DEPARTMENT OF COMPUTER SCIENCE

STUDENT SEMINAR

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CLASS   **: II BSC MPCS**

TOPIC   **: ALGORITHMS -- FLOWCHARTS**

CONTENTS OF PRESENTATION

INTRODUCTION OF ALGORITHM :

❖ Algorithm is before playing how to program will execute is called Algorithm.

❖ A blueprint for writing a program to solve a particular problem.

❖ It is a step by step process to execute the program language

❖ The typical meaning of an algorithm is a formally defined procedure for performing some calculation.

CHARACTERISTICS OF ALGORITHM:-

▶ Well defined input

▶ Clear and unambiguous

▶ Language independent

▶ Well defined output

▶ Finiteness (number of statement)-end less

▶ Feasible (to clear understanding and easy)

KEYFEATURES OF AN ALGORITHM

- Sequence
- Decision
- Repetition

- Sequence:-

➢ *Each step of the algorithm is executed in the specified order*.

➢ Ex :- Algorithm to add two numbers

Step 1 :Start

Step 2 :Input the first number as A

Step 3 :Input the second number as B

Step 4 :set sum=A+B

Step 5 :Print sum

Step 6 :End

DECISION:-

❑ These are used when the execution of the process depends on the out come of some condition.

if condition then process

❑ A condition in this context is any statement that may evaluate either to a true value or false value.

❑ If the condition is true then the process is executed.

❑ This statement can also be stated like this…….

if condition

then process1

else process2

❑ This is known as if-else construct.

❑ Algorithm for test the equality of two numbers

Step 1: Input the first number as A.

Step 2: Input the second number as B.

Step 3: if A=B

then print Equal

else

print " Not equal "

Step 4: end.

RIPETITION:-

▶ *Which involves executing one or more steps for a number of times, can be implemented using constructs such as the while, do-while, and for loops.*

▶ *These loops execute one or more steps until some condition is true.*

Algorithm for print the first 10 natural numbers

Step 1: (Initialize)Set I=1, N=10.

Step 2: Repeat steps3 and 4 while I<=N.

Step 3: print I.

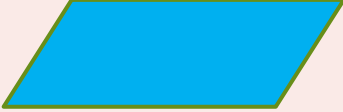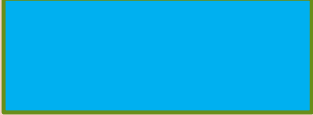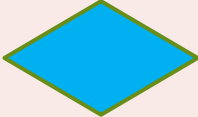*Step 4:Set I=I+1*

Step 5: End.

ADVANTAGES OF ALGORITHM:-

❖ It is easy to understand.

❖ Algorithm is step wise representation.

❖ Algorithm is used to broken down the program in to sub modals.
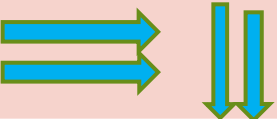
DISADVATAGES OF ALGORITHM:-

❖ Writing an algorithm takes along time suit is time consuming.

❖ Branching looping state statements are difficult show algorithm.

INTRODUCTION OF FLOWCHARTS:-

➢ Flowchart is a graphical or symbolic representation of a process.

➢ Used to design and document virtually complex processes to help the viewers to visualize the logic of the process.

➢ The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows.

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

SYMBOL NAME	SYMBOL	DESCRIPTION
Terminal (Start and End)		This is used to represent start and of the flowchart
Input /Output		It represents information which the system reads as input or sends as output
Processing		Any process is represented by this symbol. For example arithmetic operation, data movement.
Decision		This symbol is used to check any condition or take decision for which are two answers yes(true)or no(false).
Connector		It is used to connect or join flow lines.
Off-page connector		This symbol indicates the continuation of flowchart on the next page.
Document		It represents a paper document produced during the flowcharts process.
Annotation		It is used to provide additional information about another flowchart symbol which may be in the form of descriptive comments, remarks or explanatory notes.
Arrows (or) flow		Flow lines are used to connect symbols used in flowchart and indicate direction of flow.

EXAMPLE: If we draw a flowchart for addition of two values is like this:

Start

Enter num1, num2

Sum=num1+num2

Display Sum

End
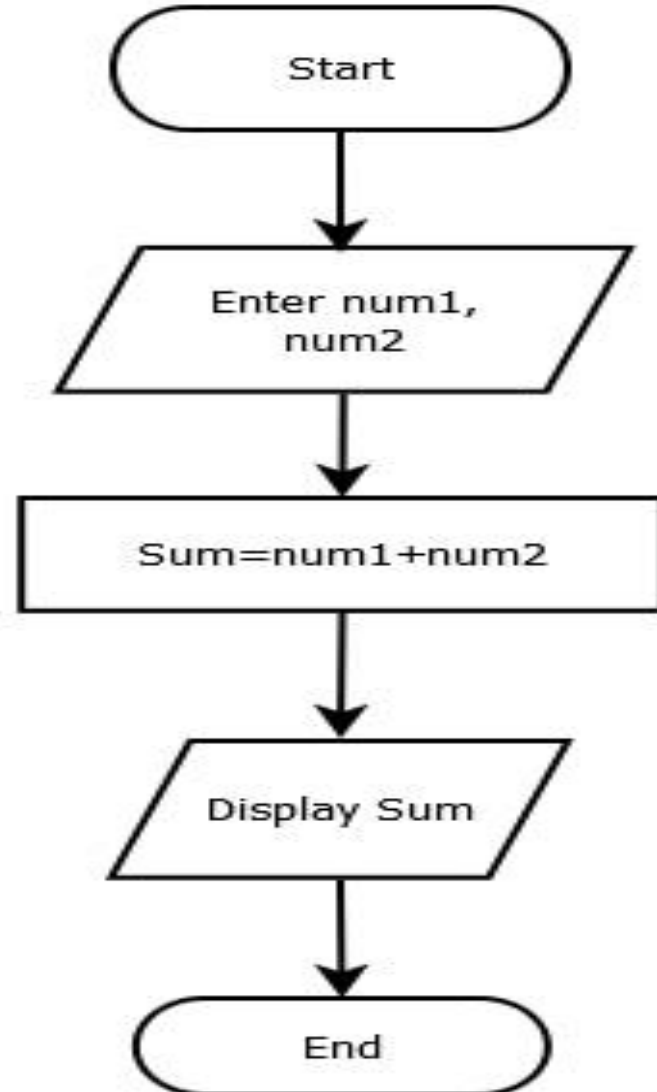
ADVANTAGES OF FLOWCHARTS:-

▶ Flowcharts are very good communications tools to explain the logic of a system to all concerned.

▶ They help to analyze the problem in amore effective manner.

▶ They are also used for program documentation. They are even more helpful in the case of complex programs.

▶ They act as a guide or blueprint for the programmers to code the solution in any programming language.

▶ They can be used to debug programs that have error. They help the programmers to easily detect ,locate, and remove mistakes in the program in a systematic manner.

DISADVANTAGES OF FLOWCHARTS:-

➢ Drawing flowcharts is a laborious and time consuming activity.

➢ Often the flowcharts of a complex, program becomes complex.

➢ At times, a little bit of alteration in the solution may require complete redrawing of the flowchart.

➢ There are no well-defined standards that limit the details that must be incorporated into a flowchart.

CONCLUSION