

# Software Testing

## Session 8

Dynamic Testing

White Box Testing

Black Box Testing

# Structured Based (white Box Testing)

We majorly focus on testing the programming structures like Statements , input output , conditional statements , iterative (loops), multiple conditions .

It is also known as white box testing as in this we are testing the software , by focusing internal structure of the software (Source code) , independent of input and output provided to the software for the working.

# Structured Based (white Box Testing)

Purpose of white box testing:

To ensure that each statement of the source code should be executed atleast once.

It starts from unit testing and also includes integration testing.

We test the source code by executing unit test cases developed to test the source code for unit testing and integration test cases for integration testing.

These unit and integration test case are prepared by the experienced developers.

# White box testing (Methods)

1) Basis path Testing: in this method we focus on the unique independent path available in a module or in a flow chart.

It is a white box method for designing test cases. The method analyzes the control flow graph of a program to find a set of linearly independent paths of execution.

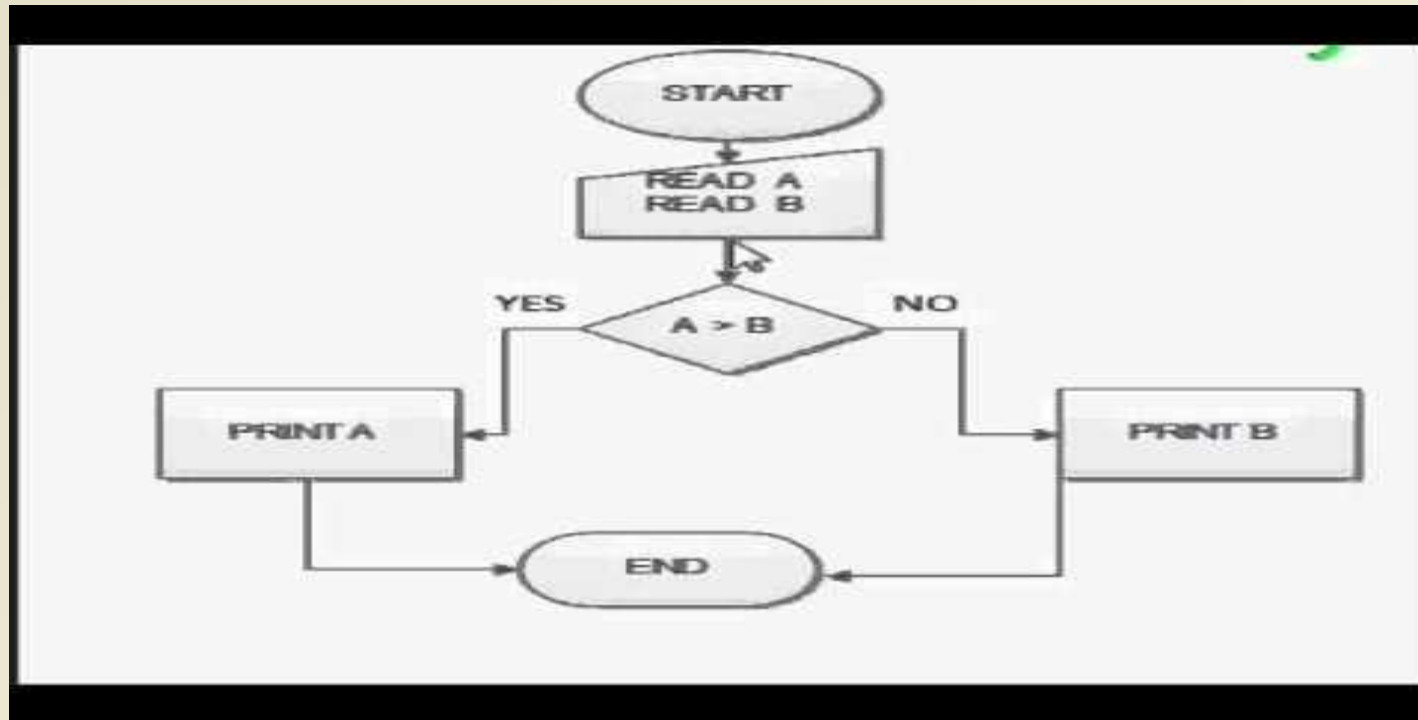
The method normally uses McCabe' Cyclomatic complexity to determine the number of linearly independent paths and then generates test cases for each path thus obtained.

# Flow Chart

A flowchart is a visual representation of the sequence of steps and decisions needed to perform a process.

It is a diagrammatic representation to complete a task from start to end.

e.g. Flow chart for find largest of two numbers.

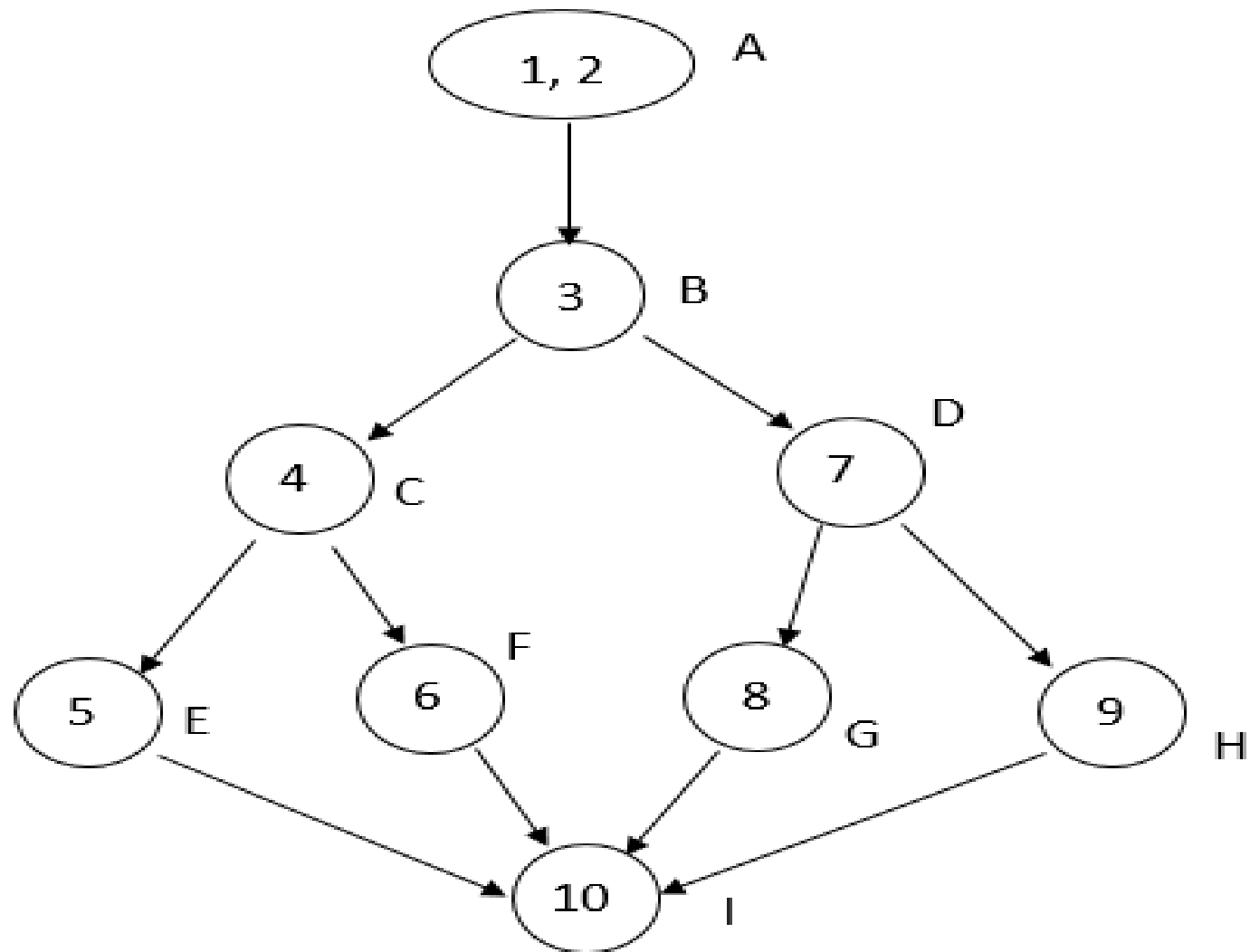


# Flow Graph

Flow Graph is defined as a function in a program that can be represented as a control flow graph and the nodes in the flow graph are defined as program statements while the directed edges are the flow of control. A Flow Graph consists of nodes and edges. The two nodes in the Flow Graph can be either unconnected or connected by an edge in either direction or connected by an edge in all directions.



# Flow Graph



- Find Cyclomatic complexity .
- Identify Basis path
- Branch Coverage and Statement Coverage.

# Your Queries

