Name:		section
(as it would appear on official course roster)		
Umail address:	@umail.ucsb.edu	
Optional: name you wish to be called if different from name above.		
Optional: name of "homework buddy" (leaving this blank signifies "I worked alone"		

h03: Input/Output, Data Mutation and Related Topics

Assigned: Wed. 1/23/19, 9:30 AM
Due: Mon. 1/28/19, 9:30 AM in class
Points: 100

- You may collaborate on this homework with AT MOST one person, an optional "homework buddy". MAY ONLY BE TURNED IN THE LECTURE LISTED ABOVE AS THE DUE DATE. There is NO MAKEUP for missed assignments; in place of that, we drop the single lowest score (if you a zero, that is the lowest score.)
- When submitting this homework:
  - **DO NOT USE STAPLES**
  - WRITE YOUR **NAME ON <u>EACH</u> PAGE** IN THE SPACE PROVIDED
  - USE **DARK INK PENS** – PLEASE **DO NOT USE PENCIL**
  - PRINT ON **BOTH SIDES** OF THE PAGE!

READING ASSIGNMENT: Read Chapter 3 (sections 3.1, 3.4 and 3.5 only) in Perkovic. Then complete these problems.

1. (10 pts) Section 3.1 discusses a feature of IDLE called "restarting the shell". What does the book say happens when you restart the shell?

2. (10 pts) If you issue an instruction like this:
   ```
   x = input()
   ```
   a) (3 pts) What **type** of data will be placed in variable x?

   b) (3 pts) What follow up instruction could you do to ensure that variable x is an integer type?

   c) (4 pts) What alternate (single – only one) instruction to the one shown above could you issue to make sure that variable x is an integer type?

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3. (15 pts) We talked about a function called **swap()** in lecture (see code below). Explain why it does not work the way it is intended to?

```
def swap(a,b):
        temp = a
        a = b
        b = temp
```

4. (25 pts) Answer these questions about the built-in **print()** function:
    a) (3 pts) How can I print a newline inside of a **print()** function?

    b) (3 pts) How can I print the double-quotations (") character inside of a **print()** function?

    c) (4 pts) What would this print out in IDLE (*exactly*)? Hint: try it out! ☺
    ```
    >>> num = 42
    >>> print("Welcome, number \"", num, "\"!")
    ```

    d) (5 pts) What would change in the output if we changed the **print()** statement above to the following? Again, show the *exact* output.
    ```
    >>> print("Welcome, number \"", num, "\"!", sep="...")
    ```

    e) (10 pts) Explain what happened in part(d) (i.e. why did you see a difference? What was it due to?)

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5. (16 pts) IF they are needed, show where all indent(s) in the code below need to happen (*put arrows at the start of the lines that need indenting*). Hint: start by running this code as it is written.

```
def printName(name):
name = "The name I will print out is: " + name
print(name)
def goHome():
print ("Ok, we're done here!")
n = input("What is your name? ")
printName(n)
goHome()
```

6. (4 pts) What do each of these print out?
    a) (2 pts) `print(list(range(9, 14)))`

    b) (2 pts) `print(list(range(1, 17, 5)))`

7. (20 pts) Write a function in Python, called **PrintThem(ls)** that takes a *list* variable **ls** as argument. It then prints out the sum, the maximum, and the minimum of all elements in the list, each on separate lines and each with an announcement, like this sample run below. The function prints these things without returning any value. You can safely assume that the variable **ls** will always just include integer numbers (you don't have to check for that).

```
>>> x = [5, 2, 10, 7]
>>> PrintThem(x)
The sum is: 24
The max is: 10
The min is: 2
```