UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SEMESTER I SESSION 2025/2026
SECJ1013 PROGRAMMING TECHNIQUE 1

ASSIGNMENT 1

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SET NUMBER : 1

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SET 1

Based on the problem given below, analyze the problem and design its solution using a **flow chart**. The flow chart must be drawn by using any appropriate drawing tools such as Microsoft Visio, draw.io (https://app.diagrams.net/), and Lucid chart (https://www.lucidchart.com/pages/examples/flowchart-maker). You need to develop a Basal Metabolic Rate (BMR) Calculator to estimate a basal metabolic rate: the amount of energy expended while at rest in a neutrally temperate environment, and in a post-absorptive state (meaning that the digestive system is inactive, which requires about 12 hours of fasting) (***Source:*** https://www.calculator.net/bmr-calculator.html). **Figure 1** shows the example of the BMR calculator application as a guide to developing your own BMR calculator.

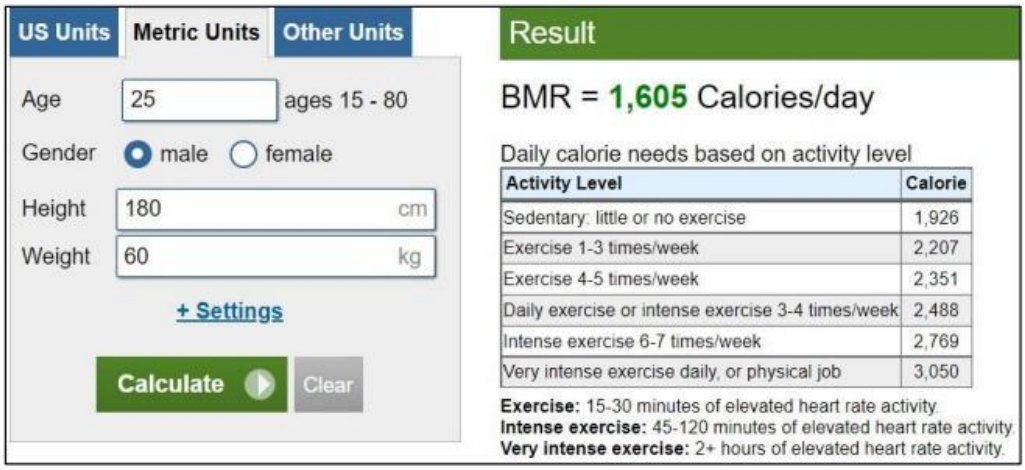
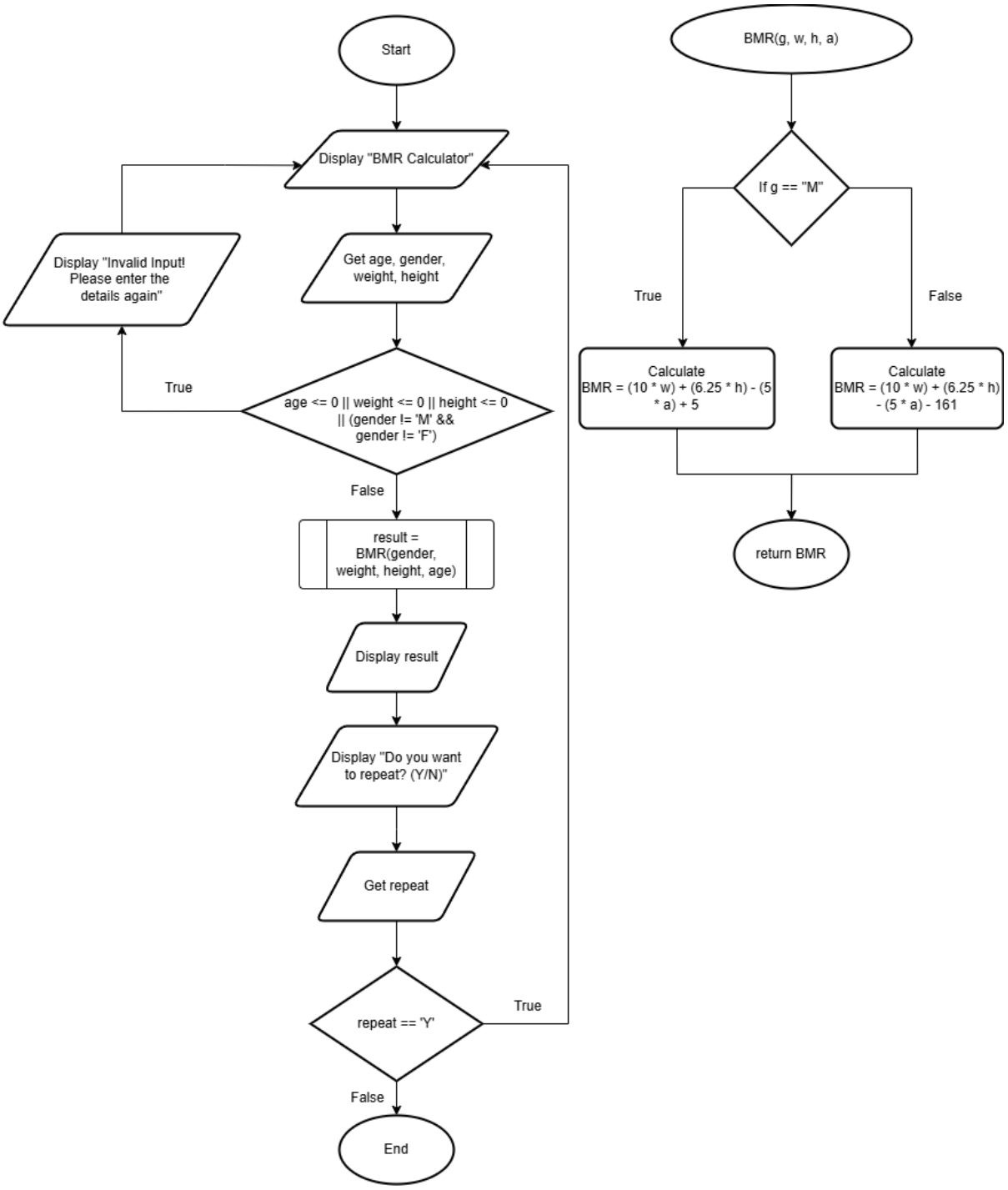


Figure 1: BMR calculator application
(***Source:*** *https://www.calculator.net/bmr-calculator.html*)

Please take note that in your solution (flow chart), you **MUST** apply:

a) Branching/ selection (if..else)
b) Loop/ repetition (repeat..until/ do..while)
c) User-defined function flow chart. Besides the **main** function flow chart, your solution needs to design at least **ONE** more other function flow chart. Use appropriate arguments for the function.

Flowchart:


Start
Display "BMR Calculator"
Get age, gender, weight, height
Display "Invalid Input! Please enter the details again"
True
age <= 0 || weight <= 0 || height <= 0 || (gender != 'M' && gender != 'F')
False
result = BMR(gender, weight, height, age)
Display result
Display "Do you want to repeat? (Y/N)"
Get repeat
repeat == 'Y'
True
False
End
BMR(g, w, h, a)
If g == "M"
True
False
Calculate BMR = (10 * w) + (6.25 * h) - (5 * a) + 5
Calculate BMR = (10 * w) + (6.25 * h) - (5 * a) - 161
return BMR