CS 160 - Week 2 Worksheet

Algorithms & Python (variables & user input)

Algorithms

1. Write an algorithm for replying to an email on a laptop or desktop computer. Assume that the computer is not turned on. NOTE: Your algorithm may be different than those of your classmates, since the exact procedure needed to accomplish the task is dependent on a number of factors related to how your computer security and applications are set up. Your algorithm must have at least 8 steps, but no more than 15 steps.

1. Turn on computer

2. Open web browser

3. Use web browser to navigate to email server

4. Login to email server

5. Left-click on email requiring reply.

6. Left-click on reply button

7. Write response to email

8. Conduct spell check of response

9. Left-click the send button

10. Stop.

1. What is wrong with this algorithm for finding the largest number in a series of 10 unsorted random numbers?
   1. Call the first number in the series the largest.
   2. Compare the next number with the number stored as the largest.
   3. If that next number is larger than the largest, call that next number the largest.
   4. Repeat steps 1, 2 & 3 until the entire series of numbers has been processed.

If you repeat step one you will never progress farther than the first number in the series. You must repeat step 2 & 3 only until the entire series of numbers has been processed.

Python (variables & user input)

1. What would be the output of this program segment? Be sure to show *exactly* what the output will look like, including any white space (tabs or new lines).

age = 18

age = age \* 2

print("Soon you will be", age, " years old")

Soon you will be 36 years old

1. What would show in the Python Shell if you run this program segment, assuming the user types in *Python Programmer* and *200000* as the values at the prompts? Be sure to show *all* output, including any prompts, user input and final output.

jobTitle = ("What is your job? ")

earnings = ("What is your current salary? ")

print("Wow!", earnings, "is a good salary for a", jobTitle)

Wow! What is your current salary? is a good salary for a What is your job?

1. Write one line of Python code that defines a variable *counter* and sets the value of the variable to 0.

counter = 0

1. Write two lines of Python code that
   1. defines a variable *myName* and sets the value of the variable to your name and
   2. displays the value of the variable as output on the screen.

myName = (“Alex”)

print(myName)

1. Write a Python program (here, on the paper) that computes the area of a rectangle. The user will input values for length and width. Output should show the area (assume in square units).

length = int(input(“Length in inches? “))

width = int(input(“Width in inches? “))

area = length \* width

print(“The area of the rectangle is”, area, ”Square inches”)

1. Find the error in the following program segment. The program should output the sum of two values input by the user. Highlight or underline the line that contains the error and replace the incorrect line with a correct line of code.

**number1 = input("What is the first number? ")**

**number1 = input("What is the second number? ")**

# need int function call and reuses the same variable name

number1 = int(input(“What is the first number? “))

number2 = int(input(“What is the second number? “))

sum = number1 + number2

print("The sum of the values you entered is", sum)

Like with the last worksheet, download this file, type your answers on the document, save the file, and upload the saved file to the class website.