

CSD 1133 – 2023S

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Assignment #3 -----

Design a **Flowchart and Pseudocode** for the following Problem.

Design a Modular Program!

Write a program which takes the patient's weight and height as input, calculates the BMI using module, and displays the corresponding message from the table below.

BMI Category	Message
More than 25	Overweight
Between 18.5 and 25.0 (inclusive)	Normal weight
Less than 18.5	Underweight

Pseudocode :

// Main module

Module main()

// Declare local variables to store patient's weight and height

Declare Real p_weight

Declare Real p_height

// Ask user input for patient's weight and store in p_weight

Display "Enter patient's weight in kilograms: "

Input p_weight

```
// Ask user input for patient's height and store in p_height
```

```
Display "Enter patient's height in meters: "
```

```
Input p_height
```

```
// Calculate BMI with patient's weight and height
```

```
Call calculateBmi(p_weight,p_height)
```

```
End Module
```

```
// Module that calculates bmi index value using provided weight and height
```

```
Module calculateBmi(Real p_weight, Real p_height)
```

```
// Declare local variable to store the message based on bmi category
```

```
Declare String message
```

```
// Declare local variable to store the calculated bmi index value
```

```
Declare Real bmi_index
```

```
// Compute bmi value and store in bmi_index
```

```
Set bmi_index = p_weight / (p_height * p_height)
```

```
// Determine bmi catehory and generate message
```

```
Call determineCategory(message)
```

```
//Display the generated message to user
```

```
Display "According to your bmi, you have" + message
```

```
End Module
```

```
// Check the bmi value and update message by passing it through reference variable
```

```
Module determineCategory(Real bmi_index, Real Ref message)
```

```
// Set message if bmi > 25 to overweight
```

```
If bmi_index > 25 Then
```

```
    Set message = "Overweight"
```

```
// Set message if bmi >= 18.5 AND bmi <=25 to Normal weight
```

```
Else If bmi_index >= 18.5 AND bmi_index <=25 Then
```

```
    Set message = "Normal Weight"
```

```
// Set message if bmi < 18.5 to Underweight
```

```
Else
```

```
    Set message = "Underweight"
```

```
End If
```

```
End Module
```

Flow-chart :

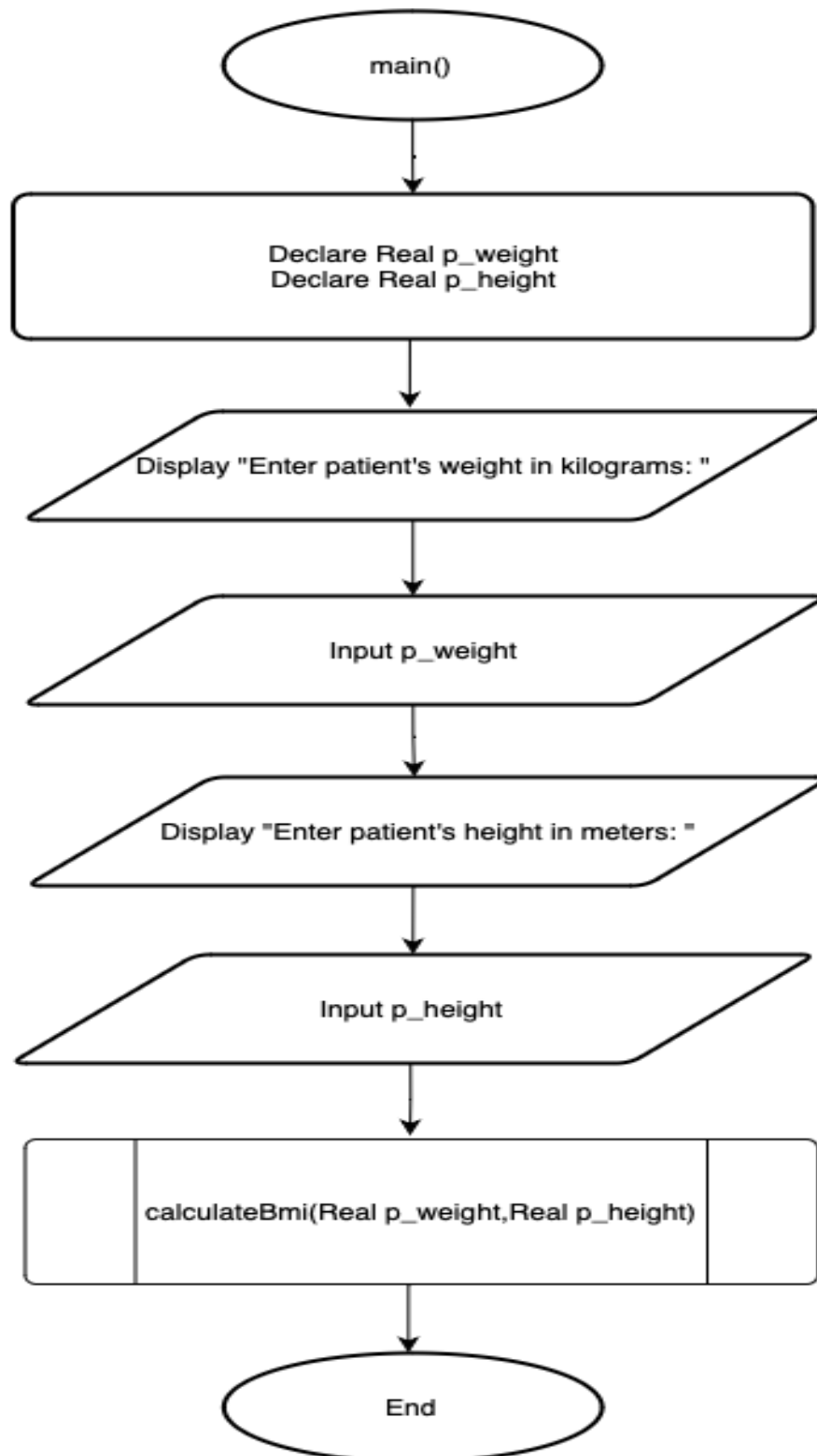


Figure 1: Main module

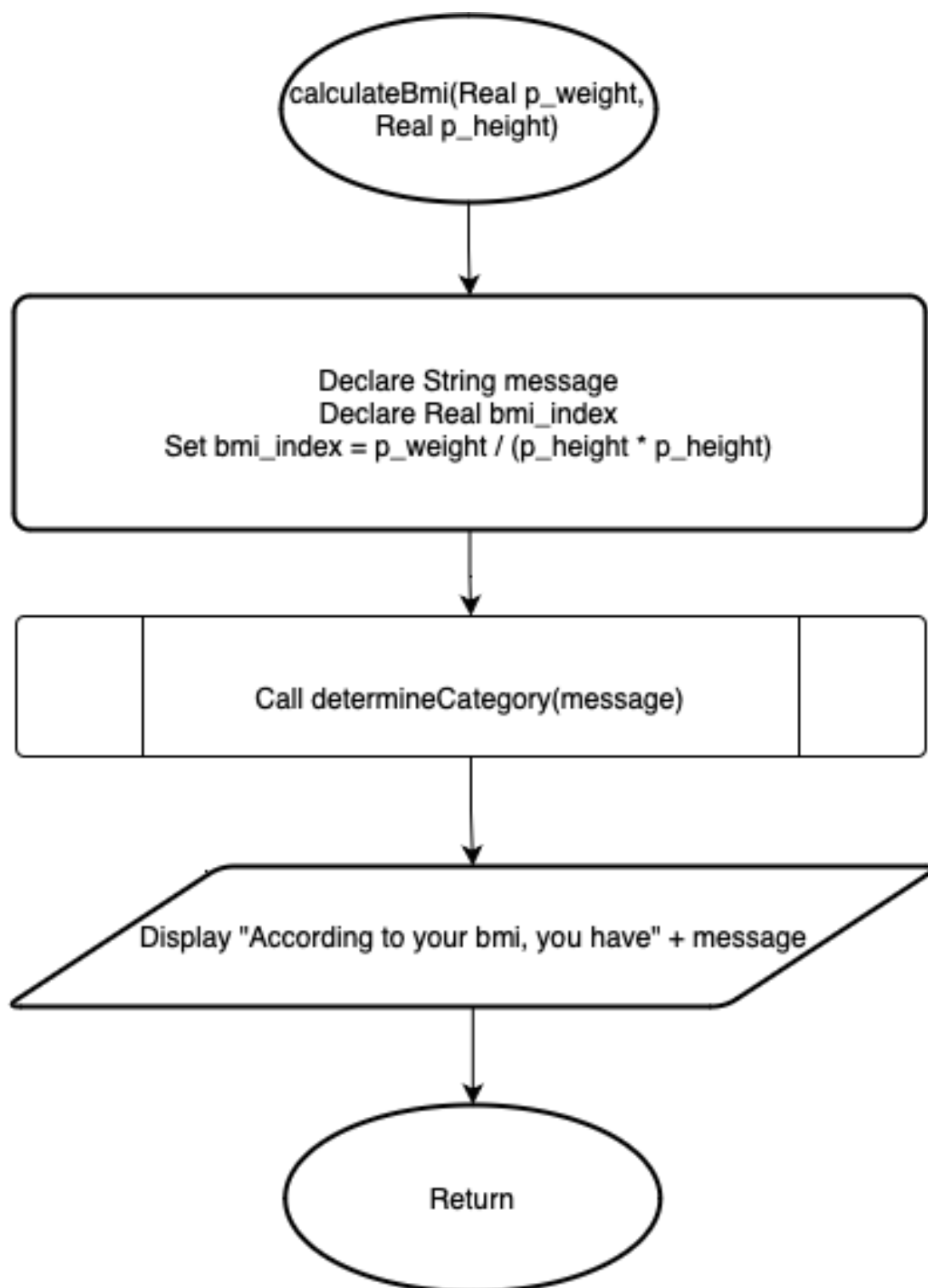


Figure 2: calculate Bmi module.

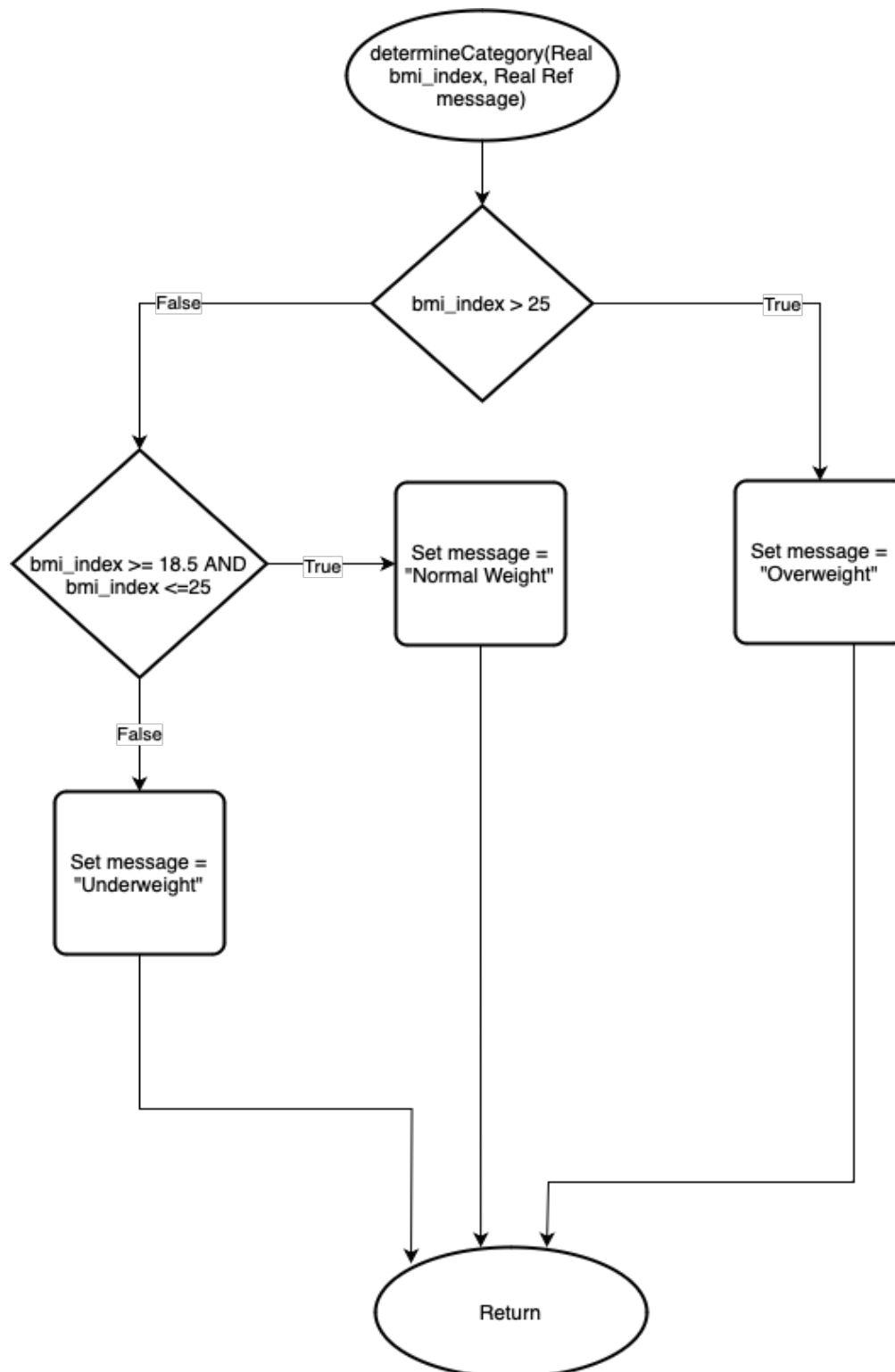


Figure 3: Determine bmi category.