

## Assignment On String

1. Write a program to convert a string to integer and vice versa.
2. Write a program that performs base conversion. The input is a string, an integer  $b_1$ , and another integer  $b_2$ . The string represents an integer in base  $b_1$ . The output should be the string representing the integer in base  $b_2$ .
3. Implement a function that converts a spreadsheet column id to the corresponding integer, with "A" corresponding to 1. For example, you should return 4 for "D", 27 for "AA", 702 for "ZZ", etc. How would you test your code?
4. Write a program which takes as input an array of characters, and removes each 'b' and replaces each 'a' by two 'd's. Specifically, along with the array, you are provided an integer-valued size. Size denotes the number of entries of the array that the operation is to be applied to. You do not have to worry preserving about subsequent entries. For example, if the array is {a, b, a, c, J, ...} and the size is 4, then you can return {d, d, d, c, ...}. You can assume there is enough space in the array to hold the final result.
5. Implement a function which takes as input a string s and returns true if s is a palindromic string.
6. Write a program which takes as input a phone number, specified as a string of digits, and returns all possible character sequences that correspond to the phone number. The cell phone keypad is specified by a mapping that takes a digit and returns the corresponding set of characters. The character sequences do not have to be legal words or phrases.
7. Write a program that takes as input an integer n and returns the nth integer in the look-and-say sequence. Return the result as a string.
8. Write a program which takes as input a valid Roman number string s and returns the integer it corresponds to
9. Write a program that determines where to add periods to a decimal string so that the resulting string is a valid IP address. There may be more than one valid IP address corresponding to a string, in which case you should print all possibilities. For example, if the mangled string is "19216811" then two corresponding IP addresses are 192.168.1.1 and 19.216.81.1. (There are seven other possible IP addresses for this string.)
10. Write a program which takes as input a string s and returns the snakestring of s.
11. Run-length encoding (RLE) compression offers a fast way to do efficient on-the-fly compression and decompression of strings. The idea is simple

encode successive repeated characters by the repetition count and the character. For example, the RLE of "aaaabcccaa" is "4alb3c2a". The decoding of "3e4f2e" returns "eeefffee". Implement run-length encoding and decoding functions. Assume the string to be encoded consists of letters of the alphabet, with no digits, and the string to be decoded is a valid encoding.

12. Given two strings s (the "search string") and t (the "text"), find the first occurrence of s in t.