CS 111 – Introduction to Computer Science – Fall 2017

Lab Assignment #8

String Processing * *(30pts)*

Due Date: at 11:59pm on Saturday, April 14.

The purpose of this lab is to give you an opportunity to work with string processing.

Before getting started with the lab, copy the entire `lab8` folder from the course folder (`H:\Compsci\givens\cs111`) to your `U:\cs111` folder.

String Things

For this lab you are going to finish a module containing several functions that process strings.

Open the `stringThings` module and complete the following functions:

- `countDigits(string)`
  Returns the number of digits in the string.
- `reverseString(string)`
  Returns the reverse of the string. For example, if the function is sent the string "hello", it will return "olleh".
- `isPalindrome(string)`
  A palindrome is a word or phrase that is the same backwards and forwards. This function receives a single string argument and determines if the string is a palindrome. It returns true if it is a palindrome, and returns false otherwise. For example, `isPalindrome("racecar")` would return `True`, and `isPalindrome("elephant")` would return `False`. Upper and lowercase letters should be considered the same.
- `middleChar(string)`
  Returns the middle the character if the string has an odd number of characters, and the middle two characters if the string has an even number of characters. For instance, if the string is 'elephant', the function returns "ph"; if the string is "octopus", the function returns 'p'; and if the string is the empty string, the function returns the empty string.
- `repeatPhrase(string, num, delim)`
  Receives a string, number, and second string argument and returns a string repeated $n \geq 1$ times with each repetition separated by `delim`. For instance, `repeat("pew",3,"-")` would return `"pew-pew-pew"` and `repeat("yay",1,"!!!!")` would return `"yay"`. If n is less than 1, the method returns the empty string.

*Based on the labs of Dr. Rance Necaise

- `passwordCheck(password)`
  Receives a prospective password and returns `True` if it contains an uppercase letter, a lowercase letter, two numbers, a symbol from the string `"!@#$%&*"`, and is at least 8 characters long.

Your program should be written to the following specifications:

- Include an appropriate file prolog and appropriate comments throughout the program.
- The module will not contain a *main* function. Nor should it contain any executable code outside of the functions. To test your functions, use the module `testStringThings.py`.
- Include a comment immediately above each of the functions that you write to briefly describe the purpose of the function, its parameters, and return value.
- Hint: Some of the functions can benefit from a call to another function in the module.

After completing the program, be sure to save the file.
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Finishing Up

When you are finished with the lab, you need to show me that your code runs and correctly computes the solution for each part of the lab. Also, you need to submit the source files for grading. To submit the files, find the lab assignment on Canvas and upload the two files:

- `stringThings.py`

Remember, all of the files must be named exactly as indicated above, with the same case and with no spaces or special characters.