Assignment HW7

**Cover Page**

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SE-4367.0U1-Testing

**Assignment Choice:**

N/A for this assignment

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**Proof of Working Software**

GitHub link:

<https://github.com/AlexLundinEducational/SE-4367-Testing>

Branch Summary:

master – managed by Alex, only fully completed pulls allowed to make TA’s life easy. Master only contains assignment material once they reach completed status.

working – flexible branch for team, ideally, this material should build without causing technical debt during the project.

Commit for grading:

HW7\_Team\_4 Complete, Ready for Merge to master and Ready for Grading

Phase 1 Development

Phase 2 Development

Phase 3 Development

Proof of Functional Tests

1.(30 points) The following set of edges defines a graph:

•E = { (1, 2), (1, 3), (1, 4), (2, 7), (3, 2), (3, 4), (3, 5), (3, 6), (4, 7), (5, 2), (5, 7), (6, 4), (6, 7), (7, 8), (7, 9) }

•N0 = { 1 }

•Nf = { 8, 9 }

Use this graph to answer the following questions:

a.(5points) Draw the graph. Be sure to annotate the initial and final nodes correctly.

b.(2points) Is the sequence [1, 3, 6, 4, 7, 9] a Test Path?

c.(2points) Is the sequence [1, 3, 2, 7] a Test Path?

d.(2points) Is the sequence [1, 2, 4, 7, 9] a Test Path?

e.(3points) What is the reach set for node 4?

f.(3points) What is the length of the shortest test path?

g.(3points) Does the Test Path [1, 3, 6, 7, 9] tour subpath [6, 4, 7, 9]?

h.(5points) Give the test requirements for edge-pair coverage.

i.(5points) Give the test requirements for prime path coverage

2.(60points) (Ch7-Exercises #7 of Section 7.3)

Use the method printPrimes() for questions a–f below.

a.(10 points) Draw the control flow graph for the printPrimes() method.

b.(10 points)

Consider test cases t1 = (n = 3) and t2 = (n = 5). Although these tour the same prime

paths in printPrimes(), they do not necessarily find the same faults. Design a simple fault that t2

would be more likely to discover than t1 would.

c.(10points)

For printPrimes(), find a test case such that the corresponding test path visits the

edge that connects the beginning of the

while statement to the for statement without going through the body of the while

loop.

d.(10points)

List the test requirements for Node Coverage, Edge Coverage, and Prime Path Coverage.

e.(10 points)

List test paths that achieve Node Coverage but not Edge Coverage on the graph.

f. (10 points)

List test paths that achieve Edge Coverage but not Prime Path Coverage on the graph.

Remember to describe who did what

(10 points)