

CSC241 Winter 2014 - Lab Assignment 4

1 Program 1 (2 points)

Complete the following program `a4p1.py`

```
def histogram(a):
    # complete this...

a = []
while True:
    s = input('number:')
    if not s: break
    a.append(int(s))

histogram(a)
```

Complete the function `histogram()` that takes a list of integer numbers and prints a histogram to the screen. For example, `histogram([4, 9, 7])` should print the following:

```
****
*****
*****
```

Tip: `s=''*5` is the same as `s='*****'`. When done you can grade it automatically with

```
$ grade a4p1.py
```

2 Program 2 (2 points)

Write a program `a4p2.py` that repeatedly asks to type a number until you enter an empty string. It then prints a string containing the same numbers sorted, separated by a comma, without spaces. For example:

```
input:
3
```

```
8
2
quit
```

```
output:
2,3,8
```

Tip: store the numbers in a list use the sort method of a list. The following lines can be useful:

```
a = [3,2,1]
a.sort()
s = ''+str(a[0])+','+str(a[1])+','+str(a[2])
```

When done you can grade it automatically with

```
$ grade a4p2.py
```

3 Program 3 (2 points)

Write a program `a4p3.py` that asks you for a file name, open the file and prints the average length of the words in the file.

Tip: The following line could be useful:

```
words = open(filename).read().split()
```

When done you can grade it automatically with

```
$ grade a4p3.py
```

4 Program 4 (2 points)

Complete the following program `a4p4.py`.

```
def overlapping(a,b):
    # complete this

a = input('string 1:').split()
b = input('string 2:').split()
print(overlapping(a,b))
```

Complete the function `overlapping()`. It takes two lists and returns `True` if they have at least one member in common, `False` otherwise.
When done you can grade it automatically with

```
$ grade a4p4.py
```

Extra credit. The programs at point 3 and 4 use `split`. That means that they will break “this. test” into [“this.”, “test”]. See the “.”? It should not be there. Try write your own `split` function that identifies the words and properly ignores symbols like “.”.

Extra Extra credit. Modify the histogram program so that the bars are normalized and the longest one contains always 40 stars.

Extra Extra Extra credit. Modify the histogram program and plot the histograms vertically instead of horizontally.