

CS 8 – Introduction to Computer Science
HOMEWORK 7
Print this form and write your answers on it.

SCORE: (out of 40)

Submit this homework (hardcopy) to class. DUE DATE is 03/12/17.

Name: _____

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Perm ID Number: _____

Lab Time Circle one: 1 PM 2 PM 3 PM 4 PM

1. (12 pts) Below is a transcript of a shell session in Python. Fill in what would be printed by the shell after each set of statements. [Hint: TRY each one in Python.]

a. (2 pts)

```
>>> myDict = {"Mei":95, "Bob":85, "Jose":93, "Diana":100}
>>> myDict["Jose"]
```

b. (2 pts)

```
>>> for item in myDict:
...     print(item)
```

c. (2 pts)

```
>>> myDict["Raj"] = 87
>>> names = list(myDict.keys())
>>> names.sort()
>>> names
```

d. (2 pts)

```
>>> for name in names:
...     print(myDict[name])
```

e. (2 pts)

```
>>> for name in names:  
...   print(name,": ",myDict[name])
```

f. (2 pts)

```
>>> for name in sorted(myDict):  
...   print(name,": ",myDict[name])
```

2. (8 pts) Write a function named **printSorted** that takes a dictionary as its only parameter, and it prints out the key/value pairs in order by key.

```
def printSorted(myDict):
```

3. (8 pts) Given a text file called “itsybitsy.txt” (which you can find and copy from <http://cs.ucsb.edu/~zmatni/cs8w18/itsybitsy.txt>), run the following program and explain what it does and why.

```
InFile = open('itsybitsy.txt', 'r')
LoL = InFile.readlines()
for line in LoL:
    if "and" in line:
        line = line.replace("and", "AND")
    if len(line) < 53:
        n = str(53)
        f = '{:>' + n + '}'
        line = f.format(line)
    print(line, end='')
InFile.close()
```

4. (4 pts). Examine the following Python source code that uses a while loop:

```
i = 100
while (i < 499):
    print(i)
    i = i + 100
```

- a. (1 pts) How many times will this loop execute?
- b. (1 pts) What is the value of **i** after the loop is done executing?
- c. (2 pts) Rewrite the code **using a for loop instead**. Be sure the printed results will exactly match the results printed by the while loop above.

5. (8 pts) Download the picture found at this URL: <http://cs.ucsb.edu/~zmatni/cs8w18/leo.gif>. Answer the following questions using the **cImage** module, as demonstrated in class.

- a. (2 pts) What command would you use to find out the width and the height of this image?
- b. (2 pts) What is the actual width and the height of this image (don't forget to mention what the unit of measurement is)?
- c. (4 pts) Write a Python function, **negative(img)** that will transform this color image into its negative image. Hint: the lecture slides mention where in the textbook this process is described. Assume **img** has already been defined as the picture **leo.gif**.
def negative(img):