

ASSIGNMENT 1
PROGRAMMING TECHNIQUE 1 (SECJ1013)
SEM 1 (2024/2025)

INSTRUCTIONS TO THE STUDENTS

- This assignment must be done in pairs (a group consisting of 2 members).
- The application examples given in the figure in the question can be used as a guide to design your solution (flow chart).
- Any form of plagiarisms is **NOT ALLOWED**. Students who copied other students' assignments will get **ZERO** marks (both parties, students who copied, and students that share their work).
- Please insert your name and partner's name, matrices number, and date in the submitted document.

SUBMISSION PROCEDURE

- Only one submission per pair (group) that includes one file is required for the submission which is the flow chart (the file with the extension .pdf).
- Submit the assignment via the UTM's e-learning system.

QUESTION

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 Figma, Microsoft Visio, draw.io or Lucid chart. 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.

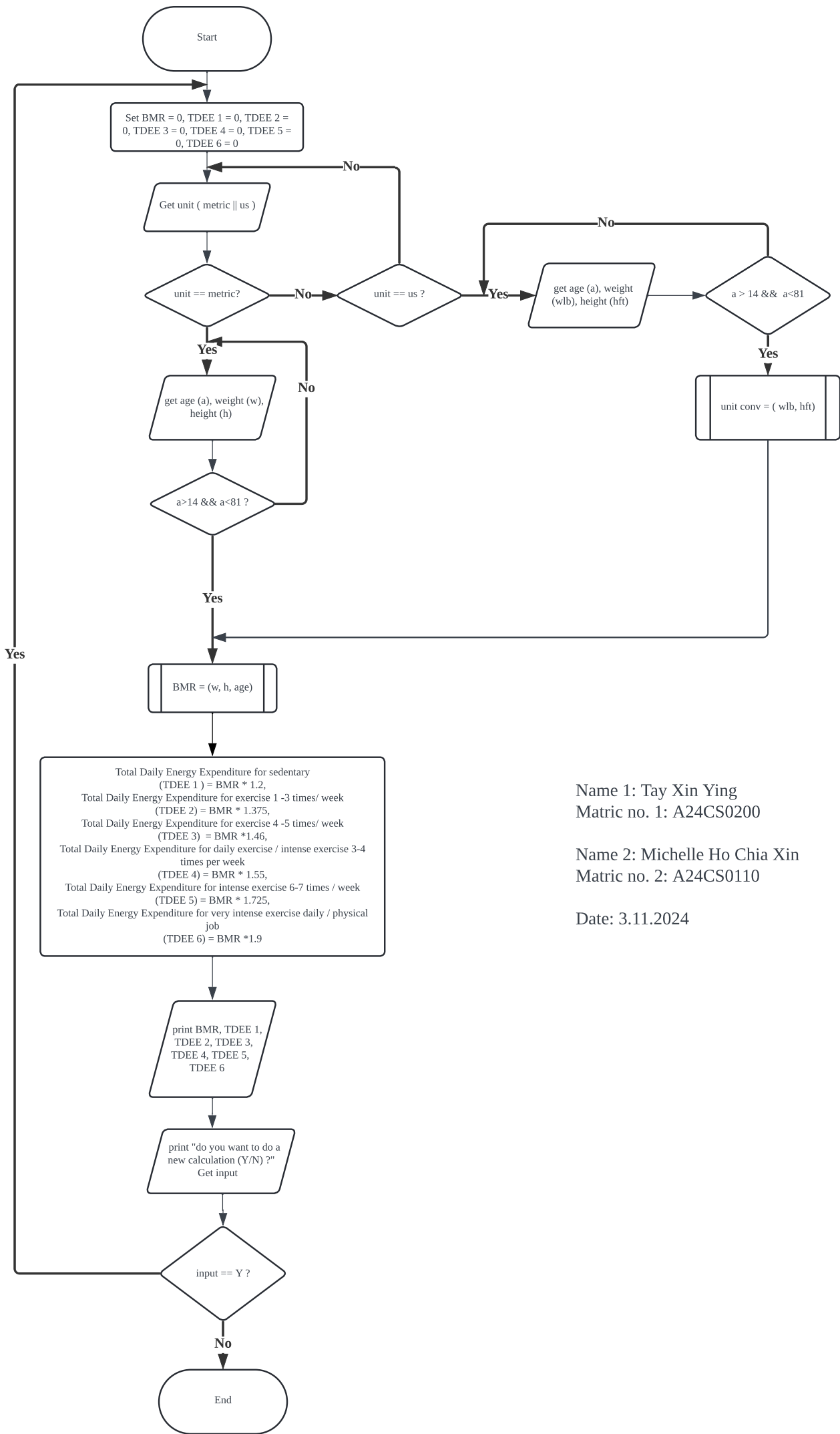
The screenshot shows a BMR calculator application with the following components:

- Unit Selection:** Three tabs at the top: "US Units" (selected), "Metric Units", and "Other Units".
- Input Fields:**
 - Age: 25 (range: ages 15 - 80)
 - Gender: ☒ male, ☐ female
 - Height: 180 cm
 - Weight: 60 kg
- Buttons:** "+ Settings", "Calculate" (green), and "Clear" (grey).
- Result Section:**
 - BMR = 1,605 Calories/day**
 - Daily calorie needs based on activity level**
 - | Activity Level | Calorie |
|---|---------|
| Sedentary: little or no exercise | 1,926 |
| Exercise 1-3 times/week | 2,207 |
| Exercise 4-5 times/week | 2,351 |
| Daily exercise or intense exercise 3-4 times/week | 2,488 |
| Intense exercise 6-7 times/week | 2,769 |
| Very intense exercise daily, or physical job | 3,050 |
 - Exercise:** 15-30 minutes of elevated heart rate activity.
 - Intense exercise:** 45-120 minutes of elevated heart rate activity.
 - Very intense exercise:** 2+ hours of elevated heart rate activity.

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:

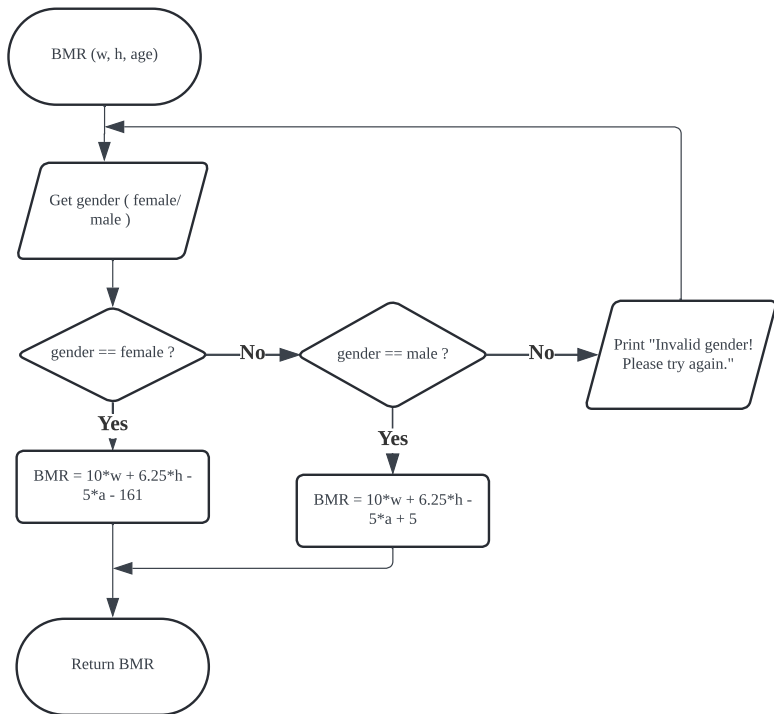
- a) Branching/ selection (if..else)
- b) Loop/ repetition (repeat..until/ do..while)
- c) User-defined function flow chart. Besides the **main** function flow chart, your solution needs to design at least **ONE** or more other function (subroutine) flow chart. Use appropriate arguments for the function.



Name 1: Tay Xin Ying
Matric no. 1: A24CS0200

Name 2: Michelle Ho Chia Xin
Matric no. 2: A24CS0110

Date: 3.11.2024



unit conv (wlb, hft)

```
graph TD; A([unit conv (wlb, hft)]) --> B[w = wlb * 0.4536<br/>h = hft * 30.48]; B --> C([Return w, h]);
```

$w = wlb * 0.4536$
 $h = hft * 30.48$

Return w, h