

Tentamen i TDDC23 Programvarutestning

fredag den 1 juni 2007

- **Inga hjälpmedel.**
- **Frågorna är på engelska p.g.a. kurslitteratur, ni kan välja att svara på svenska eller engelska.**

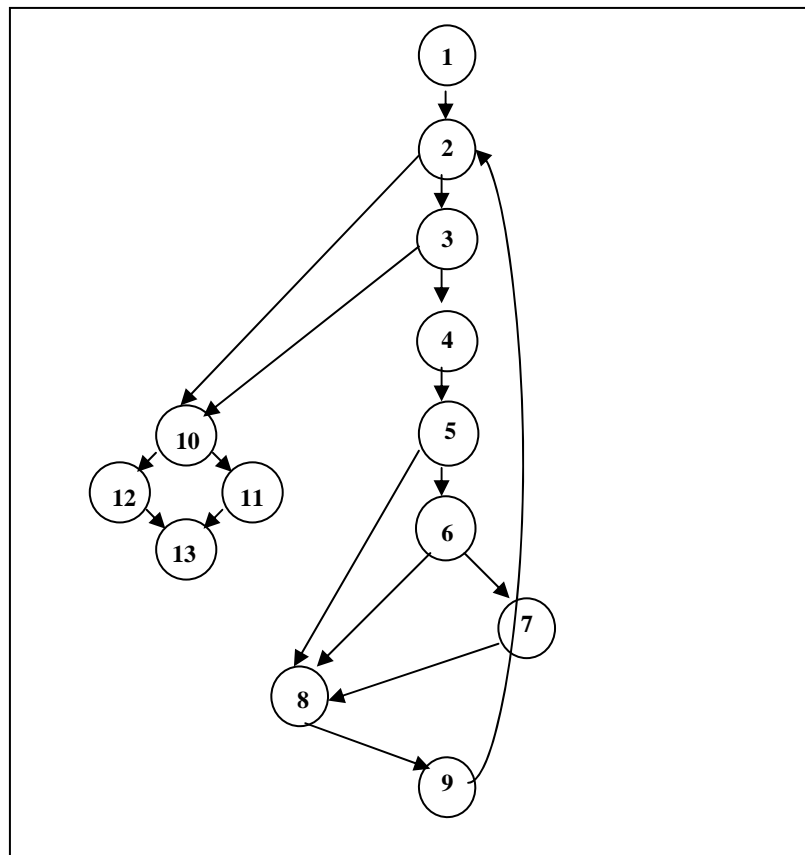
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Lycka till

1. Describe/Define the terminologies below: (2 p)
 - Error
 - Fault
 - Failure
2. Name 4 types of faults. (2 p)
3. Fill in the blanks: (1 p)
 - **Black-box**: a strategy in which testing is based on ...
 - **White-box**: a strategy in which testing is based ...
4. Give the Applicability, Disadvantage and Advantage of Black-box testing. (2 p)
5. Identifying the Equivalence Classes for the following input condition: (2 p)
 - range of values x : 20-40
6. A right triangle is a triangle that has a 90 degree angle as one of its angles. One common addition to the triangle problem is to check for right triangles. Three sides constitute a right triangle if the Pythagorean relationship is satisfied: $c^2 = a^2 + b^2$. This change makes it convenient to require that the sides be presented in increasing order, i.e., $a \leq b \leq c$.

Develop a decision table and test cases for the right triangle problem. (5 p)
7. Describe test stubs and drivers. When are they needed, and why? (2 p)

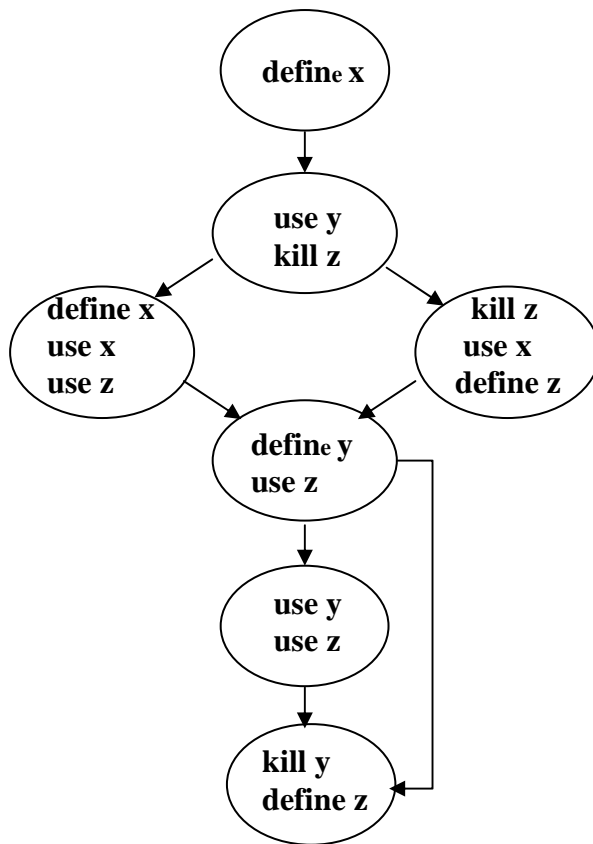
8. Name and describe 2 (of 4) kinds of integration testing based on Functional Decomposition. (3 p)
9. You work as a testing consultant and have accepted an assignment to help the Good Software Company. During your initial meeting, the CEO of the company says "Our customers have reported quite a number of bugs on our latest release. I'm astonished - before the release our testers told me that their unit tests covered more than 95% of the lines of code and that they had been busy clicking through the GUI for more than a week". Explain to the CEO:
 - Why bugs still occur in code covered by tests? (2 p)
 - The benefits of using a tool, such as Abbot, to perform GUI tests. (2 p)
10. An independent path is any path through the program that introduces at least one new set of processing statements or a new condition. Given the following flow graph:
 - o Compute the graph's Cyclomatic Complexity. (1 p)
 - o Determine a basis set of linearly independent paths. (4 p)



11. Early data flow analysis often centered on a set of faults that are known as define/reference anomalies.

Given the following notations and the control flow graph annotated with define-use-kill information, for each variable examine the define-use-kill patterns along the control flow graph and the kind of anomaly it could generate. (3 p)

- **d**: defined, created, initialized, etc.
- **k**: killed, undefined, released
- **u**: used for something
- **~d**: the variable does not exist, then it is defined
- **~u**: the variable does not exist, then it is used
- **~k**: the variable does not exist, then it is killed



12. What is regression testing? (1 p)

13. For the following causes and effects, design a cause-effect graph and propose a decision table for testing the software. (5 p)

Causes:

- C1: Command is credit
- C2: Command is debit
- C3: Account number is valid
- C4: Transaction amount is valid

Effects:

- E1: Print "invalid command"
- E2: Print "invalid account number"
- E3: Print "debit amount not valid"
- E4: debit account
- E5: credit account

14. Name and describe four attributes that describe the quality of a test case (good test case). (2 p)

15. Choose and describe 3 of the following Scripting techniques. (3 p)

- Linear
- Structured
- Shared
- Data-driven
- Keyword-driven