SSN COLLEGE OF ENGINEERING (Autonomous)

Affiliated to Anna University

DEPARTMENT OF CSE

UCS 1211 PROGRAMMING IN C LABORATORY

Assignment 4

String Operations in C

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1. Implement any three of the following functions. Write the required functions such as strlen(str), isUpper (ch), toLower (ch), toUpper (ch) without using library functions

```
#include<stdio.h>
void stlen(char a[20])
{   int i,c=0;
   for(i=0;i<100;i++)
   {   if(a[i]!='\0')
          c+=1;
       else
          break;
```

```
    }
    printf("Lenght is %d\n",c);
}

void stcat(char a[20],char b[20])
{   int l1,l2,l,i,j;
        l1=strlen(a);
        l2=strlen(b);
        l=l1+l2;
        char c[l];

        for(i=0;i<l1;++i)
          c[i]=a[i];
        j=0;
        for(i=l1;i<l;++i)
        {   c[i]=b[j];
                j++;
        }
        printf("Concatenated string %s\n",c);
}

void stcpy(char a[20],int n)
{       char c[n];
    int i;
        for(i=0;i<n;i++)
                c[i]=a[i];
        printf("Output string: %s\n",c);
}


void strsett( char a[20], char ch)
```

```
{   int i=0;
    for(i=0;i<strlen(a);i++)
                        a[i]=ch;
            printf("Output string: %s\n",a);
}
void main()
{   char s1[50]="I am from ssn";
    char s2[10]="cse";
    char ch="z";
    int n=strlen(s1);
    stlen(s1);
    stcat(s1,s2);
    stcpy(s1,n);
    strsett(s1,ch);
}
```

Output:

```
cseb131@jtl-29:~$ ./stringmethod
Lenght is 13
Concatenated string I am from ssncse
Output string: I am from ssn
Output string: zzzzzzzzzzzzz
```

2. Write a program to search the last occurrence of a substring in a given string.

```
#include<stdio.h>
#include<string.h>

void main()
{
   char str[50],word[10];
   int l=0,p,j,k,flag;
   printf(" Enter");
   do
   {       str[l++]=getchar();
   }while(str[l-1]!='\n');
   str[l]='\0';

   printf(" Enter substring ");
   scanf("%s",word);

   k=strlen(word)-1;

  for(j=l-1;j>=0;j--)
  {        if(str[j]==word[k])
           {         flag=0;
                     for(p=1;k-p>=0;p++)
                     if(str[j-p]!=word[k-p])
                              flag=1;
                     if(flag==0)
                     {
```

```
                    printf("%d",j-k+1);
                    break;
                }

        }

    }
}
```

Output:

```
cseb131@jtl-29:~$ ./substring
EnterAbcdecatefcatef
 Enter substring cat
11
```

3. Write a program which replaces a substring with another in a given line of text.

```
#include<stdio.h>
#include<string.h>
void main()
{   char s[100],sub[100],new[100];
        printf("Enter string:");
        scanf(" %s",s);
        printf("\nEnter substring");
        scanf(" %s",sub);
        printf("\nEnter new substring:");
        scanf(" %s",new);
        int n = strlen(s);
        int l = strlen(sub);
        int r = strlen(new);
        int j,z;
        {   for(int i=0;s[i]!='\0';i++)
                {   j = 0;
                   if(s[i]==sub[j])
                        {   int flag = 1;
                 for(int k=0;k<l;k++)
                                {   if(s[i+k]!=sub[j+k])
                                        flag = -1;
                                }

                                if(flag==1)
                                {   char temp[100];
                                   z=0;
                                        for(int j=0;j<(n+strlen(new)-l+1);j++)
                                        {   if(j==i)
```

```
                                        {   for(int p=0;p<r;p++)
                                                temp[j+p]=new[p];
                                            j = j + r - 1;
                                            z +=l;
                                        }
                                        else
                                        {   temp[j]=s[z];
                                            z++;
                                        }
                                    }
                                    strcpy(s,temp);
                                }
                            }
                        }

                        printf("new string:%s",s);

                }
}
```

Output:

```
cseb131@jtl-29:~$ ./replace
Enter string:cat

Enter substringa

Enter new substring:t
new string:ctt
```

4. Write a program to reverse a string without using the library function. No extra string should be used and the source string itself should be modified to store the reversed string. Number of exchanges should be minimum

```
#include<string.h>
#include<stdio.h>
int main()
{
  char a[50];
  gets(a);
  int l,i=0;
  char t;
  l=strlen(a);
  for(i=0;i<=l/2;i=1+i)
  { t=a[i];
    a[i]=a[l-i-1];
    a[l-i-1]=t;

    }
    for(i=0;i<=l;i=1+i)
      printf("%c",a[i]);
}
```

Output:

```
cseb131@jtl-29:~$ ./reverse
apple
elppa
```

5. Write an interactive C program that will encode or decode a line of text. To encode a line of text, proceed as follows.

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
        char s[100];
        int a = (rand() % 1000),p,c;
        do
        {
                printf("Enter");
                scanf(" %s",s);
                printf("\n1.Encode\n2.Decode\n");
                scanf(" %d",&p);
                if(p==1)
                {
                        for(int j=0;s[j]!='\0';j++)
                        {
                                s[j] = (s[j]+a)%255;
                        }
                        printf("Encoded string: %s\n",s);
                }
                else if(p==2)
                {
                        for(int j=0;s[j]!='\0';j++)
                        {
                                s[j] = s[j]-(a%255);
                        }
                        printf("Decoded string: %s\n",s);
                }
           printf("Enter 1 to encode/decode again");
                scanf(" %c",&c);
        }while(c==1);


        return 0;
}
```

Output:

```
cseb131@jtl-29:~$ ./encode
Enteriamfromssn

1.Encode
2.Decode
1
```

Encoded string: £úúªW«ª⌐úȼ
Enter 1 to encode/decode again1
Enter£úúªW«ª⌐úȼ

1.Encode
2.Decode
2
Decoded string:iamfromssn
Enter 1 to encode/decode again0