Programming Assignment 1

Valid Parentheses

CECS 328 – Fall 2022

Due: Friday, September 2 at 11:59 pm

Points Possible: 10

Problem Statement:

Given a string s containing just the characters '(', ')', '{', '}', '[' and ']', determine if the input string is valid.

An input string is valid if:

1. Open brackets must be closed by the same type of brackets.
2. Open brackets must be closed in the correct order.

Submission Requirements:

1. Write your name as a comment at the top of your code.
2. The filename that you submit should be: pa1_yourname.py
3. A program template was given to you for your submission. You need to develop your code under pa1 method

   def pa1(self, s: str) -> bool:

4. If you don't want use the evaluation code to run your code, you should be able to run your code directly from command line as you see in the Examples section.
5. You can work with other students or individually, up to you. However, you must submit your assignment individually on BB.
6. You must submit your file on BB. Any other submission method (such as email) will be rejected and you will receive zero credit.
7. The programming assignment must be in the Python version 3.10 programming language.
8. I should be able to both pass in arguments and run your program via the command line. See the examples below
9. Submit only pa1_yourname.py. Do not submit any other python file or other files related to your IDE or any third party software.

Examples:

The following are run from the Python command line. This is how your code will be graded. Your program absolutely needs to be able to be run from the command line, otherwise you will get zero credit.

>python pa1_yourname.py "(("

False

>python pa1_yourname.py "()"

True

>python -c "import pa1; print(pa1.isValid('{)[]'))"

False

> python pa1_yourname.py ']['

False

> python pa1_yourname.py '[]'

True

> python pa1_yourname.py "((()))[]{[()]}"

True

Constraints:

- $1 <= s.length <= 10^4$
- s consists of only the following characters: '(', ')', '{', '}', '[' and ']'

How we test your program:

To test your program against all test cases, we use a python script (EvaluationScript.py). This python program reads test cases from a text file and generates a report indicating if your program passes each test case or not. I included this program and a sample project. You can use this program to test your assignment. Please note that the cases maybe different and more comprehensive than the examples given to you in the Example section of this document.

Grading Guidelines:
- Does the program meet the requested requirements/criteria?
- Are the submission instructions followed?
- Does your code compile and execute?
- Does your code pass my test cases?
- Ensure your code works with duplicates.
- I will only test with lower cased words.