**SE4041 - Mobile Application Design And Development** **Assignment 3** **Semester 2, 2020**

**Group ID: 14**

**Project Topic: Credit card installment calculator**

| Student ID | Student Name | Android Project | | | | | | Report | | | | Viva(15) | Total (100) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wireframes(8) | Project Design and Consistency(8) | Integrated application using a repository(3) | Correct calculations for a working app(8) | using SQLite db(20) | Unit Test cases written in Android Project(10) | Explaining connectivity of interfaces(3) | Explaining UI design principles applied to the project (10) | Additional features(5) | mobile test cases(10) | | |
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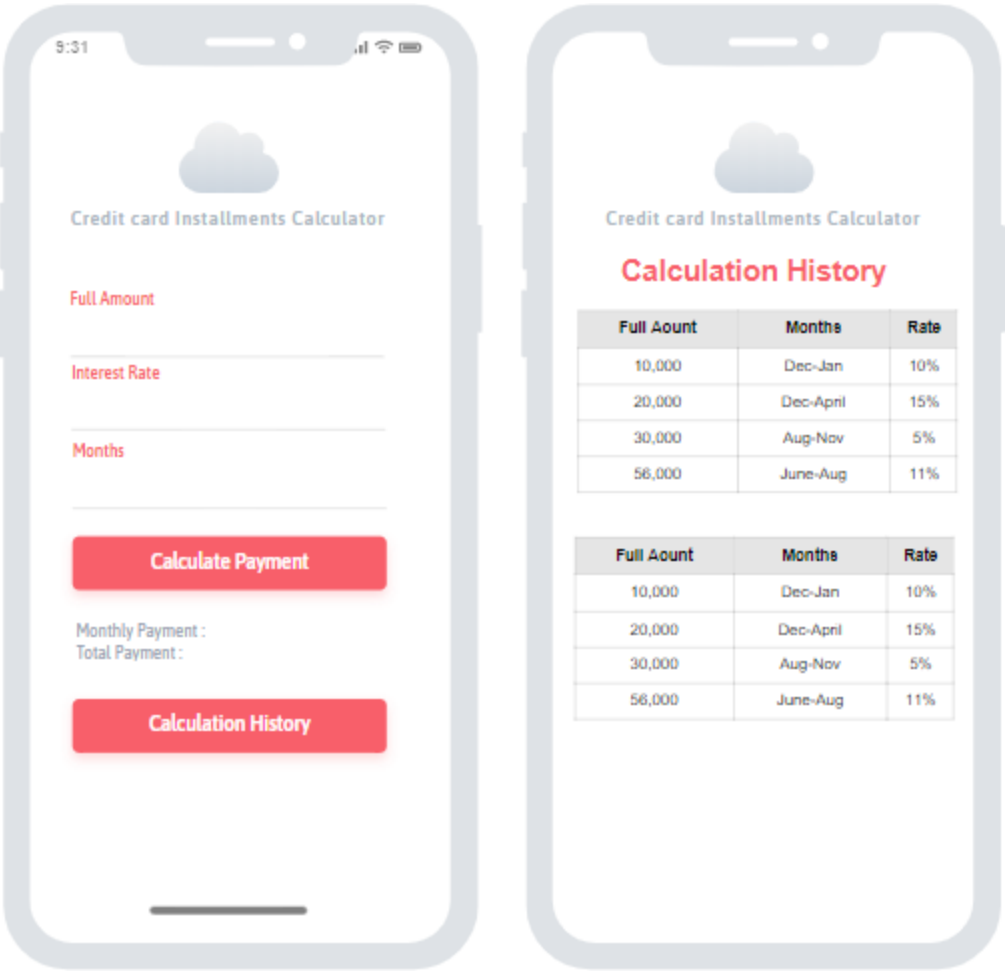
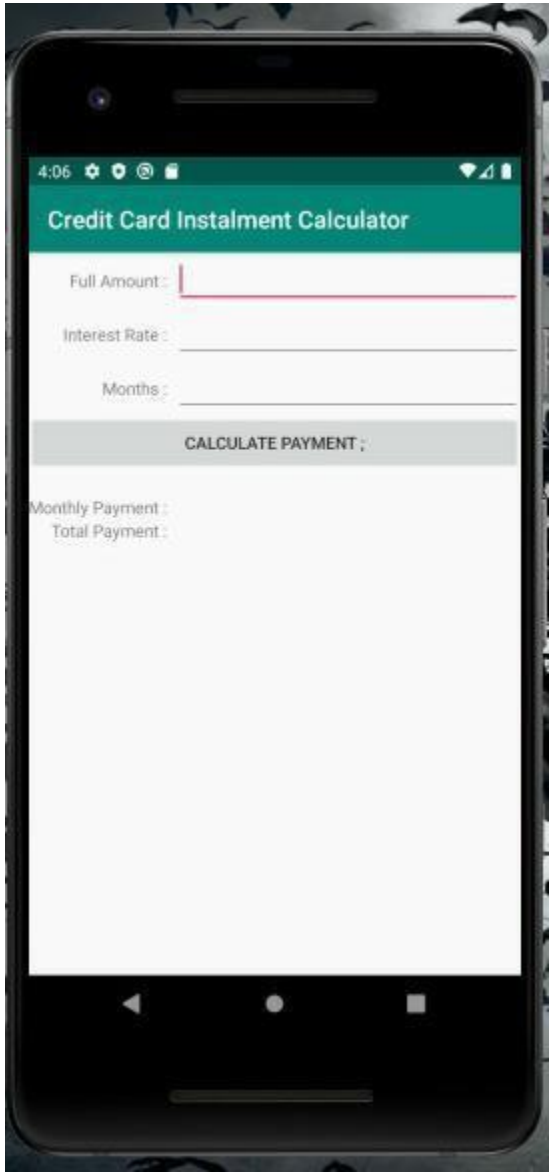
**Prototype and UI Connectivity**




This credit card installments calculator have only two user interfaces for the simplicity of the application since it's main purpose is to calculate the payment of credit card. First UI appears after the launching of the application. Then when the use clicks "Calculation History" button it will be redirected to the second UI. White has used as the background color and Red and Gray has used as the primary and secondary colors. This application has a focused motion throughout it's UI. This app has used two sets of fonts for the clear representations. It also has clear navigation when it comes to the accessibility.

**Running Application**



**Codes**

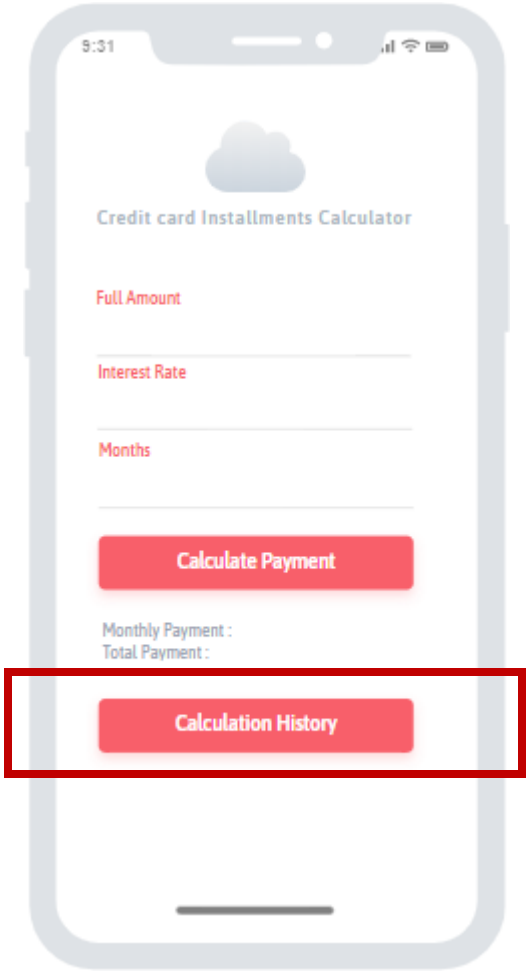
```java
package com.example.creditcard;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import java.text.DecimalFormat;

public class MainActivity extends AppCompatActivity {

    private EditText mLoanAmount, mInterestRate, mLoanPeriod;
    private TextView mMOnthlyPaymentResult, mTotalPaymentResult;
    Button calButton;



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

        mLoanAmount = (EditText)findViewById(R.id.loan_amount);
        calButton = findViewById(R.id.cal);
        mInterestRate = (EditText)findViewById(R.id.interest_rate);
        mLoanPeriod = (EditText)findViewById(R.id.loan_period);
        mMOnthlyPaymentResult = (TextView)findViewById(R.id.monthly_payment_result);
        mTotalPaymentResult = (TextView)findViewById(R.id.total_payment_result);
```

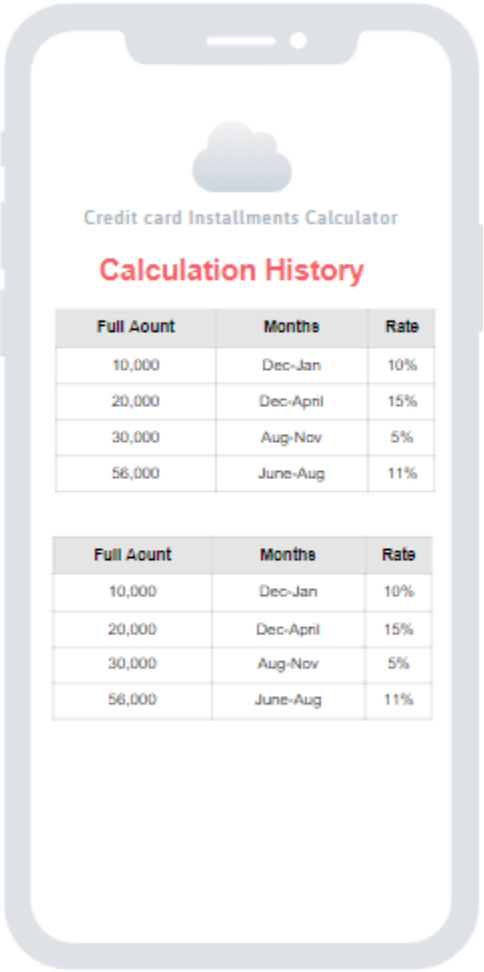
```
    calButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {

            double loanAmount = Integer.parseInt(mLoanAmount.getText().toString());
            double interestRate = (Integer.parseInt(mInterestRate.getText().toString()));
            double loanPeriod = Integer.parseInt(mLoanPeriod.getText().toString());
            double r = interestRate/1200;
            double r1 = Math.pow(r+1,loanPeriod);

            double monthlyPatyment = (double) ((r + (r/ (r1 - 1))) * loanAmount);
            double totalPayment = monthlyPatyment * loanPeriod;

            mMOnthlyPaymentResult.setText(new DecimalFormat("##.##").format(monthlyPatyment));
            mTotalPaymentResult.setText(new DecimalFormat("##.##").format(totalPayment));



        }
    });


}
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.creditcard">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"

        android:roundIcon="@mipmap/ic_launcher_round"
        android:label="Credit Card Instalment Calculator"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

**Additional Features**

The application allows the use to view the calculation history derived from the database. After the user used the calculate payement function the user can click the “Calculation history” button to view the user’s calcutaion history.



## Unit test Cases

```java
package com.example.creditcard;

import android.content.Context;

import androidx.test.platform.app.InstrumentationRegistry;
import androidx.test.ext.junit.runners.AndroidJUnit4;

import org.junit.Test;
import org.junit.runner.RunWith;

import static org.junit.Assert.*;

/**
 * Instrumented test, which will execute on an Android device.
 *
 * @see <a href="http://d.android.com/tools/testing">Testing documentation</a>
 */
@RunWith(AndroidJUnit4.class)
public class ExampleInstrumentedTest {
    @Test
    public void useAppContext() {
        // Context of the app under test.
        Context appContext = InstrumentationRegistry.getInstrumentation().getTargetContext();

        assertEquals("com.example.creditcard", appContext.getPackageName());
    }
}

```

```java
package com.example.creditcard;

import org.junit.Test;

import static org.junit.Assert.*;

/**
 * Example local unit test, which will execute on the development machine (host).
 *
 * @see <a href="http://d.android.com/tools/testing">Testing documentation</a>
 */
public class ExampleUnitTest {
    @Test
    public void addition_isCorrect() {
        assertEquals(4, 2 + 2);
    }
}
```

**Two test directories for both execution environments were implemented.**

- AndroidText → ExampleInstrumentedTest (To test in virtual environment)
- Test → ExampleUnitTest (To test in local machine as a unit test)

Method created in example unit test is used in android test as well.