Problem Set for 3/4/2024

Engineering 104 - Fundamentals of Engineering Computing

Formatting, Organization & Code Comments - Complete the following problems in `Python` and include as part of the submission of the appropriate assignment. Your assignment file should include a proper heading, comments and show clear organizational structure with each problem clearly printed, separated and with each result variable clearly displayed. All problems worked should have a formatted/structured print-out. Print a string denoting each problem, with the solution to the problem clearly printed as a formatted string below the denoted problem. Separate each problem using a blank line in both the code and the printed results. Code comments should be completed throughout the file on every line of code by default. If this assignment requires you to write and submit additional auxiliary script, or any other files in the submission, please append your initials capitalized to the end of the file name.

Python Lecture #20 Problems - Iteration/Loops I (15 Points)

Problem 20.1 (5 Points) - Create a list that has 5 elements. These elements can have any type. Create a `for` *loop that prints the statement "The current item it in the list is: ..." and cycle through each element of the list.*

Problem 20.2 (5 Points) - Create a dictionary with 5 elements. These elements can have any type. Create a `for` *loop that prints the key and value pairs for the entire dictionary. This loop should only be two or three lines.*

Problem 20.3 (2.5 Points) - Review the following code until you understand the steps completely.

```
x = range(10)
y1 = []
for i in x:
    y1.append(i**2)
print(y1)
```

Now that you understand the operations above complete what is called list comprehension and write all the intermediate lines into a single statement within the list brackets to return the exact same result. See the two lines that need to be completed below:

```
x = range(10)
y2 = [..............]
print(y2)
```

Problem 20.4 (2.5 Points) - Copy the solution from problem 20.3, change the resulting variable to `y3` *and modify the statement in the bracket so that the result will only include the even numbers.*