Thank you for taking the Week 11 : Assignment 11.

Week 11 : Assignment 11

Your last recorded submission was on 2022-10-12, 20:50 Due date: 2022-10-12, 23:59 IST. IST

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

- (●) Yes.
- ( ) No.

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.

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.

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

- (●) True.
- ( ) False.

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

- ( ) Ramdom testing, symbolic testing and constraint solvers.

Assessment submitted.
X

- ○ Symbolic testing and automated testing.
- ◉ Directed search, random testing and constraint solvers.
- ○ Concrete testing and symbolic testing.

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.

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***

- ○ 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.

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.

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 <= y.

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

- ○ Yes.
- ◉ No.

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers