

COSC 1336: Fall 2022  
**Assignment for Chapter 9**

**DUE: November 8, 2022, by 1 AM**

**20% PENALTY PER EACH DAY**

**Important Note:** For Questions 1, 2 & 3 you can use **string constants**, **in** and **not in** operators, **len()** and **find()** functions/methods. Other functions/methods from the python string library are not needed and should not be used.

**[30 points] Question 1**

Develop a function `unique_letters(refstring)` that takes a string `refstring` as a parameter and returns a string with repeated letters in `refstring` removed. For example:

`unique_letters('settle')` will return the string `'setl'`

`unique_letters('printing')` will return the string `'printg'`

**[30 points] Question 2**

A palindrome is a string that reads identical forwards and backwards. Examples include *abba*, *abcba*, *a1b1b1a*, *houstonnotsuoh* etc. Comparison is case sensitive, that is, *Abba* is not a palindrome.

Your task is to write a function `is_palindrome(refstring)` that reads an input string and returns **True** if both of the following are true:

- The `refstring` is a palindrome
- The `refstring` has at least three characters

Otherwise it returns **False**

For example: `is_palindrome('racecar')` should return **True**  
`is_palindrome('Racecar')` should return **False**  
`is_palindrome('houston')` should return **False**  
`is_palindrome('123XX321')` should return **True**  
`is_palindrome('rr')` should return **False**

### [40 points] Question 3

You have to write a function `up_Houston(refstring)` that takes a string as a parameter. It returns the same string with the first occurrence of the substring `'Houston'` replaced by the string `'Wonderful Houston'`. If the substring `'Houston'` does not exist, it returns the string unchanged.

For example:

`up_Houston("It is so hot in Houston area.")` will return:  
`"It is so hot in Wonderful Houston area."`

`up_Houston("Astros will play in Houston. It is very hot in Houston.")` will return:  
`"Astros will play in Wonderful Houston. It is very hot in Houston."`

*(You may use the string method `find()`. Do not use any other methods. Instead, try to create a new string with string slices.)*