LAB OBJECTIVES

At the end of this lab activity, the students should be able to:

- Solve programming problems by applying:
  - proper flowchart drawing techniques.
  - proper pseudocode writing techniques.
- Apply the concepts of sequence, selection and repetition control structures in solving problems.

SEQUENCE CONTROL STRUCTURE

1. Design the flowchart and pseudocode to calculate the salary of an employee.
   - Initialize all the variables.
   - Get the salary, bonus and deductions from the user.
   - Calculate the net salary.
   - Display the salary, bonus, deductions and net salary.

SELECTION CONTROL STRUCTURE

2. Design the flowchart and pseudocode to calculate the Body Mass Index (BMI) of a person.
   - Initialize all the variables.
   - Get the height and weight from the user.
   - Calculate the BMI (BMI = weight / height ^{2})
   - Identify the status based on the BMI and by referring to the following table.
   - Display the status.

BMI	STATUS
Less than 18.5	Underweight
18.5 - 24.9	Normal
25.0 - 29.9	Overweight
More than or equal 30.0	Obese

REPETITION CONTROL STRUCTURE

3. The weight of an object is defined as the force of gravity which is exerted on it by Earth. Scientists put that sentence into an equation by writing $w = m \times a$ where w is the weight of an object, m represents the mass of an object and a represents the acceleration of gravity. You are required to calculate the weight of 4 different objects. Therefore, the program is required to be repeated 4 times so that 4 new sets of data can be entered to get the respective weights.

- Initialise all the required variables.
- Get the inputs of *mass* and *acceleration* from the user.
- Calculate the weight. Display the *weight, mass* and *acceleration*.
- Repeat the whole process 4 times using a *loop* for different objects.

a) Based on the description given above, draw the **flowchart**. Use **do *while loop*** *structure*
b) Based on the description given above, write the **pseudocode**. Use ***while loop*** *structure*.

4. Table 1 shows the revenue and cost of E&A Company for the past three months.

Table 1

	Jan	Feb	March
Revenue	20000	26000	30000
Cost	15000	20000	35000

- Initialize all the required variables.
- Get the inputs of revenue and cost from the user.
- Display the profit/loss status.
- Repeat the process.

OUTPUT SCREEN

```
Enter revenue:20000
Enter cost:15000
Profit

Enter revenue:26000
Enter cost:20000
Profit

Enter revenue:30000
Enter cost:35000
Loss
```

a) Design a flowchart to help E&A Company to identify whether it is making profit or loss for each month. Use ***while loop*** *structure*

b) Based on the descriptions in part (a), write the pseudocode. Use ***do-while loop*** *structure*.