



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

UNIVERSITI TEKNOLOGI MALAYSIA

TEST 2 (PROGRAMMING)

SEMESTER I 2021/2022

SUBJECT CODE : SECJ/SCSJ1013
SUBJECT NAME : PROGRAMMING TECHNIQUE I
YEAR/COURSE : 1 (SECJ/ SECV/ SECB/ SECR/ SECP)
TIME : 09:25 PM - 10:25 PM MYT (1 hour)
DATE : 11th JANUARY 2022 (Tuesday)

INSTRUCTIONS TO THE STUDENTS:

- Read the problem and instructions carefully.
- You are given **ONE HOUR** to complete the test inclusive of the submission of your program (**45 minutes to answer** the question, and **15 minutes to submit** the final answer).
- Your program must follow the input and output as required in the text and shown in the examples. You must test the programs with (but not limited to) all the input given in the examples.

IMPORTANT NOTES:

- All the **COMMENT STATEMENTS** in the submitted program **WILL NOT BE EVALUATED**.

SUBMISSION PROCEDURE:

- Only the source code is required for the submission (do not need to compress the file)
- File name format for **INTERIM** submission: **Test2Q3_Name_matricesNo_section-interim.cpp** (i.e., Test2Q3_AinaAli_A20EC018_01-interim.cpp)
- File name format for **FINAL** submission: **Test2Q3_Name_matricesNo_section-final.cpp** (i.e., Test2Q3_AinaAli_A20EC018_01-final.cpp)
- Submit the source code file via the **UTM's e-Learning System**.

Question

[50 Marks]

Write a complete C++ program, to determine whether or not a person is eligible for Malaysian Family Assistance. The program should be able to do the following tasks:

Task 1: Write a **"getInput"** function. (9 marks)

- This is a function that does not return any values.
- It accepts as input parameters the identity card (IC) number, gross monthly income, eligibility status, and number of children.
- The function should prompt the user to enter their IC number, gross monthly income, and the number of children they have if they are eligible. A person is eligible for this assistance if their gross monthly income does not exceed RM5000.
- The function returns to the calling module all of the values entered by the user in (c), as well as the eligibility status using reference parameters.

Task 2: Write a **"deterAmountAssist"** function. (18 marks)

- It accepts as input parameters the gross monthly income and the number of children.
- The function should determine the amount of assistance received by those who are eligible based on the criteria listed in **Table 1**.
- It should return the value determined in (b).

Table 1

Gross monthly income (RM)	Number of children		
	0	1 – 2	≥ 3
2,500 and below	RM1,000	RM1,500	RM2,000
2,501 – 5,000	RM400	RM600	RM800

Task 3: Write a **main** function. (18 marks)

- You need to use an appropriate **LOOP** to perform the process in this function. The loop will be repeated when the user press 'Y' or 'y'.
- You are **NOT ALLOWED** to use **arrays** except an array of characters.
- The function may need to call the functions defined in Task 1 and Task 2.
- The program should generate the output shown in the sample execution below. The values in **bold** are those entered by the user.

Task 4: You must ensure that your program meet the following criteria: (5 marks)

- The program can be executed.
- The program employs an appropriate structure for the program (e.g. all required header files are included, the program is properly written, proper indentation, etc.)

SAMPLE PROGRAM EXECUTION

<< Check eligibility for Malaysian Family Assistance >>

IC number: **720322015617**

Gross monthly income: RM**6543.23**

Status: NOT ELIGIBLE

Press 'Y' to enter other data: **y**

<< Check eligibility for Malaysian Family Assistance >>

IC number: **860723045608**

Gross monthly income: RM**1689.4**

Number of children: **4**

Status: ELIGIBLE

Amount of assistance = RM2000

Press 'Y' to enter other data: **Y**

<< Check eligibility for Malaysian Family Assistance >>

IC number: **830918055071**

Gross monthly income: RM**3541**

Number of children: **1**

Status: ELIGIBLE

Amount of assistance = RM600

Press 'Y' to enter other data: **y**

<< Check eligibility for Malaysian Family Assistance >>

IC number: **680418092345**

Gross monthly income: RM**2230.5**

Number of children: **0**

Status: ELIGIBLE

Amount of assistance = RM1000

Press 'Y' to enter other data: **N**