CHIANG MAI UNIVERSITY
Bachelor of Science (Software Engineering)
College of Arts, Media and Technology
1st Semester / Academic Year 2019
953103 PROGRAMMING LOGICAL THINKING

Lab Assignment 06 : If-Statement and While-Statement

Name ..... Student ID .....

Objectives:

1) The student can if-statement and While-Statement in AppInventor.

1. Review Problem

1.1 Given the following problem statement

> *"From the CMU regulation, students could not take the final exam if they did not attend the class more than 20%. In 953103, the teachers told the students that if the students come class late two times is equals to 1 absence."*

Write a program to receive the input (you have to identify by yourself), then show the result whether students can take the final exam or not.

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1.2 Given the following problem statement

> *"The CAMT souvenir shop just opens so they have the promotion. If the students buy stuffs, they will get discount rate of 10 %. If the faculty member buys stuffs, they will get only discount rate of 5%"*

Write a program to receive the input, then show the net price.

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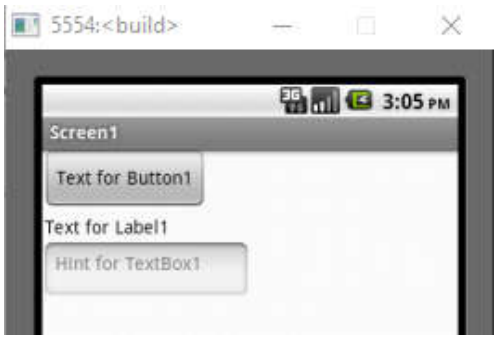
2. Repetition Structure in AppInventor

In AppInventer, one of the implementation of the repetition structure is while statement. The component of the while-statement in AppInventor includes 1) stop condition and 2) loop body. The loop will repeat the loop body until the condition is evaluated as false.

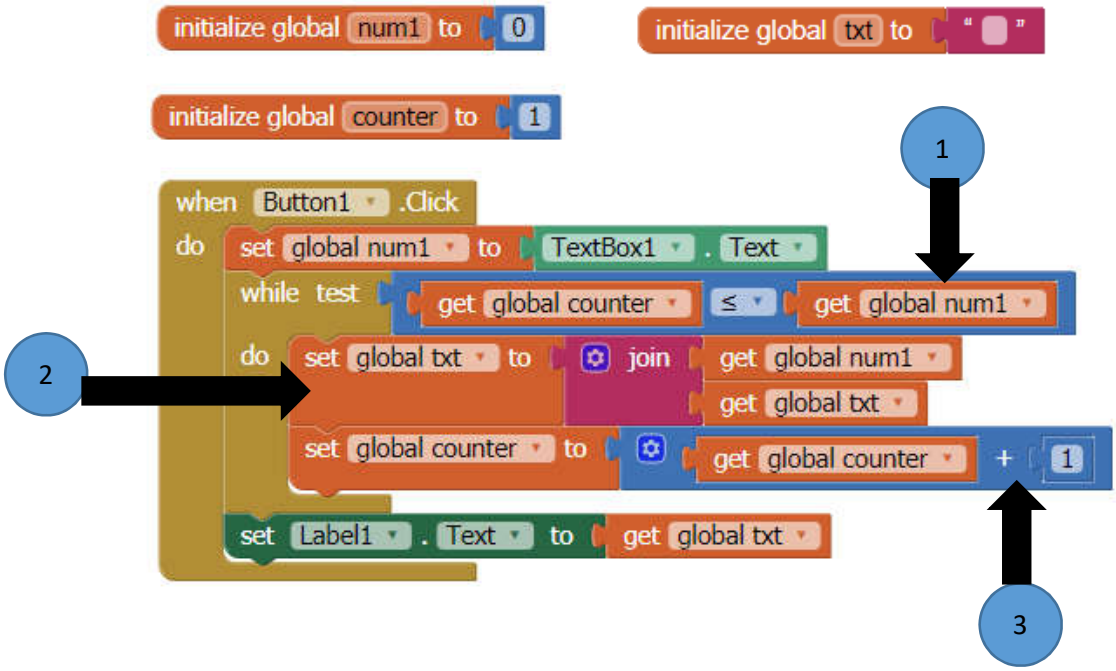
(1) In your interface design, you need to drag 1 button, 1 label and 1 text box.



(2) Go to your block view. Drag the while block from the Built-in > Control into the block design view.

(3) Firstly, you need to create 3 global variables: num1, txt and counter. You have to initialize the variables, 0, "" and 1, respectively. On the button1 click event, you need to set the component of the loop as follows

1) **Stop condition** – repeat the body as long as the counter is lesser or equal to num1.
2) **Loop body** – Add the variable num1 to txt variable.
3) **Update statement** – add 1 to the counter



(4) Complete the following table.

Input in textbox1	Text in label1
5	
7	
10	

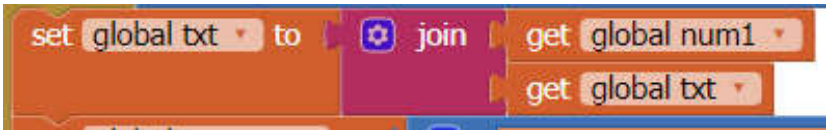
Remark: You need to click the button every time you input a new value.

3. Repetition Structure in AppInventor (Continue)

This example will extend the problem 2 to demonstrate how the loop works.

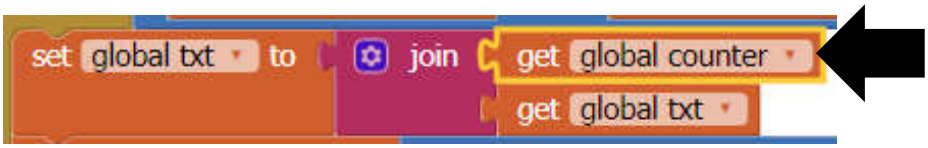
(1) Use the same interface as problem 2)
(2) Use the same blocks as problem 3)
(3) Change the loop body from

Add the variable num1 to txt variable.



To

Add the variable counter to txt variable.



(4) Complete the following table.

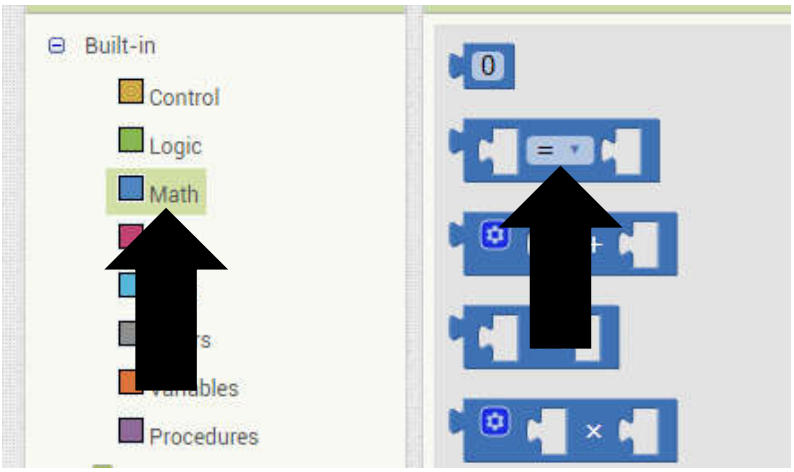
Input in textbox1	Text in label1
5	
7	
10	

Remark: You need to click the button every time you input a new value.

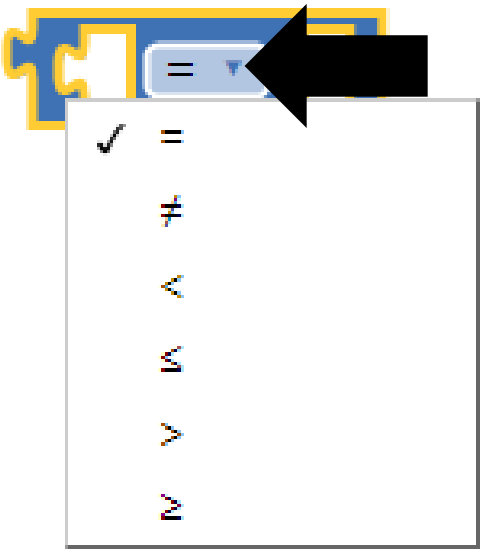
Study the effect of the change and the result.

Relation Operation

In AppInventer, the relation operation is in the block view > Math.



You can select the relation operation in this operation.



While Problem sets

1. Create a program (having 1 button, 1 label and 1 textbox) to read an integer from user and display a series of number that decreases by 2 until it reaches 0. For example, if the user input 10, the program will display

   10 8 6 4 2 0

   If the user input 13, the program will display

   11 9 7 5 3 1 0

   The text will be display in the label.

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2. Reuse the interface from problem 1). Create a program to read 2 input values from user and display the summation of the number between the input number **inclusively**. Assume that the first number is always smaller than the second number.

   If the user input 1 and 5, the program will display

   15

   If the user input 2 and 7, the program will display

   27

2.1 Draw a Flow chart of the problem in either draw.io or paper.

A good programmer always designs the program using either flow chart or pseudo code before the coding.

2.2 Develop the program in the App inventor.

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3. Create a program to read 2 input values from user and display the summation of the number between the input number **exclusively**. Assume that the first number is always smaller than the second number.

   If the user input 1 and 5, the program will display

   9

   If the user input 2 and 7, the program will display

   18

3.1 Write a pseudocode the problem.

3.2 Develop the program in the App inventor.

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4. Reuse the interface from problem 1). Create a program to read an integer from user and display the factorial of the number.
   If the user input 3, the program will display

   6

   If the user input 5, the program will display

   120

4.1 Write a pseudocode the problem.

4.2 Develop the program in the App inventor.

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5. Create a program to read an integer from user and display the 2 power by the input number.

   If the user inputs 3, the program will display

   8

   If the user inputs 10, the program will display

   1024

5.1 Write a pseudocode the problem.

5.2 Develop the program in the App inventor.

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6. Create a program to read two integer values from user and display the first number power by the second number.

   If the user inputs 3 and 2, the program will display

   9

   If the user inputs 5 and 3, the program will display

   125

6.1 Write a flowchart the problem.

6.2 Develop the program in the App inventor.

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