CSE106

FUNDAMENTALS OF COMPUTER SCIENCE

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Introduction to Google Suite

Google Classroom

Google Calendar

Introduction to Google Suite

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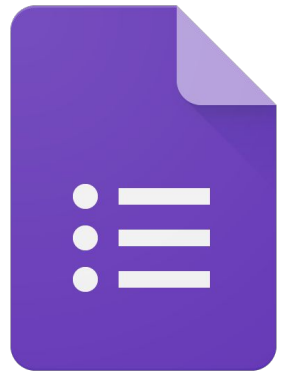


Google Forms

Unit – I: General Problem Solving Concepts

- Algorithm
- Flowchart
- Problem solving with
  - Sequential Logic Structure
  - Decisions and
  - Loops

Algorithm

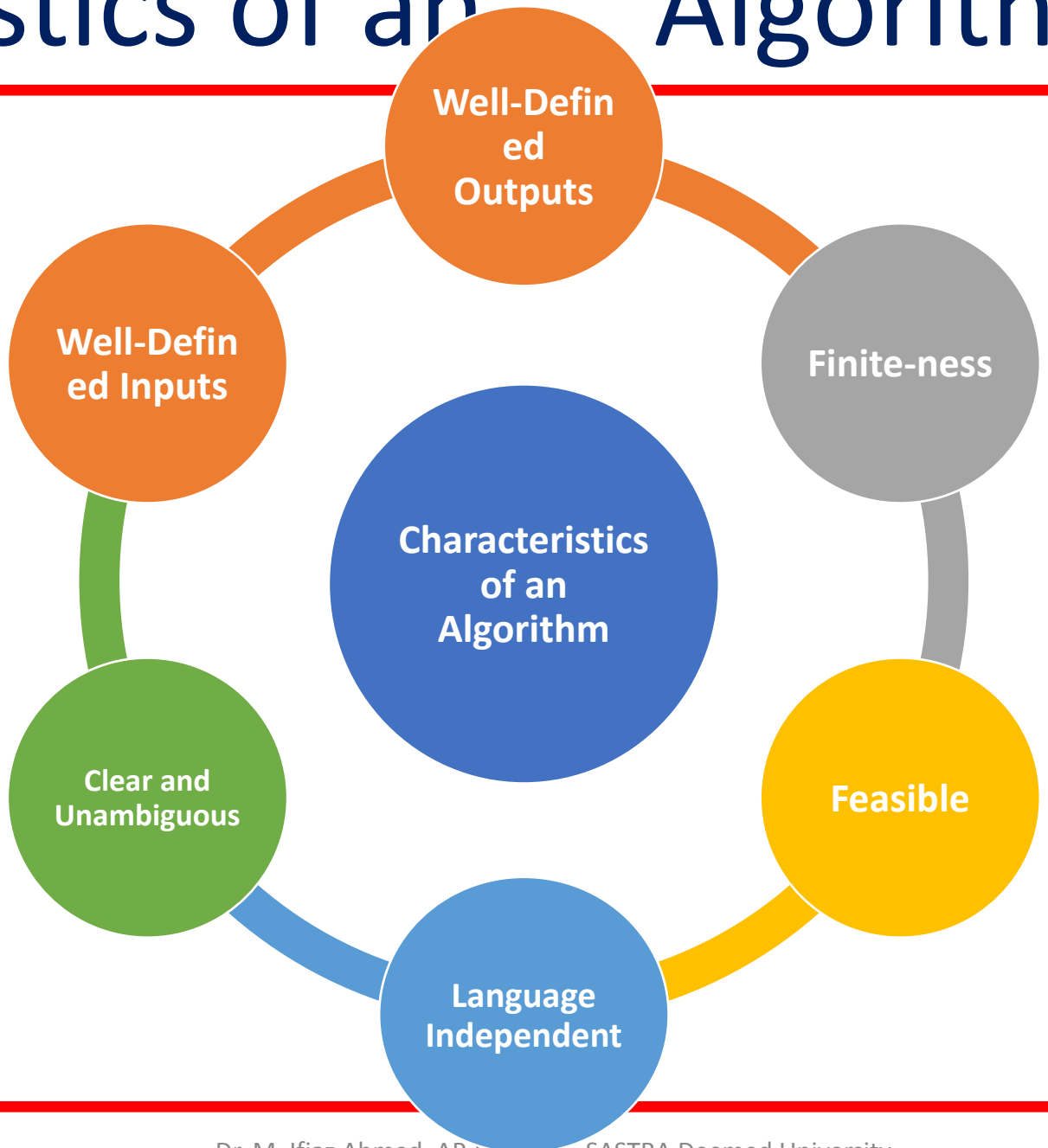
- An Algorithm (noun) is a set of steps to accomplish a task
- Definition(s) of an algorithm

A procedure for solving a mathematical problem in a finite number of steps that frequently involves repetition of an operation

(or)

A step-by-step procedure for solving a problem or accomplishing some end

Characteristics of an Algorithm



How to Design an Algorithm?

1. The problem that is to be solved by this algorithm.
2. The constraints of the problem that must be considered while solving the problem.
3. The input to be taken to solve the problem.
4. The output to be expected when the problem the is solved.
5. The solution to this problem, in the given constraints.

Example 1: Add three numbers and print the sum.

Step 1: Fulfilling the pre-requisites

1. The problem that is to be solved by this algorithm: Add 3 numbers and print their sum.
2. The constraints of the problem that must be considered while solving the problem: The numbers must contain only digits and no other characters.
3. The input to be taken to solve the problem: The three numbers to be added.
4. The output to be expected when the problem the is solved: The sum of the three numbers taken as the input.
5. The solution to this problem, in the given constraints: The solution consists of adding the 3 numbers. It can be done with the help of '+' operator, or bit-wise, or any other method.

Step 2: Designing the algorithm

- Algorithm to add 3 numbers and print their sum:
  1. START
  2. Declare 3 integer variables num1, num2 and num3.
  3. Take the three numbers, to be added, as inputs in variables num1, num2, and num3 respectively.
  4. Declare an integer variable sum to store the resultant sum of the 3 numbers.
  5. Add the 3 numbers and store the result in the variable sum.
  6. Print the value of variable sum
  7. END

Step 3: Testing the algorithm by implementing it.

To test the algorithm, let's implement it in C language.

Questions ?

Thank You !