">සිංහල</string>
    <string name="englishlan">ENGLISH</string>
</resources>
```
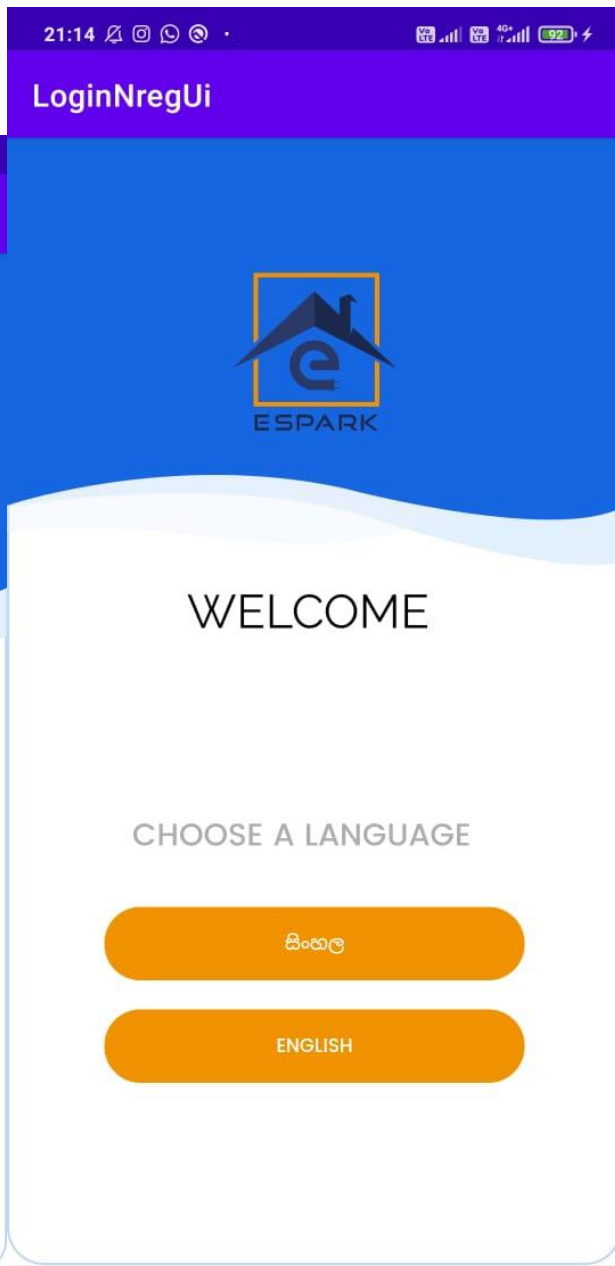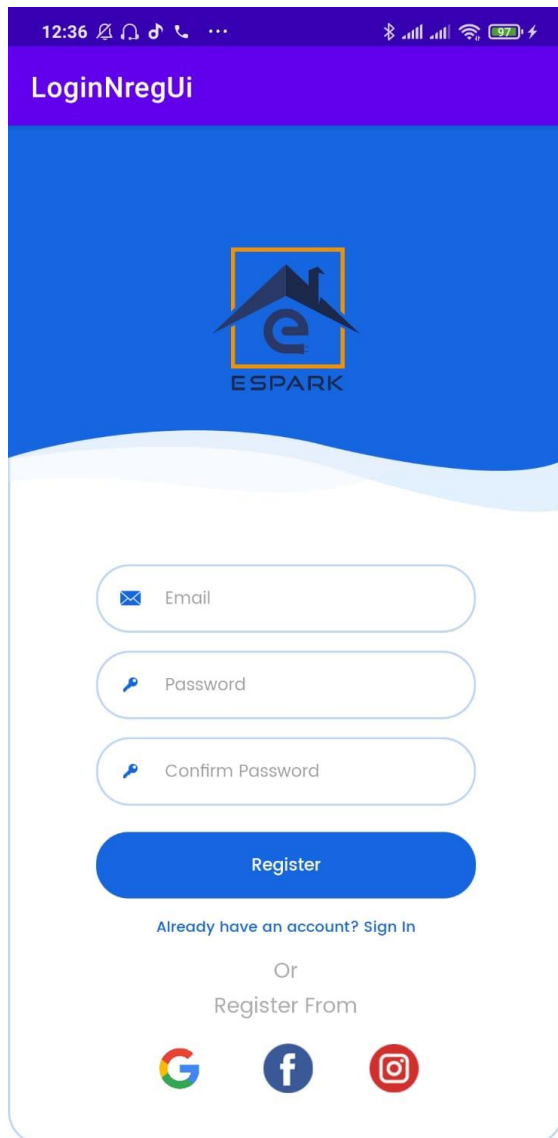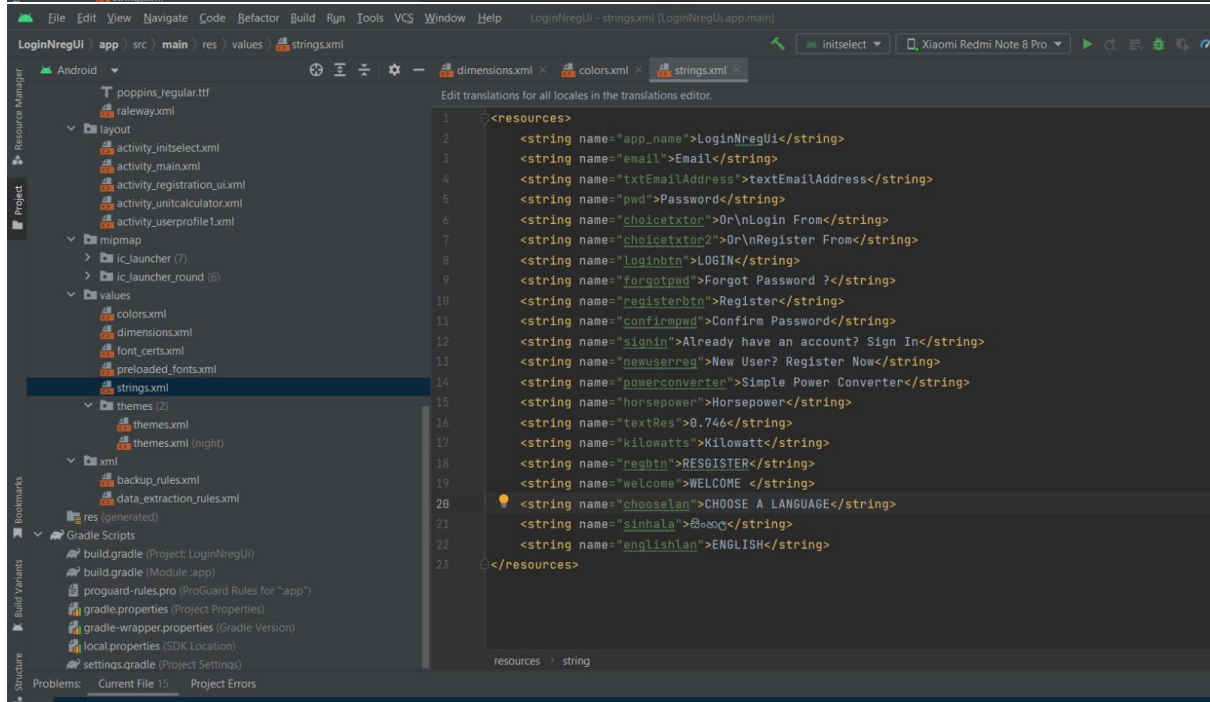
resources › string

Problems: Current File 15   Project Errors
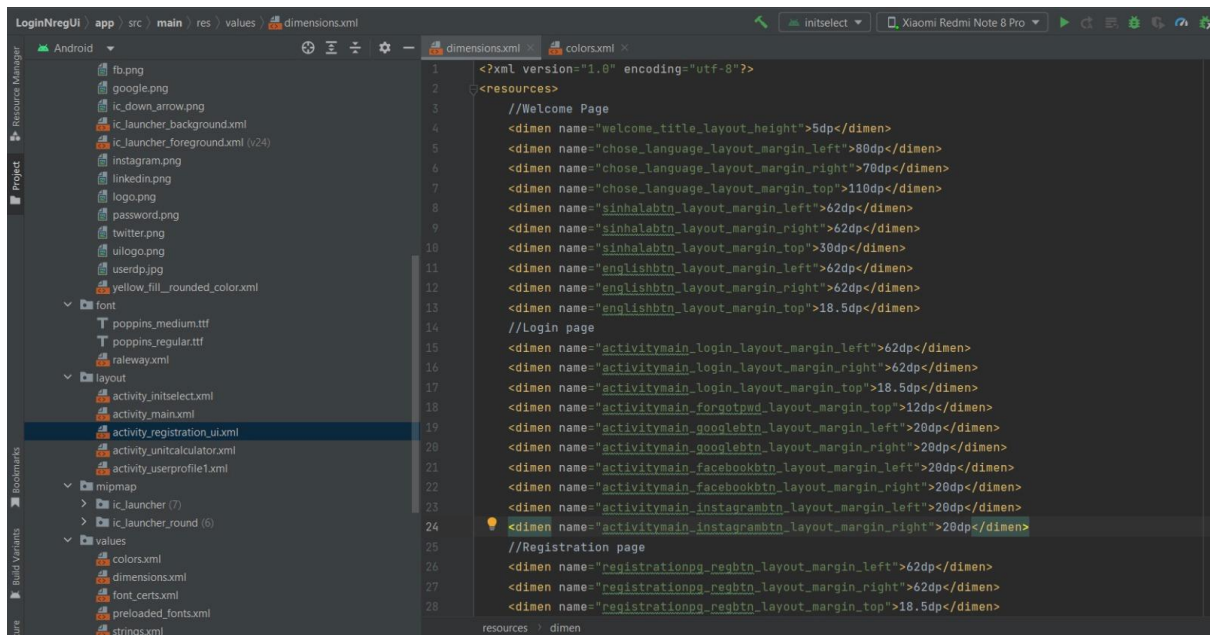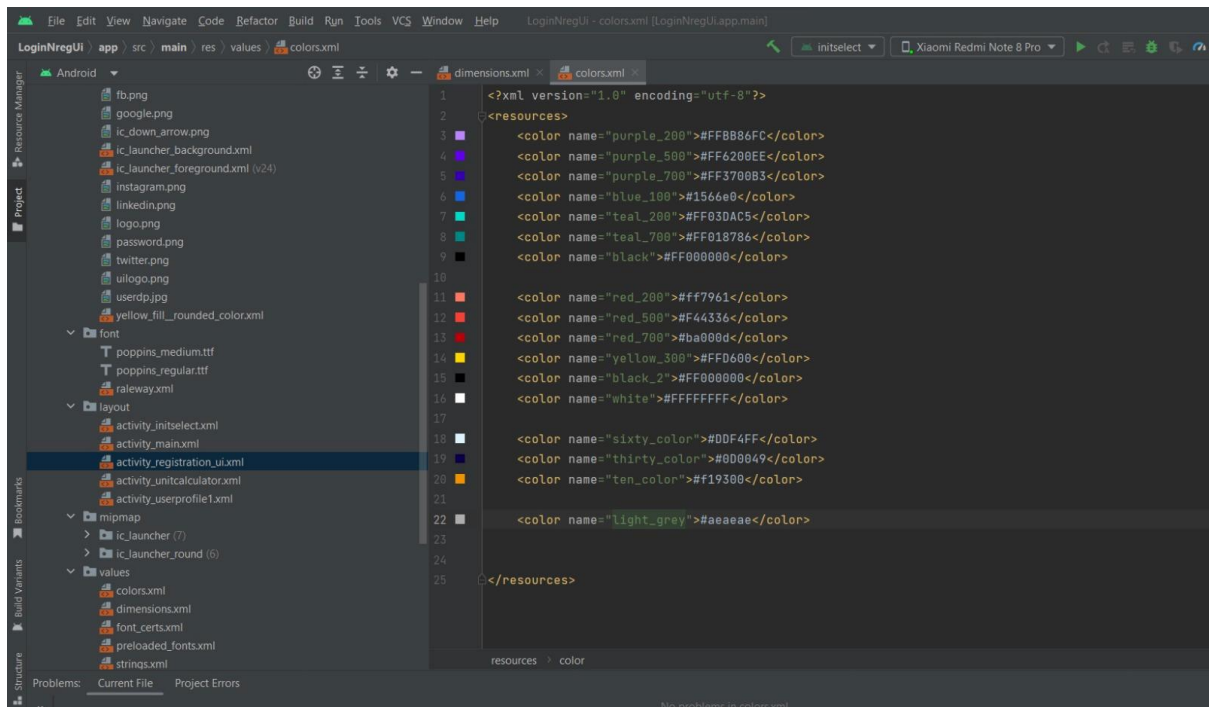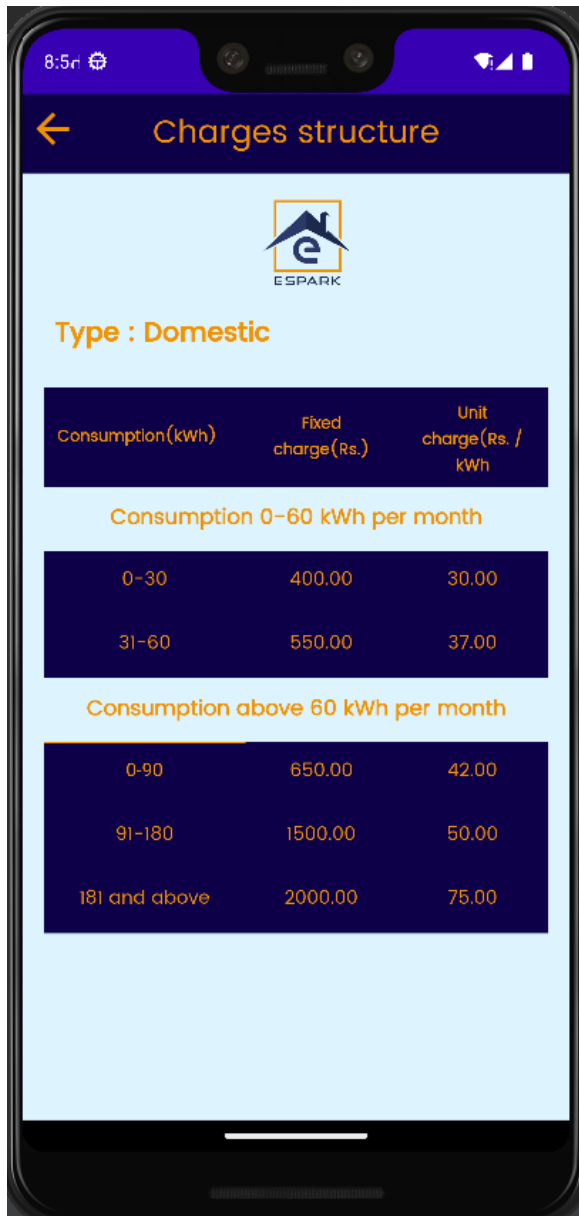
IT21286278 - Electricity bill calculation and manage bills

After login to the ESPARK mobile app, customers can calculate their bill by entering the last month's bill reading and current meter reading for the ongoing month. Customers can calculate the bill according to their customer type (Domestic, Religious and charitable institutions, Industrial). The App provides facilities to keep track of monthly costs for electricity and customers can compare monthly charges. Also, customers can view the detailed bill for calculated bill amount. By using the ESPARK app customers can manage their expenses for electricity.

Customer can,

- Add a new bill to systems
- Update an existing bill detail.
- Delete an existing bill.
- View list of past bills.
- Generate bill for the current usage.
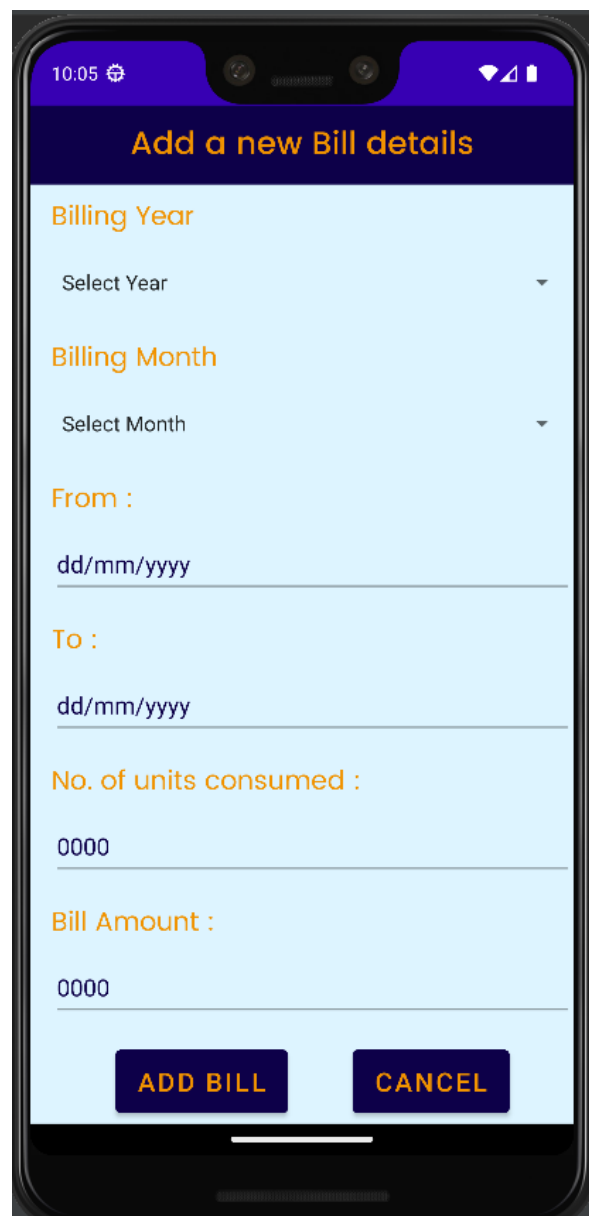- View latest charge structure (Tariff structure)

UIs

Charges structure

Type : Domestic

Consumption(kWh)	Fixed charge(Rs.)	Unit charge(Rs. / kWh)
Consumption 0-60 kWh per month		
0-30	400.00	30.00
31-60	550.00	37.00
Consumption above 60 kWh per month		
0-90	650.00	42.00
91-180	1500.00	50.00
181 and above	2000.00	75.00

Add a new Bill details

Billing Year

Select Year

Billing Month

Select Month

From :

dd/mm/yyyy

To :

dd/mm/yyyy

No. of units consumed :

0000

Bill Amount :

0000

ADD BILL   CANCEL

Electricity Bill Calculator

Customer Type

Select Type ▾

Last month bill meter reading

000000

Current meter reading

000000

CALCULATE

Bill details

Billing Year **Billing Month**

2022 12

From : 01/12/2022

To : 01/01/2023

No. of units consumed :

146

Bill Amount :

7396.35

UPDATE **DELETE**

Strings

```xml
<resources>
    <string name="app_name">electricityApp</string>

    //bill calculator
    <string name="bill_cal_title">Electricity Bill Calculator</string>
    <string name="last_reading">Last month bill meter reading</string>
    <string name="curr_reading">Current meter reading</string>
    <string name="cal_btn">Calculate</string>
    <string name="consume_type">Customer Type</string>
    <string name="cal_hint">000000</string>


    <string-array name="customer_type">
        <item>Select Type</item>
        <item>Domestic</item>
        <item>Religious and charitable institutions</item>
        <item>Industrial</item>
    </string-array>

    //adding a bill data
    <string name="add_bill_title">Add a new Bill details</string>
    <string name="bill_year">Billing Year</string>
    <string name="bill_month">Billing Month</string>
    <string name="date">dd/mm/yyyy</string>
    <string name="bill_units">No. of units consumed :</string>
    <string name="units_hint">0000</string>
    <string name="amount">Bill Amount : </string>
    <string-array name="bill_year">
        <item>Select Year</item>
        <item>2020</item>
```
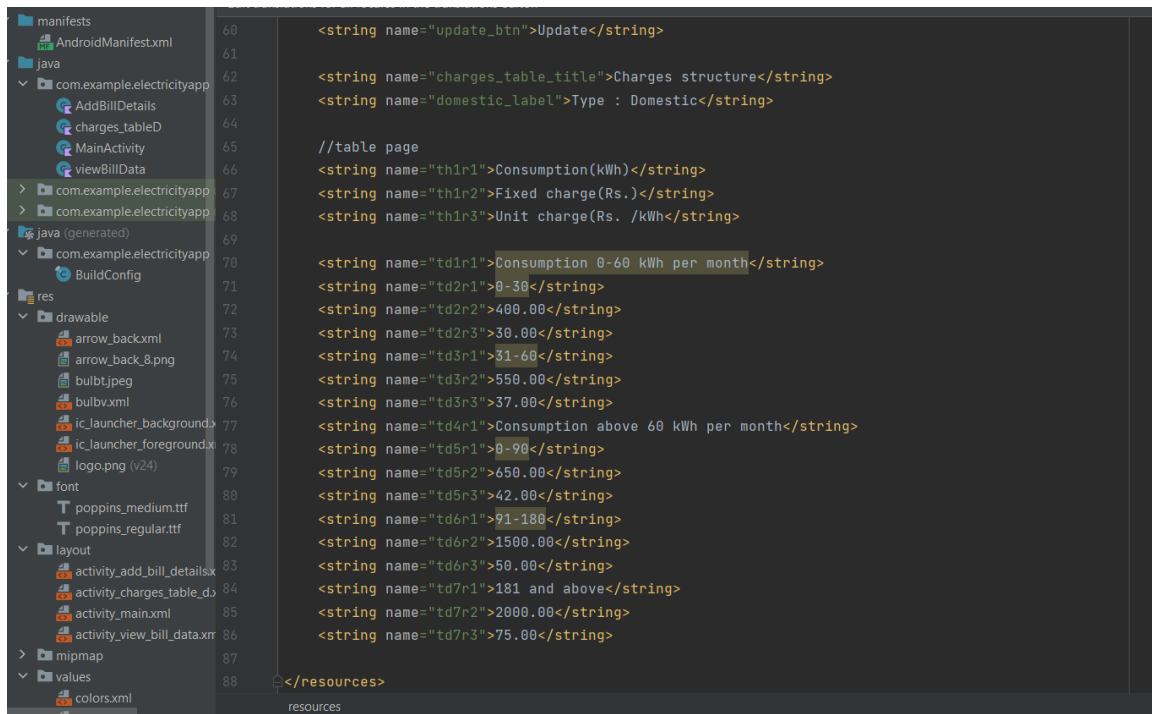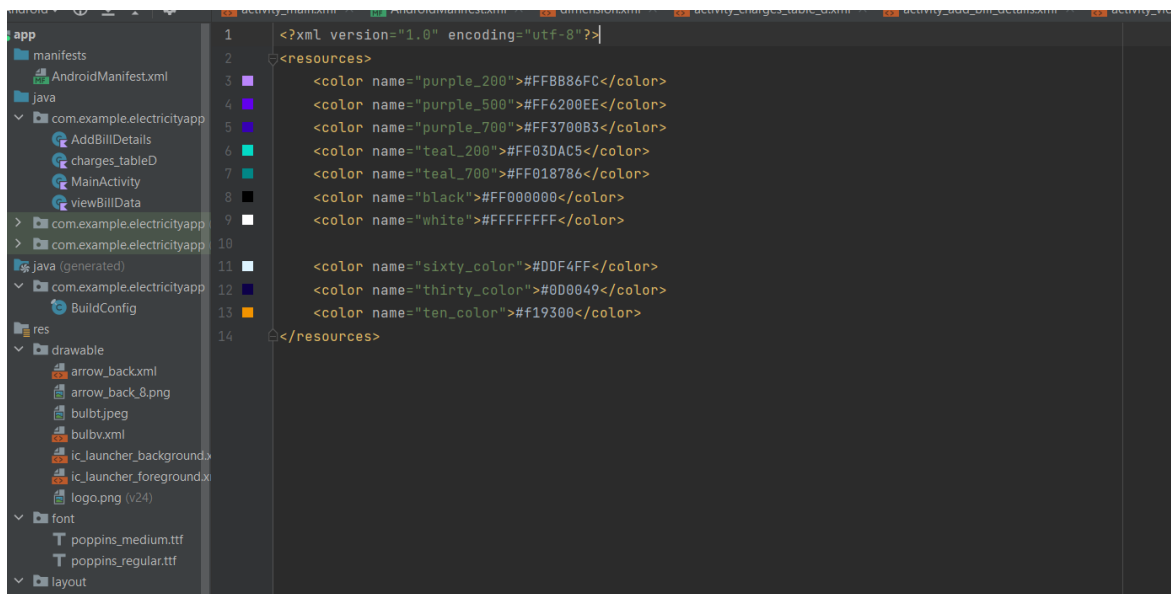
```xml
        <item>Select Year</item>
        <item>2020</item>
        <item>2021</item>
        <item>2022</item>
        <item>2023</item>
        <item>2024</item>
        <item>2025</item>
    </string-array>


    <string-array name="bill_month">
        <item>Select Month</item>
        <item>01</item>
        <item>02</item>
        <item>03</item>
        <item>04</item>
        <item>05</item>
        <item>06</item>
        <item>07</item>
        <item>08</item>
        <item>09</item>
        <item>10</item>
        <item>11</item>
        <item>12</item>
    </string-array>
    <string name="start_date">From :</string>
    <string name="end_date">To :</string>
    <string name="bill_add_btn">Add Bill</string>
    <string name="bill_cancel_btn">Cancel</string>
```

```xml
<string name="update_btn">Update</string>


<string name="charges_table_title">Charges structure</string>
<string name="domestic_label">Type : Domestic</string>


//table page
<string name="th1r1">Consumption(kWh)</string>
<string name="th1r2">Fixed charge(Rs.)</string>
<string name="th1r3">Unit charge(Rs. /kWh</string>


<string name="td1r1">Consumption 0-60 kWh per month</string>
<string name="td2r1">0-30</string>
<string name="td2r2">400.00</string>
<string name="td2r3">30.00</string>
<string name="td3r1">31-60</string>
<string name="td3r2">550.00</string>
<string name="td3r3">37.00</string>
<string name="td4r1">Consumption above 60 kWh per month</string>
<string name="td5r1">0-90</string>
<string name="td5r2">650.00</string>
<string name="td5r3">42.00</string>
<string name="td6r1">91-180</string>
<string name="td6r2">1500.00</string>
<string name="td6r3">50.00</string>
<string name="td7r1">181 and above</string>
<string name="td7r2">2000.00</string>
<string name="td7r3">75.00</string>


</resources>
```

Colors

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>

    <color name="sixty_color">#DDF4FF</color>
    <color name="thirty_color">#0D0049</color>
    <color name="ten_color">#f19300</color>
</resources>
```

Dimensions


```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <dimen name="main_title_layout_height">60dp</dimen>
    <dimen name="main_title_title_padding_top">10dp</dimen>
    <dimen name="logo_width">100dp</dimen>
    <dimen name="logo_height">105dp</dimen>
    <dimen name="main_txt_view_margin_start">24dp</dimen>
    <dimen name="main_txt_view_margin_top">16dp</dimen>
    <dimen name="add_bill_spinner_layout_marginStart">16dp</dimen>
    <dimen name="add_bill_spinner_layout_marginTop">16dp</dimen>
    <dimen name="add_bill_spinner_layout_minHeight">50dp</dimen>
    <dimen name="add_bill_button_layout_marginTop">32dp</dimen>
    <dimen name="add_bill_button_layout_marginStart">16dp</dimen>
    <dimen name="view_bill_button_marginEnd">24dp</dimen>
    <dimen name="view_bill_button_marginStart">24dp</dimen>
    <dimen name="view_bill_button_marginTop">50dp</dimen>
    <dimen name="add_bill_edtText_layout_marginStart">16dp</dimen>
    <dimen name="add_bill_edtText_layout_marginTop">16dp</dimen>
</resources>
```

IT21209420 – Power Consumption Management

I developed the following user interfaces as my own contribution,

- Add items and create electricity plans
- View electricity plans
- Edit/Remove electricity plans
- Settings page

Customers can now create their own electricity plans with the help of this function. Users can enter the name of the device, location, power consumption information, and the number of hours per day they regularly utilize it in their homes using this function. The customer can then determine the final bill amount. Following development, customers can store their own plans in the database. Many plans can also be maintained by users. Editing is possible for any saved plan. This will be of great help to people who are unfamiliar with electricity in controlling their bill. Data allows users to select the finest devices for managing their electricity bills.
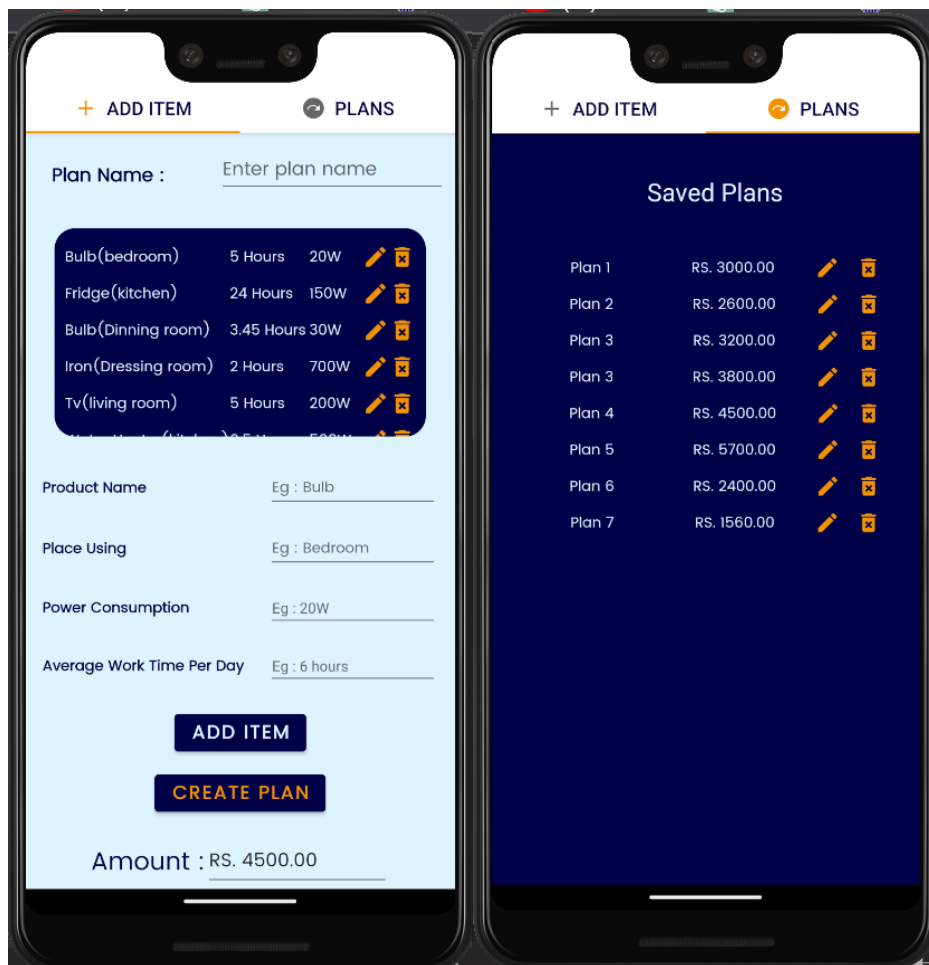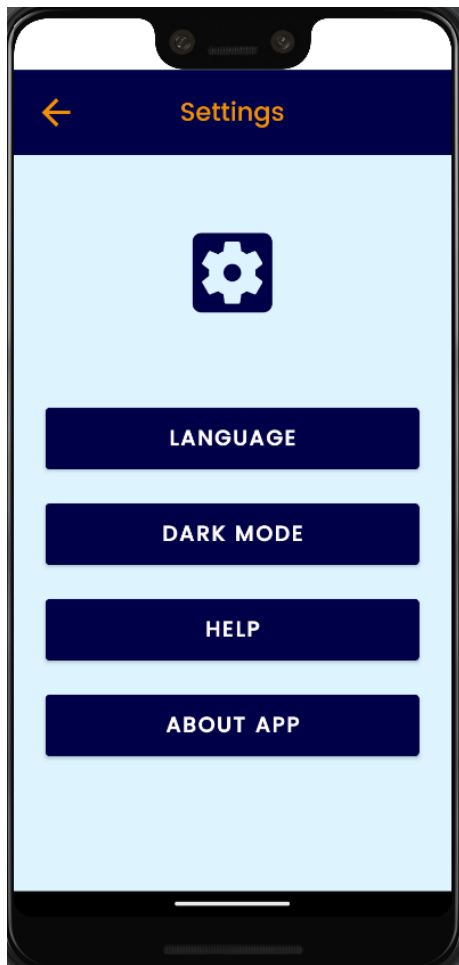
Screen 1 (Add Item):

+ ADD ITEM   ⊘ PLANS

Plan Name :   Enter plan name

Bulb(bedroom)	5 Hours	20W	✏ 🗑
Fridge(kitchen)	24 Hours	150W	✏ 🗑
Bulb(Dinning room)	3.45 Hours	30W	✏ 🗑
Iron(Dressing room)	2 Hours	700W	✏ 🗑
Tv(living room)	5 Hours	200W	✏ 🗑

Product Name   Eg : Bulb

Place Using   Eg : Bedroom

Power Consumption   Eg : 20W

Average Work Time Per Day   Eg : 6 hours

ADD ITEM

CREATE PLAN

Amount : RS. 4500.00

Screen 2 (Plans):

+ ADD ITEM   ⊘ PLANS

Saved Plans

Plan 1	RS. 3000.00	✏	🗑
Plan 2	RS. 2600.00	✏	🗑
Plan 3	RS. 3200.00	✏	🗑
Plan 3	RS. 3800.00	✏	🗑
Plan 4	RS. 4500.00	✏	🗑
Plan 5	RS. 5700.00	✏	🗑
Plan 6	RS. 2400.00	✏	🗑
Plan 7	RS. 1560.00	✏	🗑

Settings

LANGUAGE

DARK MODE

HELP

ABOUT APP

Saved Plans

Dimensions


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

    <dimen name="enter_plan_name_width">218dp</dimen>
    <dimen name="enter_plan_name_height">43dp</dimen>
    <dimen name="item_rv_height">200dp</dimen>
    <dimen name="item_rv_width">356dp</dimen>
    <dimen name="product_details_width">200dp</dimen>
    <dimen name="ent_product_details_width">163dp</dimen>
    <dimen name="display_amount_width">177dp</dimen>
    <dimen name="display_amount_height">51dp</dimen>
    <dimen name="saved_plan_height">597dp</dimen>
    <dimen name="saved_plan_width">353dp</dimen>
    <dimen name="view_item_name_width">150dp</dimen>
    <dimen name="view_item_time_width">75dp</dimen>
    <dimen name="view_item_watt_width">50dp</dimen>
    <dimen name="add_item_plan_name_margin_left">16dp</dimen>
    <dimen name="add_item_Enter_plan_name_margin_Top">16dp</dimen>
    <dimen name="add_item_recycler_margin_top">32dp</dimen>
    <dimen name="add_item_recycler_padding_left">10dp</dimen>
    <dimen name="add_item_recycler_padding_Top">10dp</dimen>
    <dimen name="add_item_recycler_padding_Right">10dp</dimen>

</resources>
```
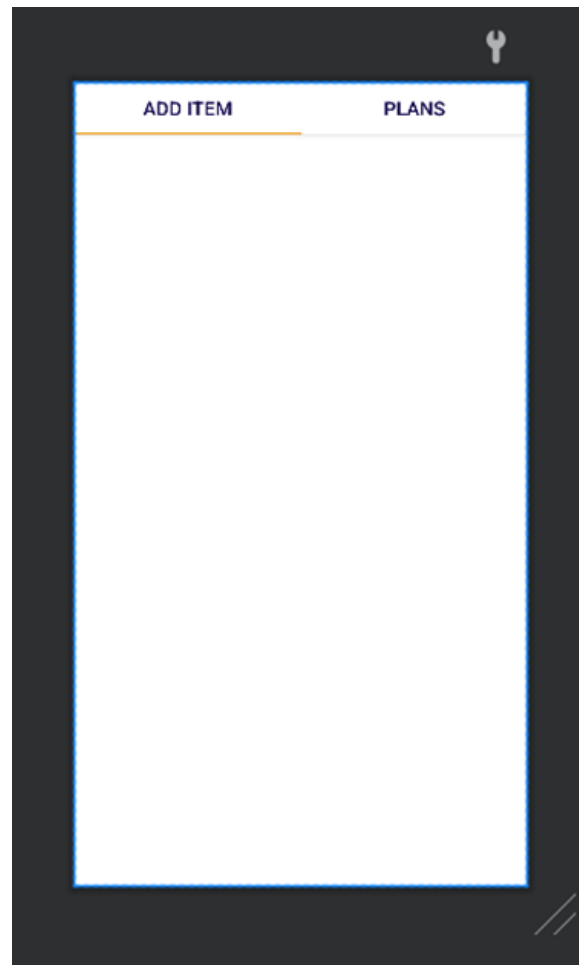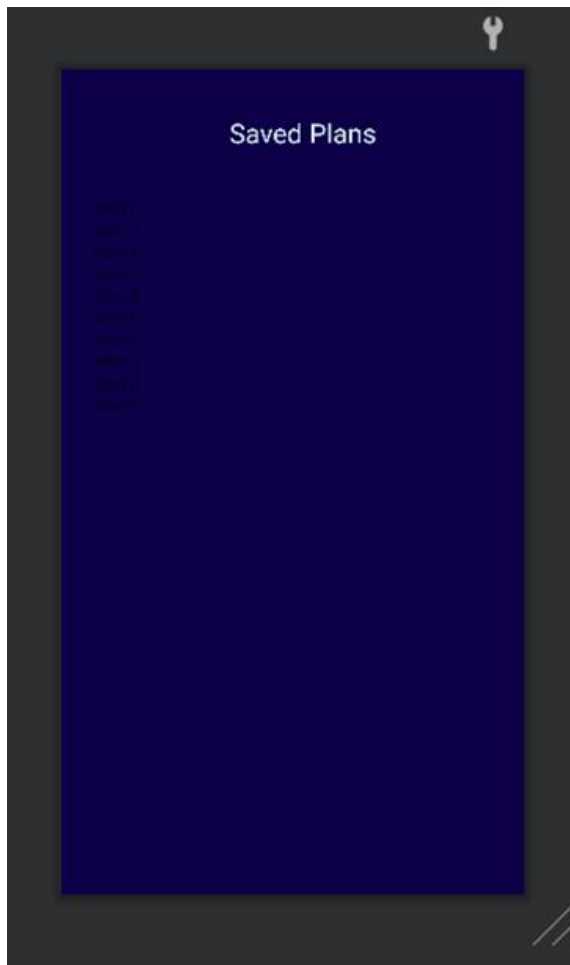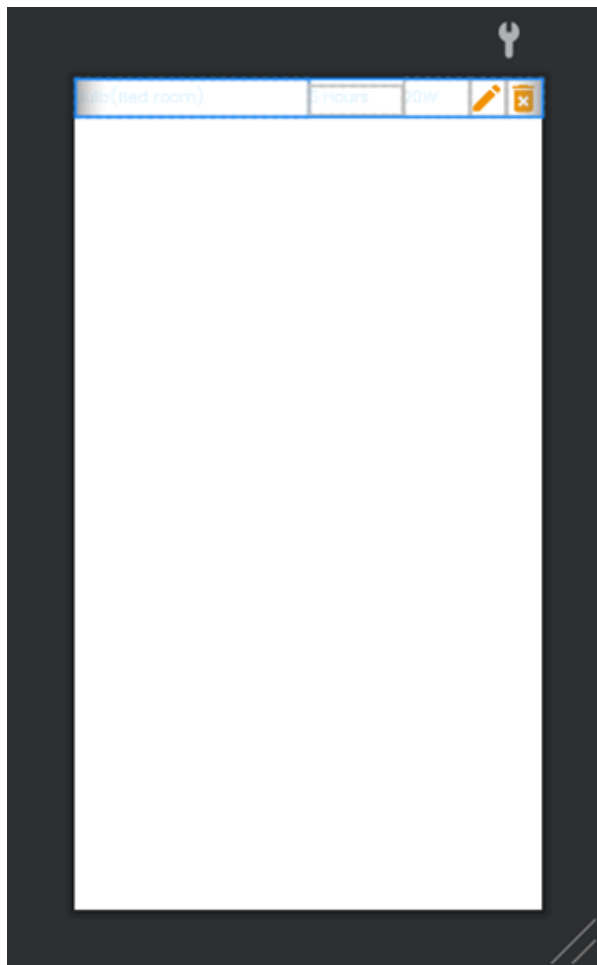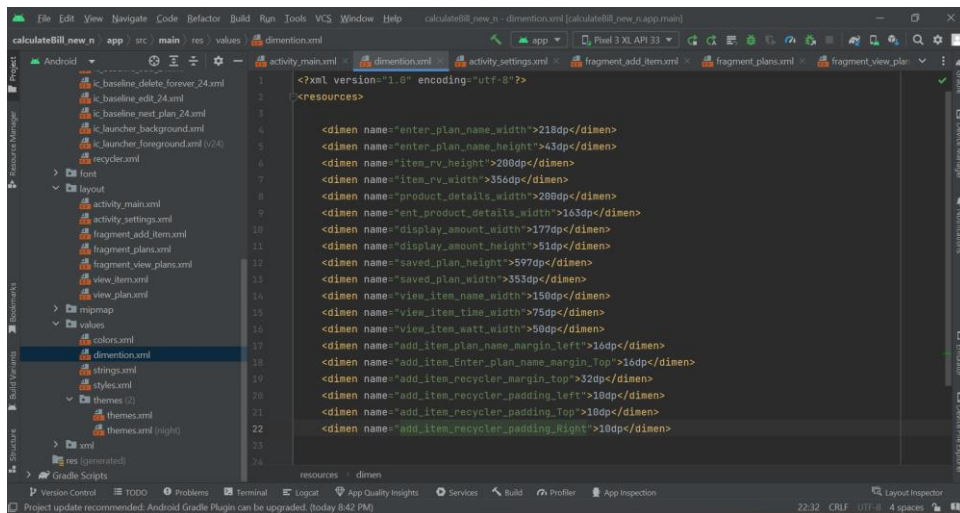
Strings
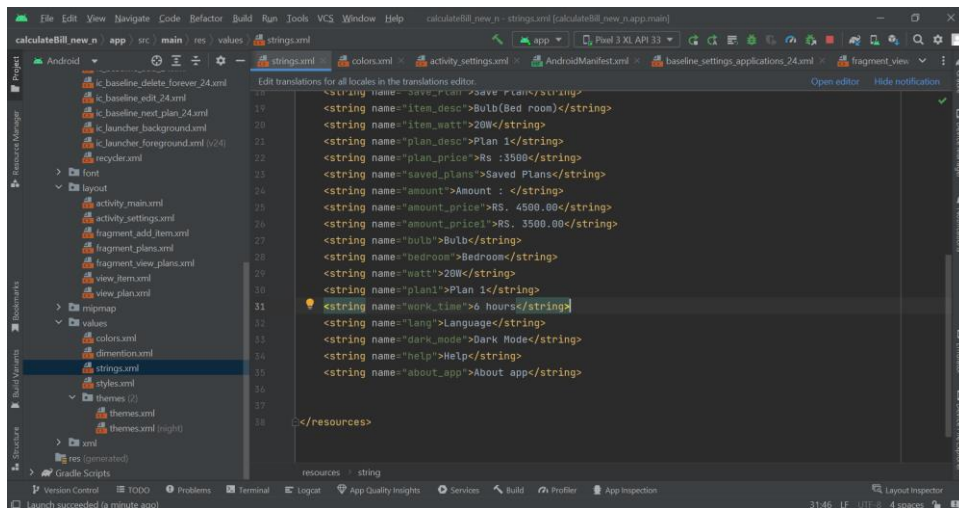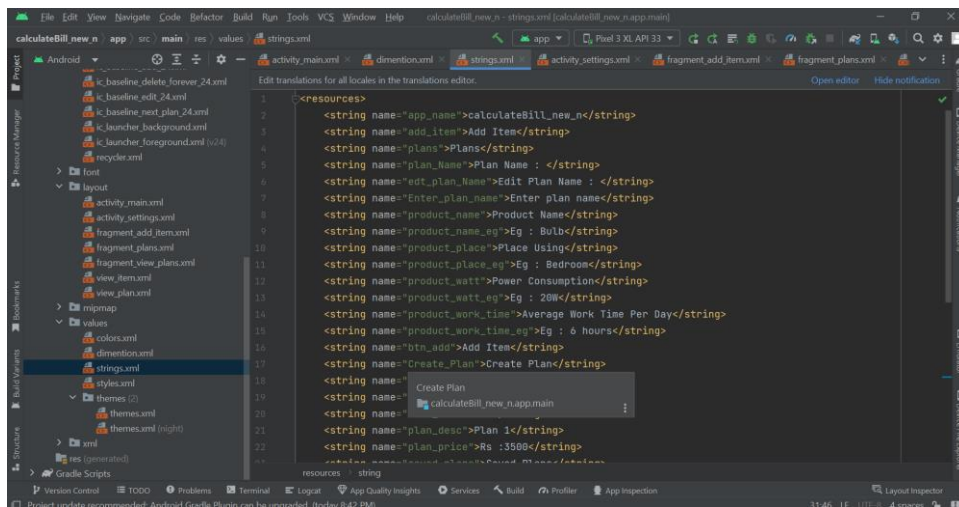
Colors
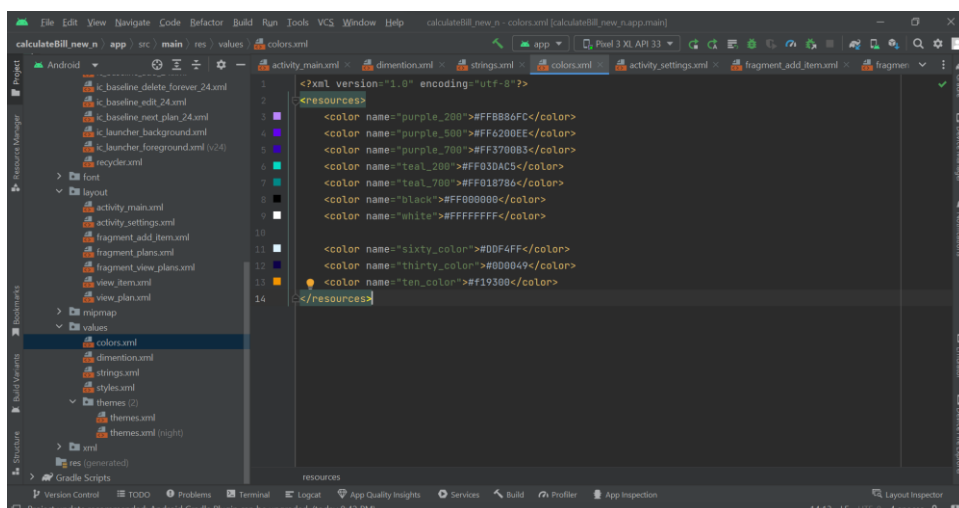
IT21219498 – Electrical equipment's warranty management

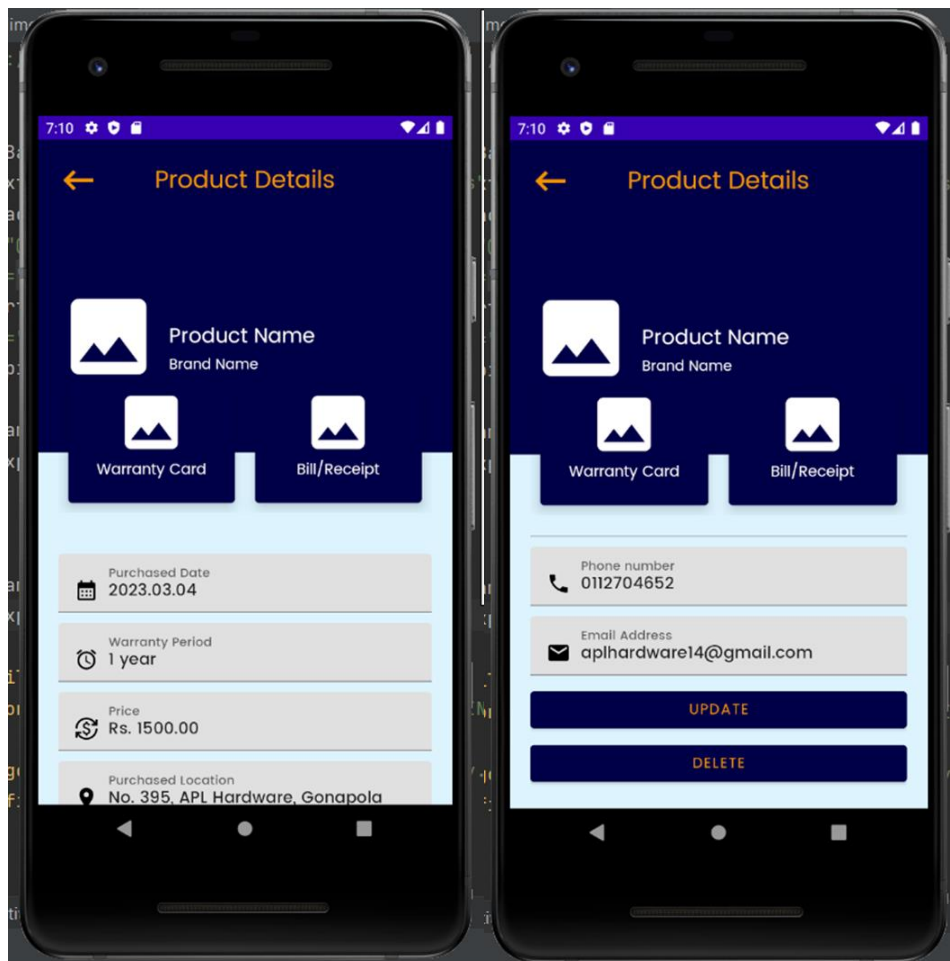The following user interfaces were created by me as my own contribution,

- Splash screen of the app
- Dashboard of warranty manager
- Add product to system
- View details of product's warranty

The user can utilize this system to save the warranty certificate information for all of the household's electrical devices. Based on the data, the system displays the current and expired warranties separately. The system will also display the warranty card that will expire in the next month. Also, the system sends a reminder to the user once a week informing them of it. The information submitted into the system could be retrieved or updated at any time by the user. The user is able to erase the warranty-related data as well. The user can also use the product name and other information to look for warranty card details.

- Splash screen

- View details of product's warranty

- Dashboard of warranty manager

- Add product to system

- dimension.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <dimen name="relative_header_padding">20dp</dimen>
    <dimen name="img_width">40dp</dimen>
    <dimen name="img_height">40dp</dimen>
    <dimen name="step1_top_margin">16dp</dimen>
    <dimen name="textIn_margin_start">16dp</dimen>
    <dimen name="textIn_margin_top">24dp</dimen>
    <dimen name="textIn_margin_end">16dp</dimen>
    <dimen name="textIn_box_width">2dp</dimen>
    <dimen name="step3_txt_margin">16dp</dimen>
    <dimen name="upImg_txt_margin_start">8dp</dimen>
    <dimen name="upImg_txt_margin_top">16dp</dimen>
    <dimen name="upImg_txt_margin_end">272dp</dimen>
    <dimen name="img_margin_start">16dp</dimen>
    <dimen name="img_margin_top">16dp</dimen>
    <dimen name="img_margin_end">16dp</dimen>

    <dimen name="img_back_width">40dp</dimen>
    <dimen name="img_back_height">40dp</dimen>
    <dimen name="imgLay_product_height">230dp</dimen>
    <dimen name="imgLay_product_padding">20dp</dimen>
    <dimen name="img_pro_width">100dp</dimen>
    <dimen name="img_pro_height">100dp</dimen>
    <dimen name="txt_pro_marginL">10dp</dimen>
    <dimen name="lay_card_pad">20dp</dimen>
    <dimen name="lay_card_wid">0dp</dimen>
    <dimen name="lay_card_height">120dp</dimen>
    <dimen name="imgLay_pad">5</dimen>
resources
```

- colors.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>

    <color name="sixty_color">#DDF4FF</color>
    <color name="thirty_color">#0D0049</color>
    <color name="ten_color">#f19300</color>

</resources>
```

- strings.xml
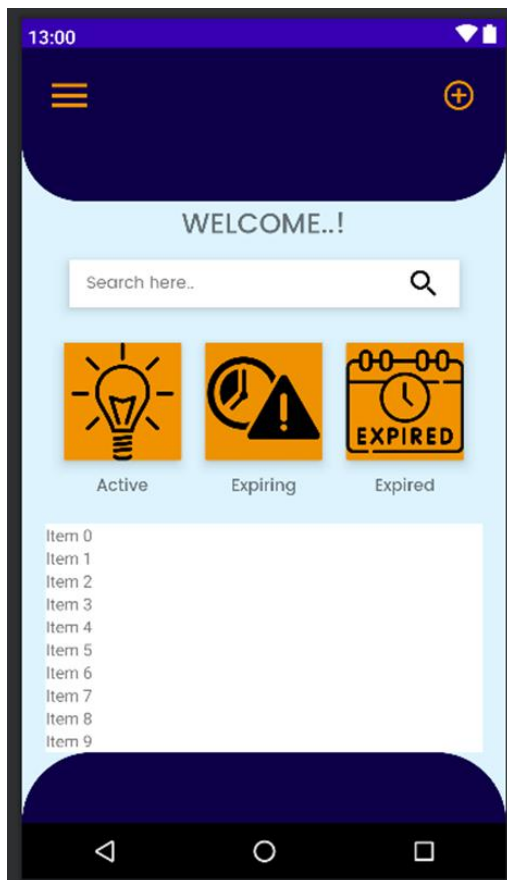
```xml
<resources>
    <string name="app_name">WARRANTY MANAGER</string>

    <!--Add produt page-->
    <string name="titleAdd">Add Product</string>
    <string name="step_1">Step 1 : Required</string>
    <string name="step_2">Step 2 : Optional</string>
    <string name="step_3">Step 3 : Attachments</string>
    <string name="txt_pName">Product Name</string>
    <string name="txt_Brand">Brand Name</string>
    <string name="dt_purchased">Purchased Date</string>
    <string name="wPeriod">Warranty Period</string>
    <string name="spn_wPeriod">Select Warranty Period</string>
    <string name="price">Price</string>
    <string name="txt_Location">Purchased Location</string>
    <string name="txt_phone">Phone number</string>
    <string name="txt_email">Email Address</string>
    <string name="txt_other">Other</string>
    <string name="txt_image1">Upload Product Image</string>
    <string name="txt_image2">Upload Purchased Bill</string>
    <string name="txt_image3">Upload Warranty Copy</string>
    <string name="btnGallery">Gallery</string>
    <string name="btnCamera">Camera</string>
    <string name="btnSubmit">Submit</string>
    <string name="btnReset">Reset</string>

    <!-- dashboard page   -->
    <string name="btnActive">Active</string>

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    <!-- dashboard page   -->
    <string name="btnActive">Active</string>
    <string name="btnExpiring">Expiring</string>
    <string name="btnExpired">Expired</string>
    <string name="btnAdd_product">Add Warranty</string>
    <string name="dashboard_head">WELCOME..!</string>
    <string name="brSearch">Search here..</string>

    <!-- view details page-->
    <string name="pch_date">2023.03.04</string>
    <string name="warPeriod">1 year</string>
    <string name="proPrice">Rs. 1500.00</string>
    <string name="address">No. 395, APL Hardware, Gonapola</string>
    <string name="phoneNo">0112704652</string>
    <string name="emailEx">aplhardware14@gmail.com</string>
    <string name="updateBtn">Update</string>
    <string name="deleteBtn">Delete</string>
    <string name="develop">PACH Tech</string>
    <string name="pro_details">Product Details</string>


</resources>
```