SE 4367, Software Testing
Homework #2, Test Coverage

Program P1
1)   integer A, B;
2)   input (A);
3)   while (A > 0)
4)   {
5)   A = 2 * A;
6)   if (A < 20 or A > 30)
7)   B = A * 2;
8)   else
9)   B = A + 2;
10)   output (A, B);
11)   input (A);
12)   }
13)   output ("Program ends.");
14)   end;

$$T = \{t_1=<4>, t_2=<25>, t_3=<-1>\}$$
$$\text{or } T = \{t_1=<A=4>, t_2=<A=25>, t_3=<A=-1>\}$$

1. What is the statement domain for P1? Express as line numbers. Exclude syntactical markers, such as {, }, else, and end.

2. What is the statement coverage of T for P1? Express as an unsimplified fraction.

3. If the statement coverage of T for P1 is less than 100%, what test cases could you add to get 100% statement coverage?

4. What is the decision domain for P1? Express as "line number) decision".

5. What is the decision coverage of T for P1? Express as an unsimplified fraction.

6. If the decision coverage of T for P1 is less than 100%, what test cases could you add to get 100% decision coverage?

7. What is the condition domain for P1? Express as "line number) condition".

8. What is the condition coverage of T for P1? Express as an unsimplified fraction.

9. If the condition coverage of T for P1 is less than 100%, what test cases could you add to get 100% condition coverage?

Grading Rubric

Parts 1, 4, and 7 are worth 5 points each.

Parts 2, 5, and 8 are worth 20 points each.

Parts 3, 6, and 9 are worth 8 points each.
- Note that there are many possible correct answers for what test cases can be added to provide adequate test coverage against the given criterion (statement, decision, or condition coverage).

Coverage is usually measured as a percent, but a ratio (fraction) is easier to calculate and grade.
- The denominator is a count of the number of statements, decisions, or conditions within the domain. It is worth 10 points.
- The numerator addresses the domain elements covered. It is worth 10 points.

In parts 1, 4, and 7, you're deciding what the denominator for parts 2, 5, and 8 should be…

Formatting requirements (name, class, assignment) inside the file & filename, -5 points for each missing