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

Week 11 : Assignment 11

The due date for submitting this assignment has passed.

Due on 2022-10-12, 23:59 IST.

Assignment submitted on 2022-10-12, 20:50 IST

1) State yes or no: Is concolic testing a white-box testing technique?

1 point

- ☒ Yes.
☐ No.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Yes.

2) 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.

3) What is the use of a SAT/SMT solver in symbolic testing?

1 point

- ☐ SAT/SMT solvers are used to collect path constraints in symbolic testing.
☐ SAT/SMT solvers are used to solve path constraints and get values that can be used as test inputs.
☒ Constraint solvers are not useful in symbolic testing as not all path constraints can be collected and solved.
☐ Constraint solvers on predicates always return true or false values which helps to decide the execution paths.

Symbolic
Testing (unit?
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)

Practice: Week
11 :
Assignment 11
(Non Graded)
(assessment?
name=121)

Quiz: Week 11
: Assignment
11
(assessment?
name=147)

Week 11
Feedback
Form:
Software
Testing (unit?
unit=86&lesson=134)

Week 12 ()

Learning
Materials ()

No, the answer is incorrect.

Score: 0

Accepted Answers:

SAT/SMT solvers are used to solve path constraints and get values that can be used as test inputs.

4) State true or false: Symbolic execution can be used to detect non-termination in programs. **1 point**

☐ True.

☐ False.

No, the answer is incorrect.

Score: 0

Accepted Answers:

False.

5) Which of the following is a list of techniques used in the algorithm deployed by DART? **1 point**

☐ Random testing, symbolic testing and constraint solvers.

☐ Symbolic testing and automated testing.

☒ Directed search, random testing and constraint solvers.

☐ Concrete testing and symbolic testing.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Directed search, random testing and constraint solvers.

6) Which of the following strategy is used for input search in concolic testing? **1 point**

☐ Random search.

☒ Systematic, random search interleaved with path-sensitive search.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Systematic, random search interleaved with path-sensitive search.

Common data for Q7-Q10:

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:         --- error ---;
}
```

7) What does the code fragment do? **1 point**

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- ☐ It checks if x is greater than y.
- ☐ It checks if y is greater than x.
- ☒ It swaps the values of x and y.
- ☐ It swaps the values of x and y twice.

Yes, the answer is correct.

Score: 1

Accepted Answers:

It swaps the values of x and y.

8) How many decision points and execution paths are there in the code fragment? **1 point**

- ☒ Two decision points and three execution paths.
- ☐ Three decision points and four execution paths.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Two decision points and three execution paths.

9) What will be the path constraint at line 1 of the code fragment such that program exits without further execution? **1 point**

- ☐ $x > y$.
- ☒ $x \leq y$.

Yes, the answer is correct.

Score: 1

Accepted Answers:

$x \leq y$.

10) State yes or no: Is the error statement reachable in the given program fragment? **1 point**

- ☐ Yes.
- ☒ No.

Yes, the answer is correct.

Score: 1

Accepted Answers:

No.