Bonus HW

CS103 Fall 2025 Unan

due: 11.23.2025 11:59pm

Overview:

This bonus homework is designed to provide you with an opportunity to enhance your homework grade. Completing these exercises will allow you to replace your lowest homework grade with the grade you earn on this assignment. This is not a mandatory assignment.

Submission Guidelines:

1. **Create a Python File:**
   - Name your file using the format: `FirstName_LastName_BonusHW.py`
   - Implement the required functions as specified in the problems below.
2. **Independent Completion Form:**
   - Sign and submit the "Independent Completion Form."
3. **Submission Platform:**
   - Submit your completed .py file via Canvas by the due date.
   - The deadline is 11.23.2025 11:59pm (no late submission will be accepted)
4. **Grading**
   - Each question is worth **15 points**
   - All test cases must be passed for full credit.
   - Functions must use the exact names and parameters given.[Penalty: 20 points]
   - Your code will be tested with a variety of input sets; do not hardcode values.

***Important:* Since this is a bonus homework assignment, any instance of Academic Integrity Violation will result in a failing grade for the entire class.**

Mandatory Functions

The following functions should be implemented, and the return statements should be modified with the correct credentials. Do not forget to call the functions

```
def myName():
    return “James Bond”
def myBlazerID():
    return “jbon12”


# Call these functions
print(“My Name is =”, myName(), “ and my BlazerId is =”,myBlazerID())
```

Bonus HW problems

Please use exactly the same names for the functions and the input parameters. Otherwise the auto grader will not work on your submissions. Failing to do so will be penalized.

sumDigitsPrime(n)

Write a function `sumDigitsPrime(n)` that takes a positive integer `n` and returns `"Prime"` if the sum of its digits is a prime number, otherwise return `"Not Prime"`.

Example:

- Input: `n = 113` $\rightarrow 1+1+3=5 \rightarrow$ `"Prime"`
- Input: `n = 123` $\rightarrow 1+2+3=6 \rightarrow$ `"Not Prime"`

fileCountAdvisors ()

Read the `students_data.csv` file and return the total number of advisors in the Computer Science department. (Refer to your previous file reading homework for details.) **You are NOT allowed to use Pandas framework.**

averageGPAByDepartment ()

Write a function `averageGPAByDepartment()` that reads the `students_data.csv` file and returns a dictionary where each key is a department name, and the corresponding value is the average highest GPA in that department. **You are NOT allowed to use Pandas framework.**

Example output

```
{
    'Computer Science': 3.20,
    'History': 3.12,
    'Mathematics': 2.96,
    'Biology': 3.22,
    'Physics': 2.98
}
```

reverseWords (sentence)

Write a function `reverseWords(sentence)` that takes a string sentence as input and returns a new string where the order of the words is reversed, but the characters in each word remain in the same order.

Sample Input:

```
sentence = "I love Python"
```

Sample Output:

```
"Python love I"
```

Turtle103 ()

Develop the necessary functions to draw “CS103 FA25” in green colors using the python turtle. Do not use the text option of turtle, you need to give the necessary coordinates and directions to draw it.

`palindromeList(lst)`

Write a function `palindromeList(lst)` that takes a list of strings `lst` and returns a new list containing only the strings that are palindromes.

Example:

- Input: `["level", "python", "radar"]`
- Output: `["level", "radar"]`

`mostFrequentWord(filename)`

Write a function `mostFrequentWord(filename)` that reads a **txt file** and returns the word that appears the most frequently. Ignore punctuation and capitalization.

Example:

- `sampleFile.txt` → File content: "`Python is great. Python is fun.`"
- Output: "`python`"