

## CS21, Swarthmore College, Spring 2008, Practice Quiz 4

1. Give an example of situation in which a `while` loop is more appropriate than a `for` loop and explain why.

2. Show the output produced by the `while` loop below. Then convert this `while` loop into an equivalent `for` loop.

```
i = 0
while i < 100:
    print i
    i += 10
```

3. Show the output produced by the `for` loop below. Then convert this `for` loop into an equivalent `while` loop.

```
for i in range(0, 10, 2):
    print i
```

4. Start a top-down design for the following problem. Complete at least the main program as well as another function that requires additional sub-functions. **You do not have to complete the entire program.**

Suppose we want to determine how many times, on average, we must roll two six-sided dice until the total of the two dice is a specific value—between 2 and 12. Design a program that simulates this experiment given a number of trials and a dice total. Your program should print the average number of rolls needed over all trials. The number of trials and the value to roll should be specified by the user. A sample run of the program is shown below.

```
Welcome to the dice roll simulator!
```

```
Enter the number of trials to perform: 1000
```

```
Enter the dice value to roll for (2-12): 12
```

```
Over 1000 trials you needed 35.596 rolls on average to roll a total of 12
```