**PSG COLLEGE OF TECHNOLOGY, COIMBATORE -641004**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**I SEMESTER McA**

**23MX16 C PROGRAMMING LABORATORY**

**PROBLEM SHEET 5 - wEEK 5 AND 6 – ARRAYS AND STRINGS**

1. Print a pattern based on the string input from the user.

**Sample Input:**

Enter a String: Hello

**Sample Output:**

H

He

Hel

Hell

Hello

1. Write a C program to replace all occurrences of a character with another in a string .

**Sample Input:**

Enter a String: Hello

Enter a character to be replaced :l

Enter a character to replace with: a

**Sample Output:**

Original String: Hello

Replaced String: Heaao

1. Write a C program to extract the mobile number from a String and

**Sample Input:**

Enter a String: My no is 9876514567

**Sample Output:**

Mobile Number: 9876514567

1. Give best case inputs (both pattern and text) for KMP string matching algorithm. Given a text *txt[0..n-1]* and a pattern *pat[0..m-1]*, write a function *search(char pat[], char txt[])* that prints all occurrences of *pat[]* in *txt[]*. You may assume that *n > m*. Examples: Input: txt[] = "THIS IS A TEST TEXT"

pat[] = "TEST"

Output: Pattern found at index 10

Input: txt[] = "AABAACAADAABAABA"

pat[] = "AABA"

Output: Pattern found at index 0

Pattern found at index 9

Pattern found at index 12

1. The beauty of a string is the difference in frequencies between the most frequent and least frequent characters. For example, the beauty of "abaacc" is 3 - 1 = 2.

Given a string s, return the sum of beauty of all of its substrings.

Example 1:

Input: s = "aabcb"

Output: 5

Explanation: The substrings with non-zero beauty are ["aab","aabc","aabcb","abcb","bcb"], each with beauty equal to 1.

1. Given two strings s and t, determine if they are isomorphic. Two strings s and t are isomorphic if the characters in s can be replaced to get t. All occurrences of a character must be replaced with another character while preserving the order of characters. No two characters may map to the same character, but a character may map to itself.

Example 1:

Input: s = "egg", t = "add"

Output: true

Example 2:

Input: s = "foo", t = "bar"

Output: false

1. A space explorer's ship crashed on Mars! They send a series of SOS messages to Earth for help. Letters in some of the SOS messages are altered by cosmic radiation during transmission. Given the signal received by Earth as a string, S , determine how many letters of the SOS message have been changed by radiation.

**Example S=SOSTOT**

The original message was SOSSOS. Two of the message's characters were changed in transit.

**Sample Input 0:** SOSSPSSQSSOR

**Sample Output 0:** 3