

CMP167 – Quiz #06

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Name: _____

Results: _____

Class: _____

Date: _____

1. Computers can generate truly random numbers
 - a. True
 - b. **False**
2. A simplified version of a program is called a simulation
 - a. True
 - b. **False**
3. What does the following expression evaluate to:
`a and (b or c) == (a and b) or (a and c)`
True
4. Which expression is true approximately 66% of the time?
 - a. `random() >= 66`
 - b. **`random() < 0.66`**
 - c. `random() < .066`
 - d. `random() >= 0.66`

5. What is the difference between top down design and spiral design?

Top down design starts from a high level design and is followed by implementation.

Spiral design goes back and forth between design and implementation.

6. You are given a function called `roll10d()` which returns a random number between 0 and 9; however, does not return the numbers in a uniform distribution. Write a function to determine the approximate distribution of the numbers `roll10d()` returns

```
def simulate10d(n):  
    l = [0]*10  
    l[roll10d()] += 1  
    return l
```

7. Write a program to estimate rolling 5 of a kind on a six sided die.

```
def five_of_a_kind(n):  
    five_count = 0  
    cons_count = 0  
    previous_roll = 0  
    for i in range(n):  
        roll = randrange(1,7)  
        if roll == previous_roll:  
            cons_count += 1  
        else:  
            cons_count = 1  
            if cons_count >= 5:  
                five_count += 1  
            previous_roll = roll  
    return five_count/n
```

Extra Credit: In class, we discussed a method of unit testing that returns True or False depending on whether the function works or not:

```
test_method:  
    if test_method(A) != <expected value> return False  
    if test_method(B) != <expected value> return False  
    ...  
    return True
```

Re-write the pseudocode to make the unit-test more informative.

This was an open ended question. I would have accepted anything that improved the unit test function.

Some suggestions would be to rewrite it to return which specific tests fail, or to separate it into multiple tests.