

19DCE096

Ans-1) The Reliability of a software product increases almost linearly each time defect gets detected & fixed.

- I completely agree with this statement, as when defect is detected & fixed a software becomes more secure, reliable.
- For example we are using our exam-software but what if it isn't able to catch cheating of students. This type of software is not reliable, for those who actually study & gain marks.
- But after fixing cheating problem software becomes more secure & reliable and making good software will increase your company's name in market.

Ans-2) Software Testing is the process of evaluating and verifying that a software product or application does what it is suppose to do.

(ii) The benefits of testing includes preventing bugs, reducing development cost & improving performance.

(iii) General guidelines for performing software testing

- 1) Identify the Testing environment - Identify the hardware, software, network configuration and tools available.
- 2) Identify performance metrics - Identify response time.
- 3) Plan and design performance tests.
- 4) configure the test environment - Prepare the elements of the test environment & monitor it.
- 5) Implement your test design.
- 6) Execute Test.
- 7) Analyze, report, retest - Analyze the data & share the findings. Run the performance test again using same parameters.

Black Box Testing

White box Testing

1) It is a way of software testing in which the internal structure or program or code is hidden.

2) No knowledge of implementation needed

3) Mostly done by software tester

In this tester has knowledge about internal structure or code.

Knowledge of implementation is needed

Mostly done by software developer

(v) Types of White Box testing

- 1) Unit testing
- 2) Integration testing
- 3) Regression testing

(vi) Cyclomatic complexity step by step

1) Step 1 - Construction of graph with nodes and edges from code.

2) Step 2 - Identification of independent path

3) ~~Cyclomatic~~ Step 3 - cyclomatic complexity calculation

4) Step 4 - Design of Test cases

For Eg let section of code as

A = 10

IF B > C THEN

A = B

ELSE

A = C

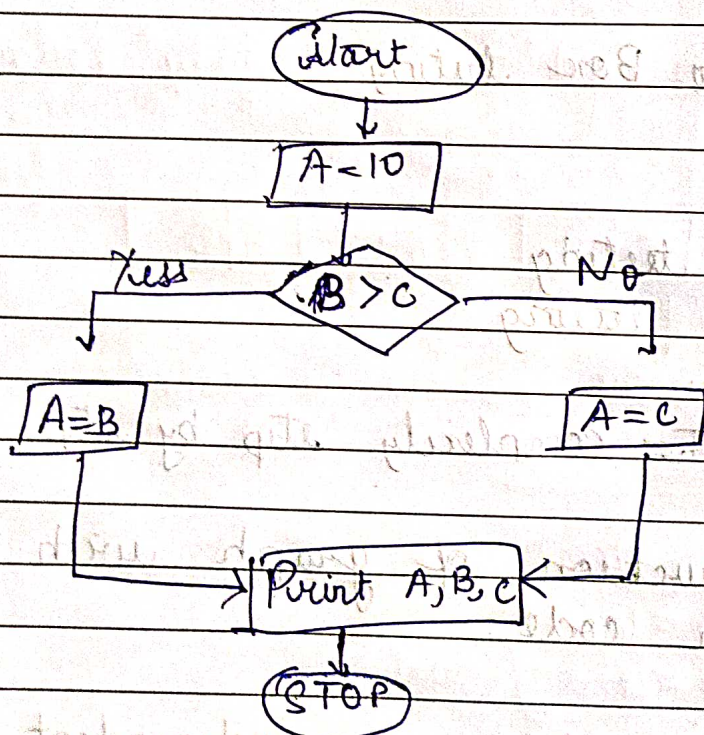
END IF

PRINT A

PRINT B

PRINT C

Control Flow Graph



Graph shows 7 nodes, seven lines (edge), hence cyclomatic complexity is $7 - 7 + 2 = 2$