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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Software Testing (course)


Course outline

How does an NPTEL online course work?

Pre-requisite Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

☐ Symbolic Testing (unit?)

Week 11: Assignment 11

The due date for submitting this assignment has passed.

Due on 2021-10-13, 23:59 IST.

Assignment submitted on 2021-10-13, 23:19 IST

1) Which of the following is true about concolic testing?

1 point

- ☐ Concolic testing is used instead of symbolic testing when the latter fails.
- ☒ Concolic testing keeps concrete state and symbolic state.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Concolic testing keeps concrete state and symbolic state.

2) What is the use of a constraint solver in symbolic testing?

1 point

- ☐ Constraint solvers are used to collect path constraints in symbolic testing.
- ☒ Constraint solvers are used to solve path constraints in symbolic testing.
- ☐ Constraint solvers are not useful in symbolic testing as not all path constraints can be collected and solved.
- ☐ Constraint solvers always return true or false values dictating paths in symbolic testing.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Constraint solvers are used to solve path constraints in symbolic testing.

3) State true or false: Symbolic execution involving loops will always detect non-terminating loops.

1 point

- ☐ True
- ☒ False

unit=86&lesson=87)

☐ Symbolic Testing 2 (unit? unit=86&lesson=88)

☐ DART: Directed Automated Random Testing (unit? unit=86&lesson=89)

☐ DART: Directed Automated Random Testing - 2 (unit? unit=86&lesson=90)

☐ DART: Directed Automated Random Testing 3 (unit? unit=86&lesson=91)

☐ Week 11 Feedback Form: Software Testing (unit? unit=86&lesson=92)

☐ Practice: Week 11: Assignment 11 (Non Graded) (assessment? name=120)

☒ **Quiz: Week 11: Assignment 11 (assessment? name=134)**

Week 12

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Yes, the answer is correct.
Score: 1

Accepted Answers:
False

4) State true or false: Symbolic execution can simultaneously take both the “true” and “false” execution paths for decision statements in a program. **1 point**

- ☒ True
☐ False

Yes, the answer is correct.
Score: 1

Accepted Answers:
True

5) What are the two techniques used in the algorithm deployed by DART? **1 point**

- ☐ Random testing and symbolic testing.
☐ Symbolic testing and automated testing.
☐ Directed search and random testing.
☒ Concrete testing and symbolic testing.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Directed search and random testing.

6) What is a stack used for in the DART algorithm? **1 point**

- ☒ It is used to remember details of the decision statements that are present during random testing.
☐ It is used to store the states of the program.

Yes, the answer is correct.
Score: 1

Accepted Answers:
It is used to remember details of the decision statements that are present during random testing.

Consider the code fragment given below. Answer the following questions related to symbolic execution of the given code fragment.

```
0: int x, y;
1: if (x > y) {
2:   x = x + y;
3:   y = x - y;
4:   x = x - y;
5:   if (x - y > 0)
6:     assert(false);
}
```

7) How many decision points are there in the code fragment? **1 point**

- ☒ Two decision points.
☐ Three decision points.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Two decision points.

8) What will be the path constraint at line 1 of the code fragment such that no further execution happens? **1 point**

☐ $x > y$.

☒ $x \leq y$.

Yes, the answer is correct.

Score: 1

Accepted Answers:

$x \leq y$.

9) What will be the path constraint to reach statement 6?

1 point

☒ $x > y \ \&\& \ y - x > 0$.

☐ $x > y \ \&\& \ y - x \leq 0$.

Yes, the answer is correct.

Score: 1

Accepted Answers:

$x > y \ \&\& \ y - x > 0$.

10) State yes or no: Is statement 6 reachable in the program fragment?

1 point

☐ Yes.

☒ No.

Yes, the answer is correct.

Score: 1

Accepted Answers:

No.