

141 Wk 6 Recitation – Insertion Sort & Binary Search

1. Show the result (and indicate the type) using Python3.

a.) $1 / 2$

b.) $1 // 2$

c.) $1.0 / 2$

2. Show the resulting contents of the list, lst.

```
lst = []  
for i in range(1,14,2):  
    lst = lst + [i]
```

3. Show the output of the following program.

```
lst = [ "red", "orange", "green", "blue"]  
for i in range(len(lst)-1, -1, -1):  
    print(i, lst[i])  
lst2 = [0] * 4  
print(lst2)
```

4. What is the output of the following program?

```
for i in range(3):  
    print(i)  
    for j in range(2):  
        print(j * i)  
    for k in range(2,-1,-1):  
        print(k + i)
```

5. What is the big-O for insertion sort? Give an example where it executes in linear time.

6. Show the output of the following program.

```
line = "80 30 40 60 20 70 10 50 "  
lst = line.split()  
print(lst[0], lst[1], lst[len(lst)-1])  
minimum = int(lst[0])  
print("min = ", minimum)  
for i in range(1, len(lst)):  
    if int(lst[i]) < minimum:  
        minimum = int(lst[i])  
        print("new minimum =", minimum)
```

7. Open Problem:

Rewrite the recursive binary search algorithm as an iterative solution. Assume the data is coming from a file of strings where each line can have multiple strings in it. Each string appears only once in the file.