

1. Explain one difference between strings and lists
2. Write a python program to:
  - a. Get a user input and determine if it is a positive or negative number
  - b. Determine if the number is odd or even
  - c. Get 2 user inputs, check that the first one is less than the 2<sup>nd</sup>, and print all of the numbers between (inclusive, should print the 2 entered numbers as either end)
3. First, what output is produced by the following code? Second, write your own code that uses a for loop and produces the same output, but more efficiently. Third, write your own code that uses a while loop to produce the same output  
for i in range(50):  
    if i % 10 == 0:  
        print i
4. Give an example of one module we've used in class (or you've used on your own).
5. You are writing a program to automatically return change to a person at the checkout isle. You will input the purchase price of the user's items, and the amount of money they give you, and then print the number of dollars, quarters, dimes, and nickels you would return to them. If the user does not give you enough money to cover the purchase, print an error message.

6. Say why the following programs fail. Be brief; a sentence or two is plenty.

a.

```
# Compute and print the largest value in the list L.
L = [5, 5, 4, 1, 6, 8, 6, 2, 10, 8]
largest = L[0]
x=1
while x < len(L):
    if largest < L[x]:
        largest = L[x]
print largest
```

\*\*\*This code does not print 10, which is the largest number in L—in fact, it runs forever. Why?

b.

```
# Compute and print the sum of the numbers from 1 to 5
# i.e., 1 + 2 + 3 + 4 + 5 = 15.
i=1
sum = 0
while i <= 5:
    i=i+1
    sum = sum + i
print sum
```

\*\*\*This program prints the wrong answer—i.e., it prints a number other than 15. Why?