FUNDAMENTALS OF PROGRAMMING

PART II

CONTENTS

- Flowchart
- Algorithm
- Pseudocode

- Syntax
- Quiz

FLOWCHART

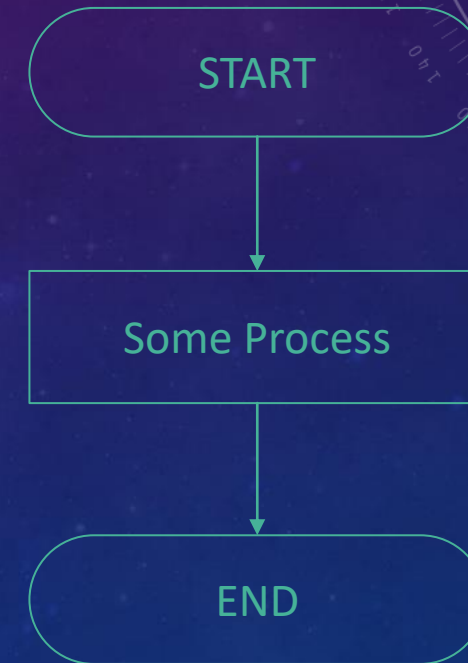PURPOSE, BASICS, RULES

FLOWCHART

A flowchart is a type of diagram that represents a workflow or process.

A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task.

A flowchart is a graphical representation of an Algorithm.

START

↓

Some Process

↓

END

FLOWCHART

PURPOSE

BASICS

RULES

PURPOSE

Flowcharts are used in designing and documenting simple processes or programs.

Like other types of diagrams, they help visualize what is going on and thereby help understand a process, and perhaps also find less-obvious features within the process, like flaws and bottlenecks.

FLOWCHART

PURPOSE   BASICS   RULES

BASICS

5 Basic Flowchart Symbols -

START / END

The Oval

PROCESS

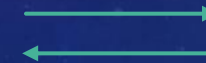The Rectangle

INPUT / OUTPUT

The Parallelogram

DECISION

The Diamond

The Arrow

FLOWCHART

PURPOSE   BASICS   RULES

RULES

- Always format your flow from left to right or top to bottom.

- Maintain consistent spacing between symbols.

- Use the correct symbol for each step (diamond shapes are for decisions, rectangles are for processes, and start/end shapes should be the same, etc.)

ALGORITHM

PURPOSE, RULES

ALGORITHM

An algorithm is a well-defined set of procedure to solve a particular problem.

An algorithm for adding two numbers:

1. Start
2. Take two number
3. Add those numbers and store the result
4. Display the result
5. End

ALGORITHM

PURPOSE

RULES

PURPOSE

The purpose of an algorithm is to give a set of rules by which one can solve a problem.

Think of it as laying out a step-by-step guide which will accomplish a specific task or solve a specific calculation if the steps are followed in order.

ALGORITHM

PURPOSE

RULES

RULES

- Input and output should be defined precisely.

- Each step in the algorithm should be clear and unambiguous.

- An algorithm shouldn't include computer code. Instead, the algorithm should be written in such a way that it can be used in different programming languages.

PSEUDOCODE

WHAT, WHY, HOW

PSEUDOCODE

Pseudocode is an artificial and informal language that helps programmers develop algorithms.

Pseudocode is a text-based detail (algorithmic) design tool.

The rules of Pseudocode are reasonably straightforward. All statements showing dependency are to be indented. These include while, do, for, if, switch.

PSEUDOCODE

DISPLAY "ENTER THE FIRST NUMBER : "
INPUT nNum1

DISPLAY "ENTER THE SECOND NUMBER : "
INPUT nNum2

IF nNum1 > nNum2
   DISPLAY nNum1 + " is larger than "+ nNum2
ELSE
   DISPLAY nNum2 + " is larger than " + nNum1

SYNTAX

C++, PYTHON, GO

SYNTAX

The syntax of a computer language is the set of rules that defines the combinations of symbols that are correctly structured statements or expressions in that language.

Syntax refers to a concept in writing code dealing with a very specific set of words and a very specific order to those words when we give the computer instructions.

EXAMPLE OF SYNTAX

C++

```cpp
#include <iostream>
using namespace std;

int main() {
  cout << "Hello World!";
  return 0;
}
```

PYTHON

```python
x = "Hello, World!"
print(x)
```

GO

```go
package main
import ("fmt")

func main(){
  fmt.Println("Hello World!")
}
```

Ramadan Special Program

CodeWithVirus

THE END

PART II