

LAB EXERCISE 1 (SECJ1013)
PROGRAMMING TECHNIQUE 1
SEM 1, 2024/2025

INSTRUCTIONS TO THE STUDENTS

- This exercise must be done individually.
- Answer all questions.
- Your solution must follow the input and output as required in the text and shown in the examples. You must test your solution with (but not limited to) all the input given in the examples.
- Any form of plagiarisms is **NOT ALLOWED**. Students who copied other students' assignments will get **ZERO (0)** marks (both parties, students who copied, and students that share their work).
- Please insert your name, matric number, and date as a comment in your solution.

SUBMISSION PROCEDURE

- Please submit this exercise no later than **October 22, 2024, Tuesday (00:00 MYT)**.
- Only 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 1

Construct a flow chart that reads an integer number and then calculate the sum of its digits. After that, identify whether the sum of digits for the integer is a multiple of 3, 4, and / or 5. **Hint:** You should use operator divide (/) and modulus (%) and also **post-test loop** to answer this question.

Example 1

Enter an integer number: **5168**
 $8 + 6 + 1 + 5 = 20$
20 is multiples of 4 and 5

Example 3

Enter an integer number: **51684**
 $4 + 8 + 6 + 1 + 5 = 24$
24 is multiples of 3 and 4

Example 2

Enter an integer number: **9996999**
 $9 + 9 + 9 + 6 + 9 + 9 + 9 = 60$
60 is multiples of 3, 4 and 5

Example 4

Enter an integer number: **2161**
 $1 + 6 + 1 + 2 = 10$
10 is multiples of 5

Note: The number in **bold** indicates input entered by the user.

Draw your flow chart using any appropriate drawing tools such as Microsoft Visio, Lucid chart (<https://www.lucidchart.com/pages/examples/flowchart-maker>), and draw.io (<https://app.diagrams.net/>).

QUESTION 2

Construct a flow chart that reads an integer number and then calculate the sum of its digits. After that, identify whether the sum of digits for the integer is an even or odd number, and a multiple of 4, and/ or 5. **Hint:** You should use operator divide (/) and modulus (%) and also **pre-test loop** to answer this question.

Example 1

Enter an integer number: **1235**
 $5 + 3 + 2 + 1 = 11$
11 is odd number

Example 2

Enter an integer number: **6545**
 $5 + 4 + 5 + 6 = 20$
20 is even number & multiples of 4 and 5

Example 3

Enter an integer number: **89251**
 $1 + 5 + 2 + 9 + 8 = 25$
25 is odd number & multiples of 5

Example 4

Enter an integer number: **98762**
 $2 + 6 + 7 + 8 + 9 = 32$
32 is even number & multiples of 4

Note: The number in **bold** indicates input entered by the user.

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QUESTION 3

Construct a flow chart that reads an integer number and then calculate the product of its digits. After that, identify whether the product of digits for the integer is a multiple of 4, 5, and/ or 7. **Hint:** You should use operator divide (/) and modulus (%) and also **pre-test loop** to answer this question.

Example 1

Enter an integer number: **175**
 $5 * 7 * 1 = 35$
35 is multiples of 7 and 5

Example 3

Enter integer number: **2417**
 $7 * 1 * 4 * 2 = 56$
56 is multiples of 7 and 4

Example 2

Enter integer number: **9212**
 $2 * 1 * 2 * 9 = 36$
36 is multiples of 4

Example 4

Enter integer number: **61145**
 $5 * 4 * 1 * 1 * 6 = 120$
120 is multiples of 4 and 5

Note: The number in **bold** indicates input entered by the user.

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QUESTION 4

Construct a flow chart that reads an integer number and then calculate the product of its digits. After that, identify whether the product of digits for the integer is an even or odd number, and a multiple of 3, and/ or 5. **Hint:** You should use operator divide (/) and modulus (%) and also **post-test loop** to answer this question.

Example 1

Enter integer number: **351**

$1 * 5 * 3 = 15$

15 is odd number & multiples of 3
and 5

Example 2

Enter integer number: **363**

$3 * 6 * 3 = 54$

54 is even number & multiples of 3

Example 3

Enter integer number: **256**

$6 * 5 * 2 = 60$

60 is even number & multiples of 3
and 5

Example 4

Enter integer number: **7442**

$2 * 4 * 4 * 7 = 224$

224 is even number

Note: The number in **bold** indicates input entered by the user.

Draw your flow chart using any appropriate drawing tools such as Microsoft Visio, Lucid chart (<https://www.lucidchart.com/pages/examples/flowchart-maker>), and draw.io (<https://app.diagrams.net/>).