

ASSIGNMENT 1
PROGRAMMING TECHNIQUE 1 (SECJ1013)
SECTION 02, SEM 1 (2025/2026)

INSTRUCTIONS TO THE STUDENTS

- This assignment must be done **in pairs** (a group consisting of 2 members).
- Please refer to the group list to find out your group members/ partner and your set of assignments.
- The application examples given in the figure in the question set 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, matrics number, and date** as a comment in your program.

SUBMISSION PROCEDURE

- Please submit this assignment according to the due date in e-learning.
- 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.

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.

US Units	Metric Units	Other Units	Result														
Age 25	ages 15 - 80		BMR = 1,605 Calories/day														
Gender <input checked="" type="radio"/> male <input type="radio"/> female			Daily calorie needs based on activity level														
Height 180	cm		<table border="1"><thead><tr><th>Activity Level</th><th>Calorie</th></tr></thead><tbody><tr><td>Sedentary: little or no exercise</td><td>1,926</td></tr><tr><td>Exercise 1-3 times/week</td><td>2,207</td></tr><tr><td>Exercise 4-5 times/week</td><td>2,351</td></tr><tr><td>Daily exercise or intense exercise 3-4 times/week</td><td>2,488</td></tr><tr><td>Intense exercise 6-7 times/week</td><td>2,769</td></tr><tr><td>Very intense exercise daily, or physical job</td><td>3,050</td></tr></tbody></table>	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
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																
Weight 60	kg		<p>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.</p>														
+ Settings																	
Calculate		Clear															

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.

SET 2

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 Loan Calculator to estimate a monthly installment and to help you to plan your finances. **Figure 2** shows the example of car loan calculator applications as a guide to develop your own loan calculator.

The screenshot shows a web-based car loan calculator. At the top, there's a logo of a car and a dollar sign followed by the text "CAR LOAN CALCULATOR". Below the logo are four input fields: "Car Price (RM)" with value "90,000.00", "Down Payment (%)" with value "10", "Loan Period (Years)" with value "9", and "Interest Rate (%)" with value "4". A blue "CALCULATE" button is positioned below these fields. Under the "Result:" heading, it says "Monthly Repayment" and displays the result "RM 1,020.00" in large blue text.

Figure 2: Car loan calculator application

(Source: <https://www.calculator.com.my/car-loan>)

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.