

EXPERIMENT NO. 5

Aim :- Write an Android application to develop an EMI Calculator application.

Theory :-

To develop an EMI calculator app using Android Studio, start by creating a new project and designing the user interface with input fields for loan amount, interest rate, loan tenure, and buttons for calculation. Utilize XML layout files for UI design. Implement the EMI calculation logic in the Java code, handling user input validation and computation of EMI based on formula. Finally display the calculated EMI in a text view. Ensure to test the application thoroughly to ensure accuracy and usability.

XML Layout Design :-

The XML code represents the layout of app screen for calculating loan EMIs (Equated Monthly Installments). Here's its working are as follows :-

1. Relative layout :- This is root layout, allowing child views to be positioned relative to each other.
2. ~~Linear~~Layout :- Nested within the RelativeLayout, this layout is set to arrange its child views

vertically, and to center its content vertically.

3. EditTexts : Three EditText fields are provided for user input, Each EditText has attributes such as padding, text color, background drawable, text size, etc.

4. AppCompactButton : This button with the ID triggers the loan calculation. It has attributes for text, text color, text size, background drawable, padding and layout margins.

5. TextView : This TextView with the given ID is initially set to display "EMI". It will dynamically update with calculated EMI result.

Overall, this layout provides a user-friendly interface for inputting loan details and triggering a calculation, with results displayed dynamically on the screen.

Java Programming logic :-

The java code initializes variables for EditTexts, Button, and TextView by finding their respective views using their IDs. An onClickListener is set on button to listen for clicks. On clicking, following are retrieved : Values entered by the user from the EditText fields for principal

amount, interest rate, and loan tenure. These values are passed into double data types and passed to the calculateEMI method. Using the formulae, monthly interest rate and monthly installment amount is computed based on the principal amount, interest rate, and loan tenure.

Built-in functions :-

1) set ContentView() :

This function sets the layout for the activity by inflating the XML layout file (activity_main.xml) and displaying its UI components on the screen.

2) findViewById() :

This function is used to find and return the view object associated with the specified resource ID (R.id.*). It is used to initialize variables for EditTexts, Button, and TextView by locating them within the layout.

3) setOnClickListener() :

This function sets an OnClickListener on the buttonCalculate button, allowing app to listen for and handle clicks on this button.

4) `getText()`: The function `getText().toString()` retrieves the text entered by the user in the `EditText` fields and converts it into a `String`.

5) `Double.parseDouble()`:

This function converts a `String` representation of a number into a double-precision floating-point value. It's used to parse the user-inputted values for principal amount, interest rate, and loan tenure from `String` to `double`.

6) `Math.pow()`:

This function calculates a base raised to the power of an exponent.

7) `setText()`: This function sets text to be displayed in `textViewResult` `TextView`.

Conclusion :-

Thus, we implemented EMI calculator by understanding the use of different built-in functions present in Android Studio.