

CIT 103: Workshop Assignment #1(A)

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1 Introduction

1.1 Algorithms

An algorithm is a set of instructions for carrying out a particular task. Algorithms can be implemented in software, hardware, or a combination of both. They are essential for solving problems and performing tasks in a wide range of fields, including computer science, data analysis, and artificial intelligence. Algorithms can be simple, like a recipe for baking a cake, or complex, like a plan for navigating a self-driving car through city streets. In general, an algorithm has the following characteristics:

- It is a sequence of steps that are followed to solve a problem or accomplish a task.
- It has a clear set of inputs and outputs.
- It is finite, meaning it will eventually stop running.
- It is effective, meaning that it will produce a correct result if followed correctly.

There are many different types of algorithms, including search algorithms, sorting algorithms, and optimization algorithms. Some algorithms are designed to be very fast, while others are more concerned with accuracy or reliability. The choice of algorithm for a particular task will depend on the specific requirements of the problem at hand.

1.2 Flowchart

A flowchart is a graphical representation of a process or system that shows the steps as boxes of various kinds, and their order by connecting these with arrows. Flowcharts are used in analyzing, designing, documenting or managing a process or program in various fields.

Flowcharts can be created using a variety of symbols and shapes, and there are several different types of flowcharts, including document flowcharts, data flowcharts, and system flowcharts. Flowcharts can be used to represent algorithms, workflows, and processes, and they are often used in business and engineering to document, visualize, and analyze complex systems.

The flowchart shows a process that starts with inputting data, then processes the data, and finally outputs the data before ending. The boxes represent the steps in the process, and the arrows show the flow of the process. Flowcharts are a useful tool for understanding and communicating the steps in a process.

1.2.1 Symbols used in Flowchart

There are several symbols that are commonly used in flowcharts, each with a specific meaning:

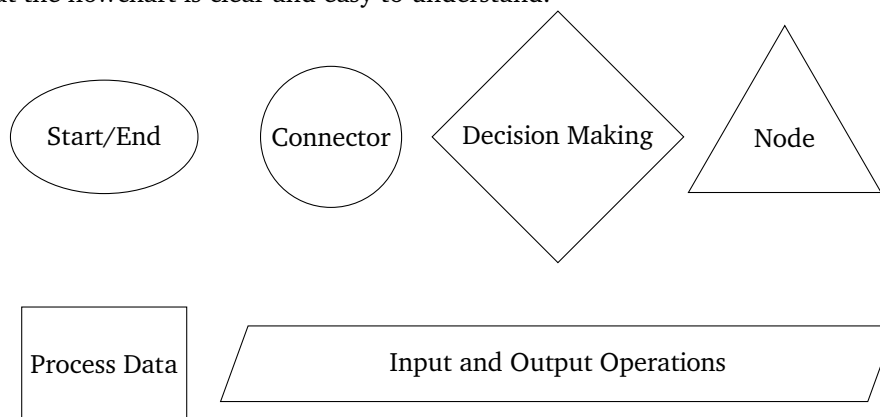
1. Oval or Ellipse: This represents the start or end of a process.
2. Circle: It is used to connect arrows coming from multiple directions where construction of node is not possible.
3. Rectangle: This represents a process, task, or action.

4. Diamond: This represents a decision point, where the flow of the process can go in different directions based on a particular condition.
5. Triangle: This represents a connector, which is used to indicate the continuation of the flowchart on another page.
6. Arrow: This represents the flow of the process from one step to the next.
7. Parallelogram: This represents an input or output.

Other Symbols used to construct flowchart are:

1. Hexagon: This represents a loop or a repeat of a process.
2. Pentagon: This represents an evaluation or assessment point.
3. Document: This represents a document or report.

These symbols can be combined to create flowcharts that accurately and effectively represent a process or system. It is important to use the standard symbols when creating a flowchart, as this helps to ensure that the flowchart is clear and easy to understand.



2 Lab Objectives

The objectives of the lab are:

1. Learn the techniques to write an algorithm.
2. Learn the techniques of drawing a flowchart.

3 Questions

Question 1

Write an algorithm and flowchart to find the greater of any two given numbers.

Question 2

Write an algorithm and flowchart to find the greater of any three given numbers.

Question 3

Write an algorithm and flowchart to find the greater of any n given numbers.

4 Appendix

1. Title Page
2. Instructions



GANDAKI UNIVERSITY

INSTITUTE OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

CIT 104: WORKSHOP - PROBLEM SOLVING
AND LOGIC

Title:

Submitted By:

Name:

Roll No.:

Semester:

Submission Date:

Submitted To:

Name:

Checked Date:

Remarks:

4.1 Instructions to writing a Lab Report

It will consist of following headings

1. Lab Title
2. Lab Objectives
3. Theory (Important concepts introduced to solve the question)
4. Question
 - Flowchart (Solution)
 - Algorithm (Solution)
 - Output in Trace Tables (Not applicable for labs from 1 to 3) - Verification
5. Conclusion



Info: Note on index page construction before submitting to your teacher.

It will consist of following table columns. **Row Height: 50pt or 0.7 inches.**

S.No	Lab Title	Submitted Date	Checked Date	Signature
1	Lab1	(Filled by Administrator)	(By Instructor)	(By Instructor)
2	Lab2	(Filled by Administrator)	(By Instructor)	(By Instructor)
3		(Filled by Administrator)	(By Instructor)	(By Instructor)