Writing Pseudocode

🎯 Learning Objectives

By the end of this lesson, students should be able to:

1. Explain what pseudocode is and why it is important.
2. Identify and apply syntax conventions for pseudocode.
3. Write simple pseudocode using input, output, assignment, and expressions.
4. Convert flowcharts into equivalent pseudocode statements.

📃 1. Review — What is Pseudocode?

Pseudocode is a **simple, language-independent way** of describing an algorithm using **plain English and programming-like structure**.

👉 It helps programmers plan logic **before writing real code**.

Example:

```
START
  INPUT number1, number2
  SET sum = number1 + number2
  OUTPUT sum
END
```

🧩 2. Syntax Conventions for Pseudocode

To keep pseudocode clear and consistent, follow these **standard rules**:

Rule	Description	Example
Uppercase Keywords	Use capital letters for control words	IF, THEN, END, INPUT, OUTPUT
Indentation	Indent statements inside blocks for clarity	Inside IF, WHILE, or FOR loops
Comments	Add short notes using // or #	// This calculates the sum
Meaningful Names	Use clear variable names	Total, Score, Average
One Statement per Line	Keep each action on its own line	SET sum = a + b

✍️ Example of Proper Formatting

```
START
  INPUT Score1, Score2, Score3
  SET Total = Score1 + Score2 + Score3
  SET Average = Total / 3
  OUTPUT Average
END
```

✅ Note how **indentation** and **uppercase keywords** improve readability.

🖥️ 3. Basic Pseudocode Operations

(a) Input and Output

Used to get and display data.

```
INPUT Name
OUTPUT "Welcome", Name
```

(b) Assignment

Used to store or compute a value.

```
SET Area = Length * Width
SET Total = Price + Tax
```

(c) Expressions

Used to perform calculations or comparisons.

```
IF Age > 18 THEN
    OUTPUT "You are an adult"
ELSE
    OUTPUT "You are a minor"
ENDIF
```

🔢 4. Worked Examples

Example 1 — Sum of Two Numbers

```
START
  INPUT Num1, Num2
  SET Sum = Num1 + Num2
  OUTPUT Sum
END
```

Example 2 — Average of Three Scores

```
START
  INPUT Score1, Score2, Score3
  SET Total = Score1 + Score2 + Score3
  SET Average = Total / 3
```
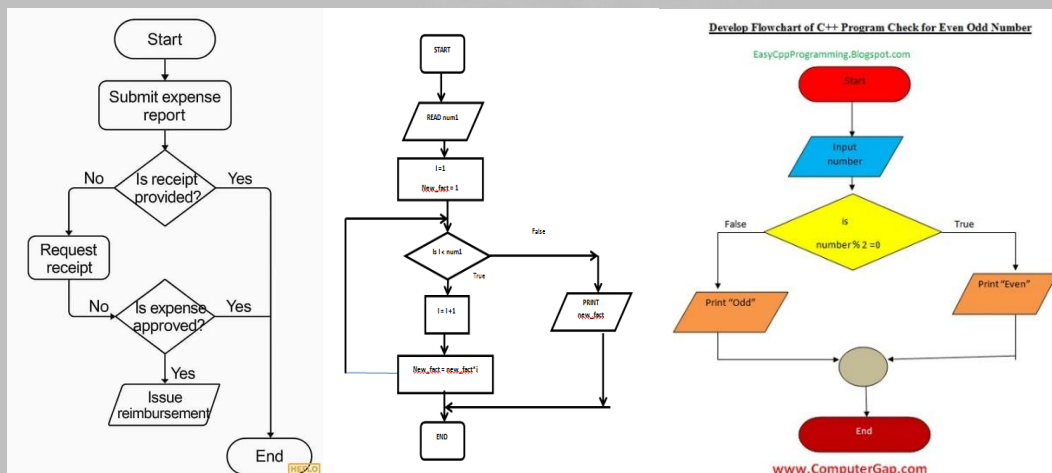
OUTPUT Average
END

Example 3 — Compare Two Numbers

START
  INPUT A, B
  IF A > B THEN
    OUTPUT "A is greater"
  ELSE
    OUTPUT "B is greater"
  ENDIF
END

🧪 5. Lab Activity: Converting Flowcharts into Pseudocode

Task Description:

Each student should:

1. Examine a given **flowchart** representing an algorithm.
2. Write **equivalent pseudocode** using correct syntax (uppercase, indentation, comments).

3. Ensure that:
   o Logic matches the flowchart sequence
   o Decisions (diamonds) become IF...THEN...ELSE statements
   o Processes (rectangles) become SET or CALCULATE statements
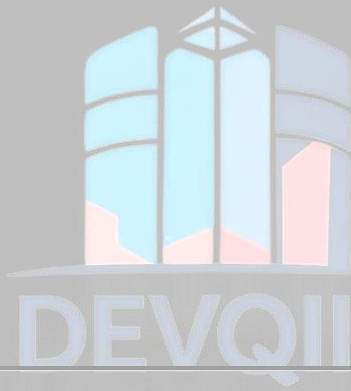   o Input/Output (parallelograms) become INPUT or OUTPUT commands

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Example Flowchart Conversion

Flowchart Description:

- Start
- Input A, B
- Add A and B
- Display Sum
- End

Equivalent Pseudocode:

```
START
  INPUT A, B
  SET Sum = A + B
  OUTPUT Sum
END
```

🧩 6. Exercise

1. Write pseudocode to find the **area of a rectangle**.
2. Write pseudocode to check if a number is **even or odd**.
3. Convert the following flowchart into pseudocode (diagram provided in class).
4. Write pseudocode to calculate the **total and average** of 5 student marks.