

CSC 212: Data Structures and Abstractions
University of Rhode Island
Weekly Problem Set #1

This assignment is due Wednesday 1/31 before lab. Please turn in neat, and organized, answers hand-written on standard-sized paper without any fringe. Problem set 1 is all about strings and arrays, these are fundamental data types, they are incredibly important to understand if you wish to be successful in this class!

1. Write a function that returns the length of a given string. EX: Given "Test", return 4.
2. Using the function you defined above, create another function that returns true if a given string is a palindrome, and false if it is not. EX: "ABCBA" is a palindrome, "ABC" is not.
3. Define a function that returns the most frequently occurring character inside of a string. What would you have to change in order for this program to return the least frequently occurring character?
4. Write a *program* that prints the number of words in a given string. For this exercise please define the string you'll be using within your program, do not use `std::cin`.
5. Define a function to *toggle* the case of a given string. (Running this twice on a given string should yield the starting string)
6. Write a program that can find a missing number in an array of integers ranging from 1 to n . EX: Given [1, 2, 3, 5], output 4.
7. Define a function that prints the minimum and maximum elements in an unsorted array of integers. How would this code change if the array were sorted?
8. Write a program that removes any duplicate integers from an array. EX: Given [1, 2, 2, 3, 4, 2, 5], the program should print [1, 2, 3, 4, 5].
9. How would you implement a function that reverses a given array in place? Write a high-level psuedo-code for this function.
10. Briefly describe the difference between an array of integers and characters. How would you find their length? Space Requirements?
11. Using psuedo code, write a function that converts a string of numbers to their decimal equivalent. EX: Given "1 2 3 4 5", generate the array [1, 2, 3, 4, 5].