

LAB211 Assignment

Type:
Code:
LOC:
Slot(s):

Short Assignment
J1.S.P0051
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:
 - Under-standard: BMI is less than 19
 - Standard: BMI is between 19-25
 - Overweight: BMI is between 25-30
 - Fat - should lose weight : BMI is between 30-40
 - Very fat - should lose weight immediately: BMI is over 40

Function details:

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

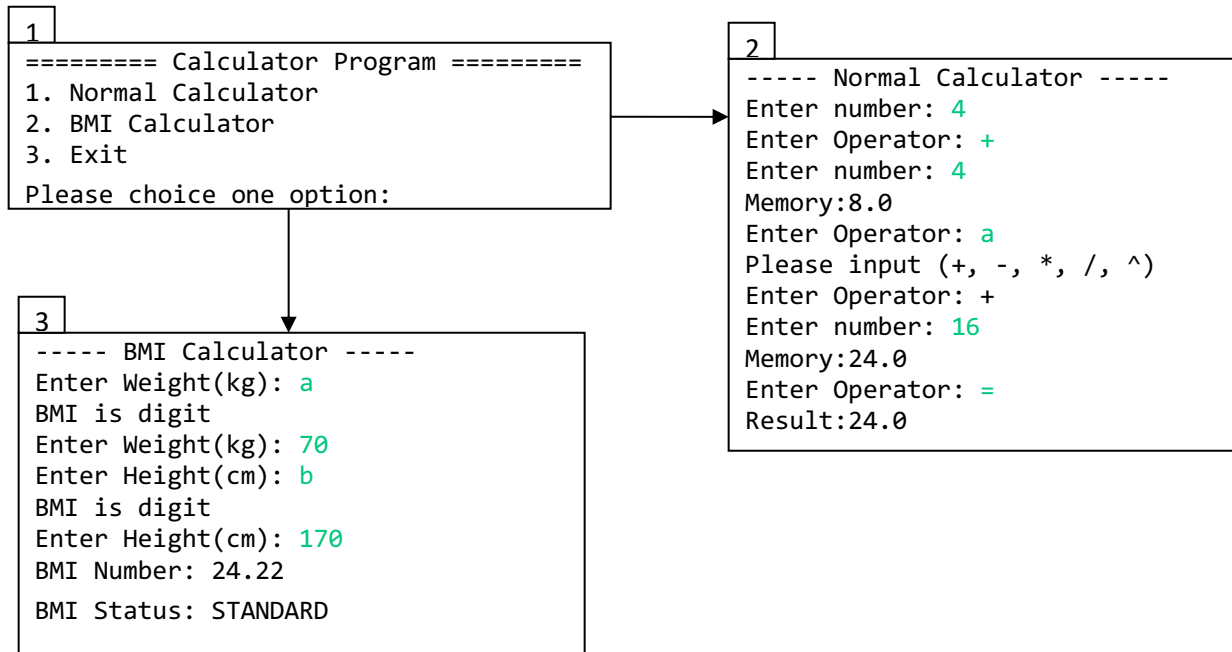
- User runs the program. The program prompts user to select an option.
- User selects an option, perform **Function 2**.

Function 2: Perform function based on the selected option.

- 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.
- 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.
- 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 switch case 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.