

Tutorials 2 and 3

Building BMI Calculator Application

Due date: 24 August

Body Mass Index (BMI) is a simple calculation using a person's height and weight. The formula is $BMI = \text{kg}/\text{m}^2$ where kg is a person's weight in kilograms and m^2 is their height in metres squared. For example, if a person's weight is 83 KG and height is 170 cm, the BMI is $83/1.7^2 = 28.71$. Now, this is the metric system.

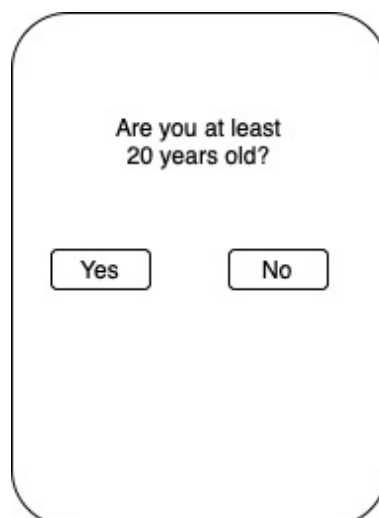
In the imperial system, BMI is calculated as $\text{weight (lb)} / [\text{height (in)}]^2 \times 703$. If Weight = 150 lbs, Height = 5 feet 5 Inch (i.e., 65 Inch), The BMI is: $[150 \div (65)^2] \times 703 = 24.96$

Now this is the chart of BMI interpretations for adults (<https://www.health.gov.au/health-topics/overweight-and-obesity/bmi-and-waist>):

BMI (adults)	Classification
Less than 18.5	Underweight
18.5 to 24.9	Healthy weight
25 to 29.9	Overweight but not obese
30 to 34.9	Obese class I
35 to 39.9	Obese class II
40 or more	Obese class III

Your task is to build a BMI calculator mobile application. This is the screenshot of the application:

First User Interface:

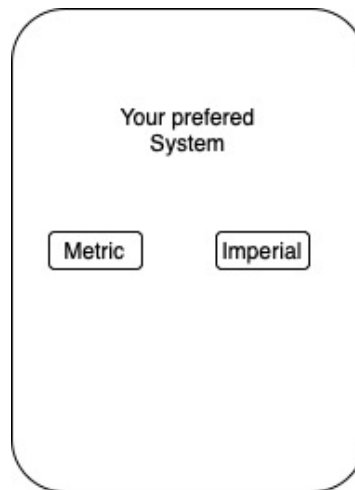


Are you at least
20 years old?

Yes No

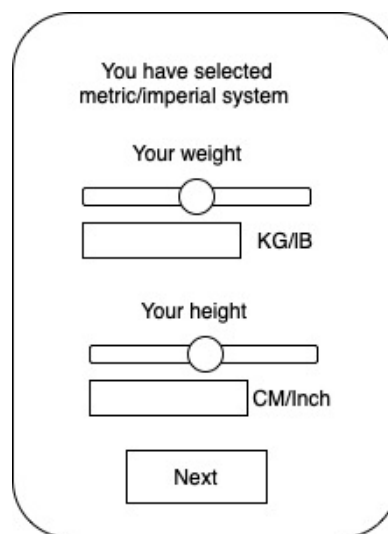
If the user selects **no**, just **alert** or displays a pop-up message to the user (see, <https://developer.android.com/training/snackbar/showing>). You can do the messaging your own way as well. If the user selects **Yes**, you load the next UI.

Second User Interface:



If the user selects, a metric, then the third UI will ask for user weight and height in KG and CM respectively. If imperial is selected the third UI will ask for weight and height in lb and inch respectively.

Third User Interface:



The third interface is for taking the input from the user. Note your text should reflect what was selected in the second UI. So, either metric or imperial will be shown on the screen. The user can input using the keyboard or use the slider to give the input.

For the slider, my choice is the material component. You may use other third-party libraries as well. I have added some references on how to work with sliders in android. The range of the slider should be [0,300kg] for weight and [0,300cm] for height.

<https://material.io/develop/android/docs/getting-started>

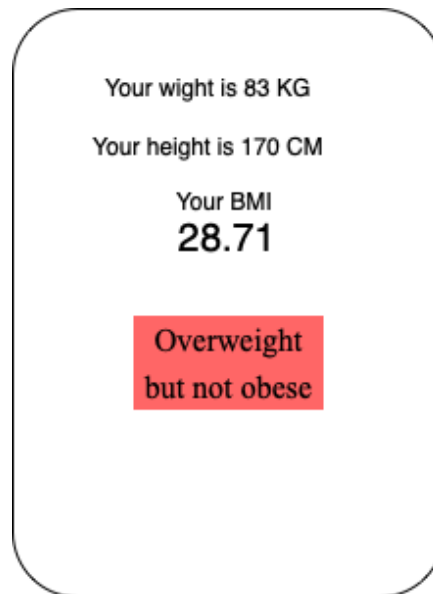
<https://material.io/components/sliders/android#using-sliders>

<https://medium.com/analytics-vidhya/sliders-material-component-for-android-5be61bbe6726>

<https://developer.android.com/reference/com/google/android/material/slider/Slider>

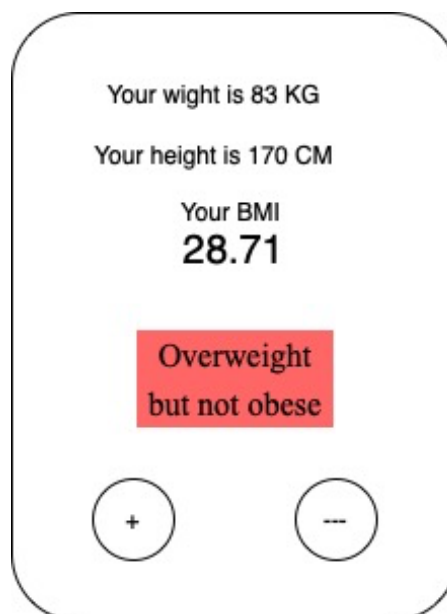
Once, the next button is clicked, it goes to the next screen. Make sure you handle input exceptions, e.g., negative input or try to go to the next without any input. In such cases, please alert or pop-up messages accordingly.

Fourth User Interface:



It shows the BMI result as above. As we have six classes, please use appropriate colours to distinguish them.

Fourth User Interface for Tablet:



In the tablet version, we have two magnifier buttons, i.e., + and -. They are circular buttons. The "+" button increases the entire view by 10%. The minus button decreases the entire view by 10%. Hint: *Use dynamic settings, e.g., the attached project "Third-lecture-Rounded-Button.zip" uses dynamically adjusting the text sizes.*

For the rounded button, you can download button images from the internet and use them as the background of the "imagebuttons". However, it will not give you full marks. I recommend creating "drawables" using XML. You may use the following tutorial, to begin with, and then use the "oval" option to create circular shapes.

<https://medium.com/swlh/rounded-button-in-android-studios-fbd1ee0b3161>

Deliverables

You have to attach the solution as ZIP folder. You need to demo this to your tutor in the tutorial after the due date. SUBMIT ELECTRONICALLY VIA BLACKBOARD, under the Assessments section.

Marking Guidelines: First UI [2 marks], Second UI [1 mark], Third UI [7 marks], Forth UI [3 marks], Forth UI Tablet [4 marks], Forth UI Tablet Circular drawable implemented [3 marks], a total of 20 Marks.