**Homework Assignment -1**

1. Write a function that takes an array of ints and its length as the arguments and uses pointers to initialize the elements of the array to zero. Return the array using a pointer. The function would be: **int \*zero\_array(int \*a, int length)**
2. Write a program for implementing each of the following functions (don’t use library string functions):
   1. Compute the length of a string using pointers (**int strlen(char \*str)**)
   2. Copy a string from one location to another (**strcpy(char \*src, char \*dest)**)
   3. Concatenate two strings ‘s’ and ‘t’ (**char \*strcat(char \*s, char \*t)**)
   4. Returns 1 if the string *t* occurs at the end of string *s*, and otherwise returns 0

(**int strend(char \**s,* char *\*t*)**)

* 1. Print if the given string is a palindrome or not (**void checkPalindrome(char \*s)**)
  2. Reverse a given string (**char \*reverse(char \*original)**)

1. Write a program to find the number of times that a given word(i.e. a short string) occurs in a sentence (i.e. a long string!). Read data from standard input. The first line is a single word, which is followed by general text on the second line. Read both up to a newline character, and insert a terminating null before processing.

Typical output should be:

The word is "the".

The sentence is "the cat sat on the mat".

“the” occured 2 times.

1. Given a string of letters, you have to count the frequency of occurrence of each character in a newline terminated string by using an array of structures as following:  
   Initially no memory is allocated for any of the letters.  
   When you read a character, in case the character has already occurred in the string before, you just have to simply increase the count of that character in the array.  
   When you read a character, in case the character is occurring in the string for the first time, you have to allocate a structure "node" dynamically with the "element" field initialized to the current character and the "count" field initialized to 1. You

Your task is to print the count of each of the character by the above method. An example:

**Sample Input:**  
ccbbbbaaccaaz (

**Sample Output:**  
c 4  
b 4  
a 4  
z 1

**1**

( 1

Notice that space character has occured once in the input above (look at the outline line with bold **1**).

1. Write a program to search for the "saddle points" in a 5 by 5 array of integers. A saddle point is a cell whose value is greater than or equal to any in its row, and less than or equal to any in its column. There may be more than one saddle point in the array. Print out the coordinates of any saddle points your program finds. Print "No saddle points" if there is none.
2. Write a program to encode a given message. The encoding algorithm first performs reverse operation on each word and then transforms each character into its third successor in the series. For an example, the message “have a good day” will be encoded as “hydk d grrj bdg”. Your program should also be able to decode a given coded message into its original form.
3. Write a program to merge two set of strings in lexicographic order. For an example consider L1 = {toy, class, bay, morning} and L2 = {give, sun, balloon, son, bus}. The output will be the merged list Lm = {balloon, bay, bus, class, give, morning, son, sun, toy}.

dictionary(str2[j],strlen(str2[j]),str2[pos2],strlen(str2[pos2]))==1

1. Write a program to convert a decimal number into its corresponding binary and hexadecimal equivalent.
2. Each number on the cellphone corresponds to three characters (alphabetic and wildcards). Those correspondences are:

 1 ABC    
 2 DEF    
 3 GHI    
 4 JKL   
 5 MNO   
 6 PQR   
 7 STU   
 8 VWX

9 YZ\_

0 \*#@

Given a ten digit telephone number, print all possible "words" that number spells. (They may not be real English words, but just some sequence of characters). The input will be one or more ten digit integers from standard input.