

SOFE 4640U

Mobile Application Development

Fall 2021

Assignment 1: Mortgage Calculator

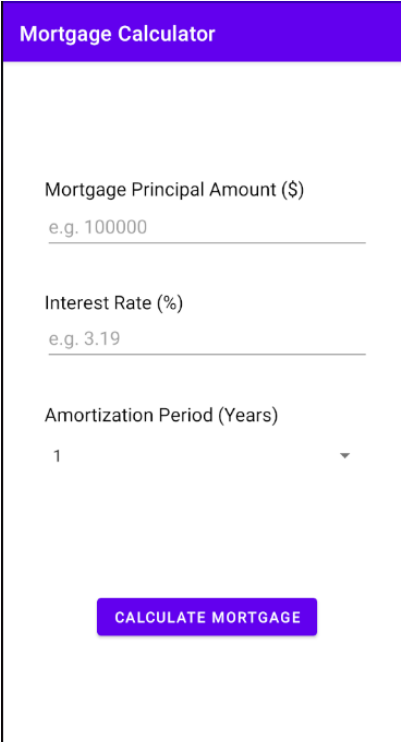
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Objective:

Practice Android application development, specifically layouts, views and intents.

The task given was to build a simple Android mobile application on Android studio that would allow users to calculate their Equated Monthly Installment (EMI) for their homes based on the mortgage amount tenure, interest rate and amortization period. To do this, a simple and easy-to-use user interface had to be developed along with the calculation method needed to provide users with their EMI based on a fixed-rate mortgage. Due to the fact that this was a simple application with only one primary task, only one main activity was developed for the application. However, to reduce overloading the user with too much visual stimulation I developed two fragments each with its own simple layout.

The first fragment developed was handled by *FirstFragment.java* and its layout was defined in *fragment_first.xml*, both these files were generated when the project was created. The purpose of this fragment was purely to take in user input. In the layout, there were four main components that were necessary, the EdittText component for the mortgage principal amount, the EditText component for the interest rate, a Spinner component to act as a dropdown list for the amortization period, and the calculate button to direct you to the second fragment with the final result. I implemented these in such a way that they were mandatory fields that would produce Toast messages if they were empty when the calculate button was selected. To pass the inputs given by the user to the second fragment, I created a Bundle object to place the values in and pass to the next fragment. Below is an image of the first fragment's layout:



The screenshot displays the 'Mortgage Calculator' app interface. It features a purple header bar with the title 'Mortgage Calculator'. Below the header, there are three input fields: 'Mortgage Principal Amount (\$)' with a placeholder 'e.g. 100000', 'Interest Rate (%)' with a placeholder 'e.g. 3.19', and 'Amortization Period (Years)' with a dropdown menu showing '1'. At the bottom, there is a purple button labeled 'CALCULATE MORTGAGE'.

The second fragment I developed was handled by *SecondFragment.java* and its layout was defined in *fragment_second.xml*, and these files were also generated when the project was created. This fragment contained the method that would handle the calculation of the EMI and would also output the results. All of the logic that I implemented were done in the *onCreate()* method. The steps I took are as follows:

1. Create a new Bundle object to get the arguments provided from the last fragment
2. Calculate the EMI using the provided arguments
3. Output the information using the TextView components in the layout

The final output includes the information provided from the first fragment to allow the user to see if they actually provided the correct information and the final calculated EMI. Finally, a recalculate button has been provided to take the user back to the first fragment to input new values to try or if they mistakenly inputted incorrect values previously. Below is an image of the second fragment:

