SOFE 4640U : Mobile Application Development

Assignment 1 Report

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Introduction

The purpose of this assignment is to create an Android mobile application where the user can calculate their equated monthly installment (EMI) based on the mortgage amount tenure and the interest rate.

User Interface & Calculating the EMI (Equated Monthly Installment)

The user interface consists of three EditText elements, each of which only accepts number inputs. Each EditText element has a TextView label, one for the mortgage value, one for the number of years, and one for the yearly interest rate. The user interface also consisted of the “Calculate” button as well as two other TextViews. One of the text views was the prompt which contained the instructions to operate the application, and the other TextView was the output where the “calculateEMI” function would send the final result of the calculation.

The EMI is calculated using these three components using the following formula:

$$E = P * r * \frac{(1+r)^n}{(1+r)^n - 1}$$

Where E is for EMI, P is for the mortgage value, r represents the yearly interest rate divided by 12, since we are considering the monthly scenario, and n represents the amount of months to pay the mortgage (could be used for any loan).

Layouts and how they are used:

In android development, layouts are a structural definition element that simplifies the user interface. They can be used to line up elements with respect to one another, and they can also contain other views such as TextViews or EditText elements. For example, I used layouts in this assignment to align the input elements with their labels, as well as aligning the inputs to the center of the entire view of the device.

Intents and how they are used

An intent is an object that is used for a part of the app to interact with another component of the application. We can use intents to start activities, services or even open maps or start a broadcast. There are two types of intents, Explicit intents and Implicit intents.

Explicit intents specifically define which component of the application must be triggered in order for the intent to be completed. for example, while developing the NoteMe application, a new note was created in a separate activity, and the intent to start a new activity was specified and defined using the name of the specific activity that would satisfy the intent called “NewNote”.

Implicit intents do not name the component that will satisfy the request, but they will call towards a general function that should be performed. There is sufficient information for the task to run, but no specifications on exactly how to run the request. This can be used to trigger other applications to assist in completing the request such as sending the request for a map to open. The device will trigger another application with a map that can satisfy this intent. However, if there are more than one application that can satisfy this intent, the user must select the application after being presented with an array of applications that can be used to complete the task.

Intents were not used in this assignment because I did not see the need to reach out to other applications to complete the calculations necessary. I also did not need to start any new activities or create new pages within the application.

Views and how they are used

Views are the building blocks of android user interface development in Android Studio. They are arranged hierarchically in an XML file and they are the elements that display text, accept inputs and other user interface components like buttons. There are many subclasses of Views such as TextView, EditText, Button etc. Furthermore, each of these Views can be manipulated using functions once defined in the java activity connected to the view defining XML file. For example, in this assignment, I manipulated the EditText to act as inputs for my program. I defined each View, read the text that was placed inside by reacting to the press of a button, and once the calculation was complete, I manipulated another view to display my results to the user.