Topic 2: Properties and events of a component. Simple calculation and assignment statements.

Events and properties of different components

Component	Event / Properties	Description
Button	Click	Indicates a user has long clicked on the button
	GotFocus	Indicates the cursor moved over the button
	LongClick	Indicates a user has long clicked on the button
	LostFocus	Indicates the cursor moved away the button
TextBox	Text	The text stored in the Textbox
Label	Text	The text stored in the label
	Visible	Set to True to show the Label
	TextColor	Color of the text.

Build in Blocks

Maths	Maths Operator: Add, Subtract, Multiply, Division
	Relational Operator:
Logic	Logic value: True, false Logical operator: not, and, or
color	Blue, Red, Yellow, Green
Control	Selection: If..then, if..then..else

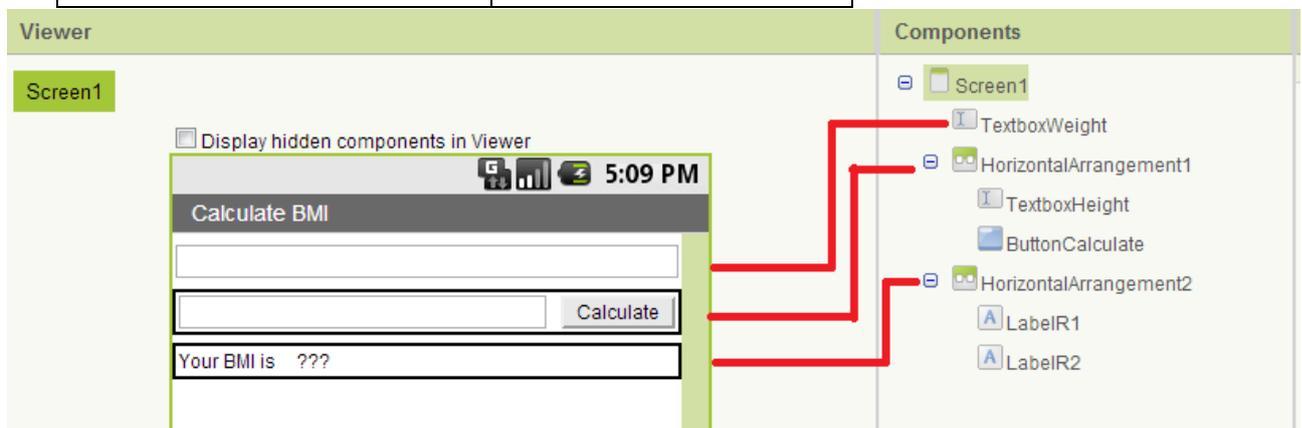Practical 2A: Calculating Body and Mass Index (BMI)

Program requirements:

1. Input your weight (in kg) and height (in m) in 2 Textbox.

2. When a **Button was clicked**. Calculate the BMI ratio with the formula: $BMI = \frac{weight}{height^2}$

3. Show the BMI value in a Label.

Instructions:

A. Login the web based platform http://appinventor.mit.edu and create a project called BMIcalculation.

B. Design the layout of your apps in App Designer.
  ➢ You have to use at least 2 textboxs, 2 horizontalArrangement, 2 labels and 1 button.
  ➢ Rename the 'Textbox1' and 'Textbox2' as 'TextboxHeight' and 'TextboxWeight'.
  ➢ Rename 'Button1' as 'ButtonCalculate'
  ➢ Rename 'Label1' and 'Label2' as 'LabelResult' and 'LabelR2'
  ➢ Change the properties of the component as follows:

Component.properties	Value
Screen1.Title	Calculate your BMI
HorizontalArrangement1.width	Fill parent
TextboxWeight.Hint	Enter your weight (in kg)
TextboxWeight.Width	Fill parent
TextboxWeight.NumbersOnly	True (√)
TextboxHeight.Hint	Enter your height (in m)
TextboxWeight.Width	Fill parent
TextboxHeight.NumbersOnly	True (√)
ButtonCalculate.text	Calculate
LabelR1.text	Your BMI is
LabelR2.text	???

Viewer

Screen1

☐ Display hidden components in Viewer

📶📶📶 5:09 PM

Calculate BMI

[   ]

[   ] [Calculate]

Your BMI is   ???

Components

⊟ ☐ Screen1
    Ⓘ TextboxWeight
    ⊟ 👀 HorizontalArrangement1
        Ⓘ TextboxHeight
        ⬛ ButtonCalculate
    ⊟ 👀 HorizontalArrangement2
        Ⓐ LabelR1
        Ⓐ LabelR2

C. Build your program with Block Builder. Drag the following blocks and build your program.
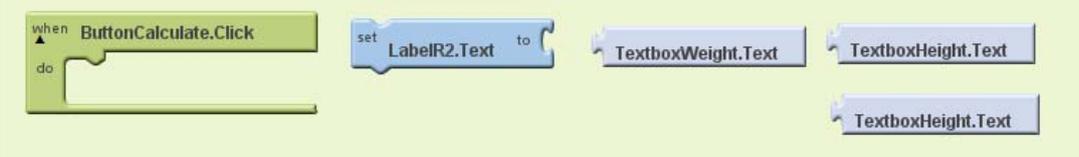
From My Blocks	
From Build-in, Maths	

D. Test your apps with emulator
   ➢ Start the emulator and unlock the emulated phone.
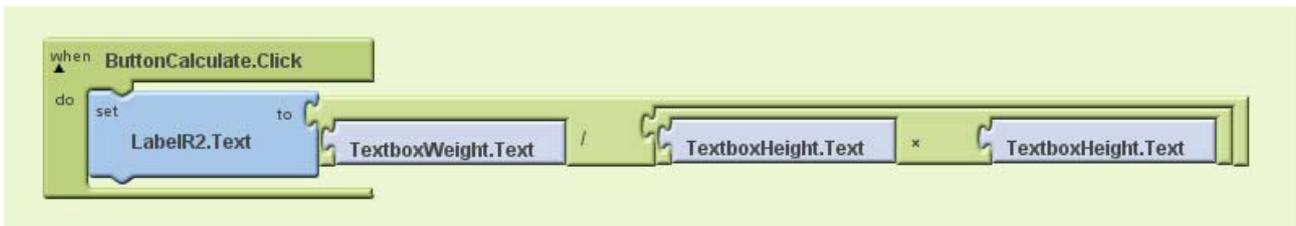   ➢ Click 'connect to device'
E. Package the phone apps for submission
   ➢ Click 'Package for phone' and 'Downloads to this computer'
   ➢ Submit the Downloaded file in eclass.

Extension activities
1. The normal BMI range depends on age. For adult, 18.5 – 25 is normal.
2. Using the if..then..else control structure, change the label.color or label.text according to the values calculated. You can add a label for this functions.
3. You can also displayed different image according to the BMI value.

Solution of the apps:

Solution for extension: