

LAB211 Assignment

Type:
Code:
LOC:
Slot(s):

Short Assignment
J1.S.P0009
61
1

Title

Develop a computer program.

Background

N/A

Program Specifications

- Write a computer program including the functionality to add, subtract, multiply, divide, and calculate exponents and BMI index.
- The calculation function will calculate and store results into the temporary memory when input each Operator and only stop when the user inputs the operator as “=”.
- BMI is calculated below:
BMI = (body weight)/ (height x height).
 - Body weight: kg.
 - height x height: m.
 - Display the notification about the status of the user’s body:
 - o Under-standard: BMI is less than 19
 - o Standard: BMI is between 19-25
 - o Overweight: BMI is between 25-30
 - o Fat - should lose weight : BMI is between 30-40
 - o Very fat - should lose weight immediately: BMI is over 40

Function details:

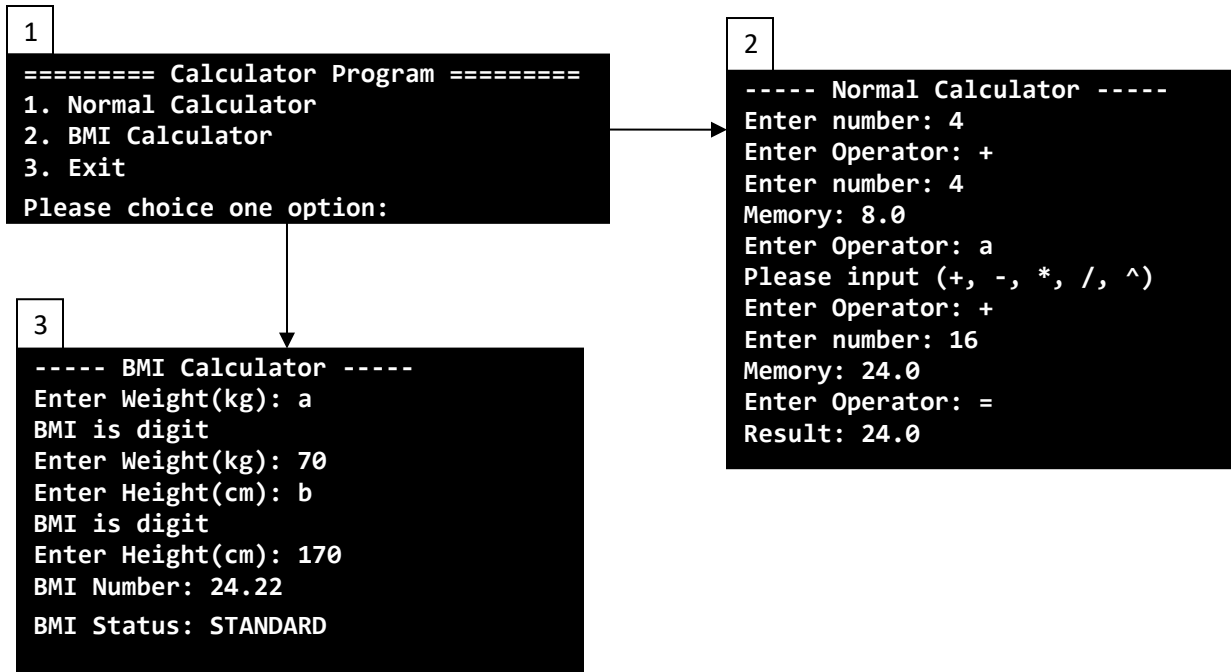
Function 1: Display a menu and ask users to select an option.

- o User runs the program. The program prompts user to select an option.
- o User selects an option, perform **Function 2**.

Function 2: Perform function based on the selected option.

- o Option 1: Normal calculator
 - a. Require to input task information including “number, operator”.
 - b. Check the valid data with the following conditions:
 - i. Number field must be numeric data
 - ii. Operator is one of the following characters (+, -, *, /, ^).
 - c. Calculate
 - d. Return to the main screen.
- o Option 2: Calculator BMI index
 - a. Require to input your weight and height.
 - b. Check the valid data with conditions below:
 - i. Weight, height must be number.
 - c. Calculate BMI and display the status.
 - d. Return to the main screen.
- o Option 3: Exit the program.

Expectation of User interface:



Guidelines

Student must implement methods:

- calculate
- calculate BMI

in startup code.

Student must implement methods in startup code

- Use Math.pow (a, b) to compute the exponent.
- Use case switch to switch (enum).
- Use the try catch to catch NumberFormatException, NullPointerException
- Use if to catch ArithmeticException divided case 0.
- Use the “checkOperator” Operator (String operator) public function to check validation. If the operator is valid then the function returns the Enum multiplication as +, -, x, /, ^, =. Otherwise it returns null.
- Use the Double checkin (String inputVal) public function to check input is number or not? if it is not number, it returns null.

Function 1: Normal calculator

- Implement the function: public double calculate (double a, Operator operator, double b)
 - Input:
 - a: the first number.
 - operator: operator.
 - b: the second number.
 - Return Value: calculated results.

Function 2: BMI Calculator

- Must install the function: public BMI calculateBMI (double weight, double height)
 - Input :
 - weight: Weight in kg.
 - height: Height in cm.
 - Return Value: Enum contained in BMI status.