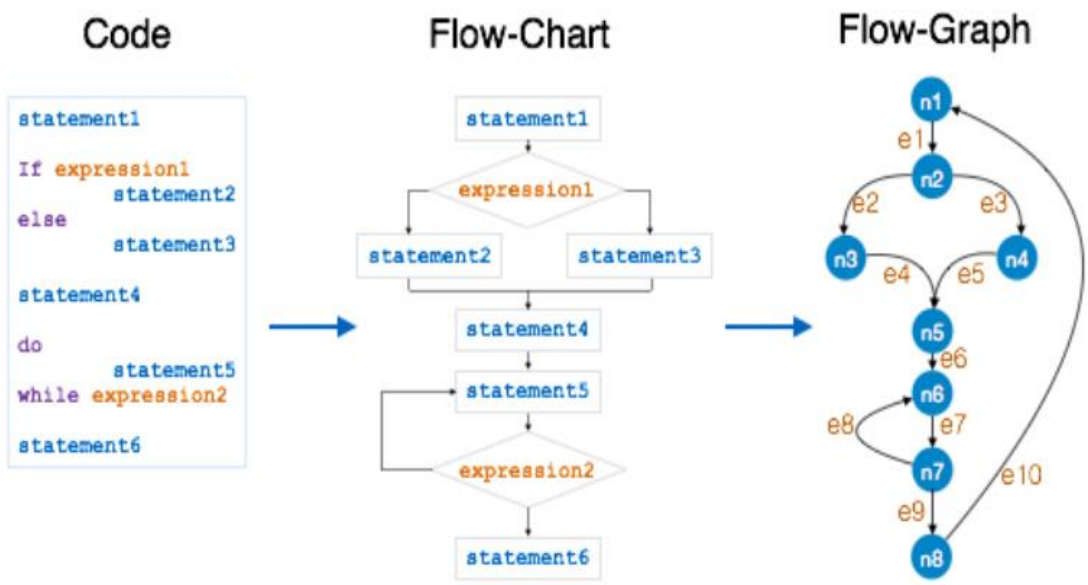
SOFTWARE DESIGN COMPLEXITY

Cyclomatic Complexity Measures:

McCabe, in 1976, proposed the Cyclomatic Complexity Measure to quantify the complexity of a given software. It is graph driven model that is based on decision-making constructs of programs such as if-else, do-while, repeat-until, switch-case, and goto statements.

PROCEDURE:

- From the code draw the Control flow-chart.
- From the code draw the Control flow-graph.
- Count the no. of edges and nodes.
- Calculate Cyclomatic Complexity of the program. // **V(G) =** e – n + 2 * p => **e – n +2** //
- Find the independent Data flow path for both TRUE and FALSE conditions.



e = 10

n = 8

Cyclomatic Complexity = 10 - 8 + 2 = 4

SOFTWARE TESTING

Software Validation -ensures the product under development is as per the user requirements.

Software Verification -ensures the product being developed is according to design specifications.

Target of the test are-

Error - Occurs by the programmer while coding.

Faults – Occurs when Error Exists. (commonly known as **BUG**) .

Failure – failure is said to be the inability of the system to perform the desired task. occurs when fault exists in the system.

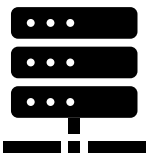
MANUAL TESTING

Test cases are written by humans, Skilled persons are required to perform testing.

AUTOMATED TESTING

This testing is a testing procedure done with aid of automated testing tools.

SELENIUM, APPIUM, KATALON STUDIO, CUCUMBER, etc…



Black-box testing

It is also called 'Behavioral' testing. The tester in this case, has a set of input values and respective desired results. On providing input, if the output matches with the desired results, the program is tested 'ok', and problematic otherwise.

White-box testing

It is conducted to test the program and its implementation, in order to improve code efficiency or structure. It is also known as 'Structural' testing.

Control-flow testing
Data-flow testing

LEVELS OF TESTING

Unit Testing

Integration Testing

System Testing

Acceptance Testing

Regression Testing