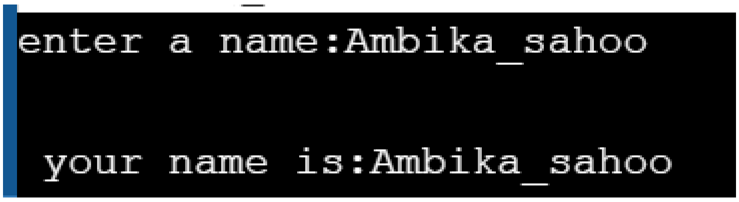
1. *read from a terminal using scanf function and print using printf function.*

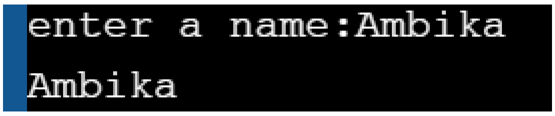
```
#include<stdio.h>
int main()
{
   char a[50];
   printf("\nenter a name:");
   scanf("%s",&a);
   printf("\n your name is:%s",a);
   return 0;
}
```



```
enter a name:Ambika_sahoo

 your name is:Ambika_sahoo
```

2. *read a lines of text from a terminal using fgets function and print using puts function.*

```
#include<stdio.h>
int main()
{
   char a[50];
   printf("\nenter a name:");
   gets(a);
   puts(a);
   return 0;
}
```

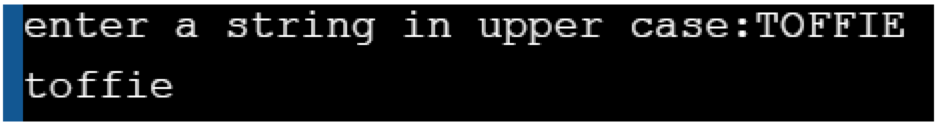


```
enter a name:Ambika
Ambika
```

3. convert

a. Upper case to Lower case

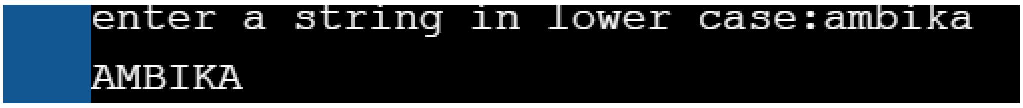
```
#include<stdio.h>
#include<string.h>
int main()
{
   char a[50];
   int i;
   printf("\nenter a string in upper case:");
   gets(a);
   for(  i=0;a[i]!='\0';i++)
   a[i]=a[i]+32;
   puts(a);
   return 0;
}
```



```
enter a string in upper case:TOFFIE
toffie
```

b. Lower case to Upper case

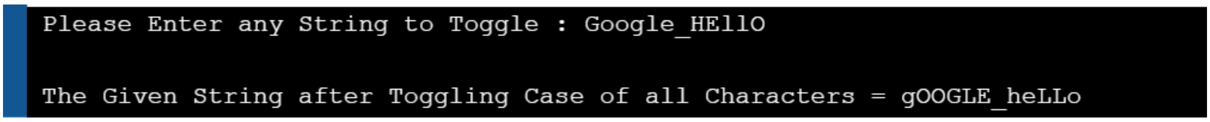
```
#include<stdio.h>
#include<string.h>
int main()
{
   char a[50];
   int i;
   printf("\nenter a string in lower case:");
   gets(a);
   for(  i=0;a[i]!='\0';i++)
   a[i]=a[i]-32;
   puts(a);
   return 0;
}
```



```
enter a string in lower case:ambika
AMBIKA
```

c. Toggle case

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

int main()
{
        char V[100];
        int i;

        printf("\n Please Enter any String to Toggle : ");
        gets(V);

        for (i = 0; V[i]!='\0'; i++)
        {
                if(V[i] >= 'a' && V[i] <= 'z')
                {
                        V[i] = V[i] - 32;
                }
                else if(V[i] >= 'A' && V[i] <= 'Z')
                {
                        V[i] = V[i] + 32;
                }
        }

        printf("\n The Given String after Toggling Case of all
Characters = %s", V);

        return 0;
}
```

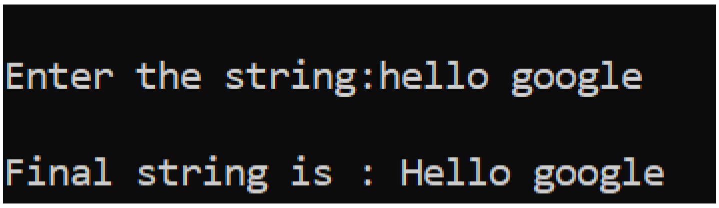


```
Please Enter any String to Toggle : Google_HEllO

The Given String after Toggling Case of all Characters = gOOGLE_heLLo
```

d. *Sentence case*

```
#include<stdio.h>
#include<string.h>
int main()
{
   char str[50]={0};
   int length=0,i=0,j=0,k=0;
   printf("\nEnter the string:");
   gets(str);
   length=strlen(str);
   for(i=0;i<length;i++)
   {
      if((i==0)&&(str[i]>='a'&& str[i]<='z'))
      {
         str[i]=str[i]-32;
      }
      else if(str[i]=='.')
      {
         if(str[i+1]==' ')
         {
            {
               if(str[i+2]>='a'&& str[i+2]<='z')
               {
                  str[i+2]=str[i+2]-32;
               }
            }
         }
            else
               {



               if(str[i+1]>='a' && str[i+1]<='z')
```

```
          {
            str[i+1]=str[i+1]-32;
          }
        }
      }
    }
    printf("\nFinal string is : %s",str);
  }
```



```
Enter the string:hello google

Final string is : Hello google
```

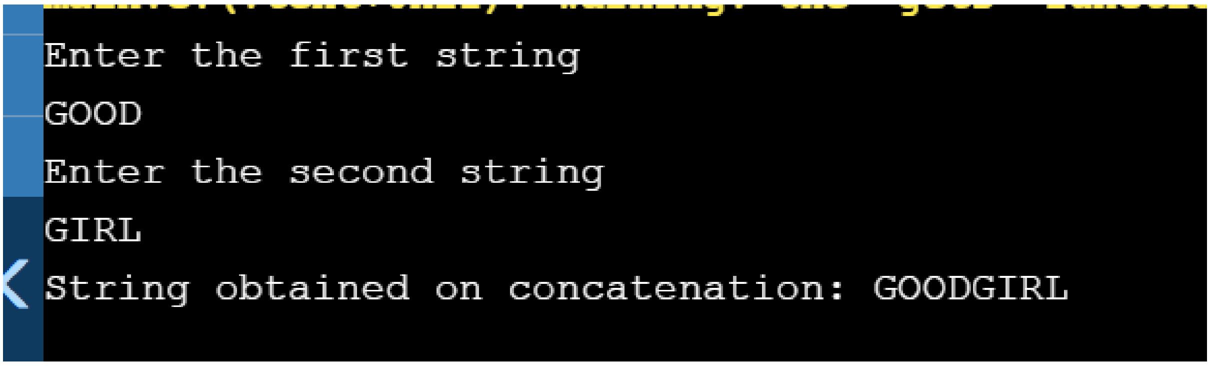
4. perform String Concatenation (With and Without String Handling Functions)

```
#include <stdio.h>
int main()
{
  char str1[50], str2[50], i, j;
  printf("\nEnter first string: ");
  scanf("%s",str1);
  printf("\nEnter second string: ");
  scanf("%s",str2);

  for(i=0; str1[i]!='\0'; ++i);


  for(j=0; str2[j]!='\0'; ++j, ++i)
  {
    str1[i]=str2[j];
```

```
   }

   str1[i]='\0';
   printf("\nOutput: %s",str1);

   return 0;
}
```

WITH STRING HANDLING FUNCTION:

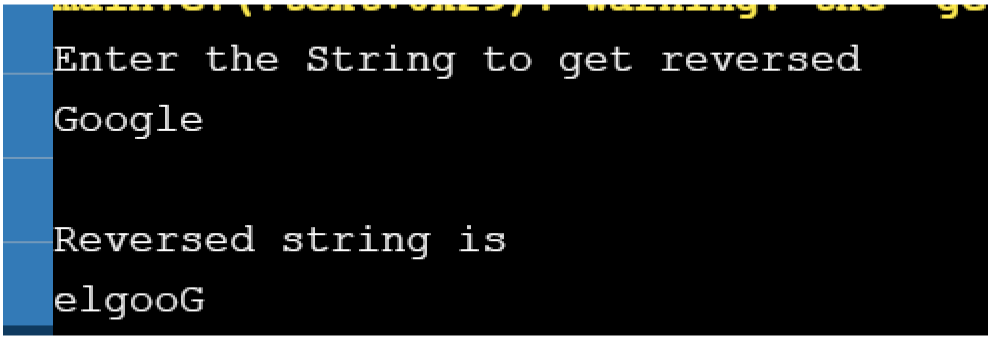
```
#include <stdio.h>
#include <string.h>
int main()
{
  char a[1000], b[1000];

  printf("Enter the first string\n");
  gets(a);

  printf("Enter the second string\n");
  gets(b);

  strcat(a, b);

  printf("String obtained on concatenation: %s\n", a);

  return 0;
}
```



```
Enter the first string
GOOD
Enter the second string
GIRL
String obtained on concatenation: GOODGIRL
```

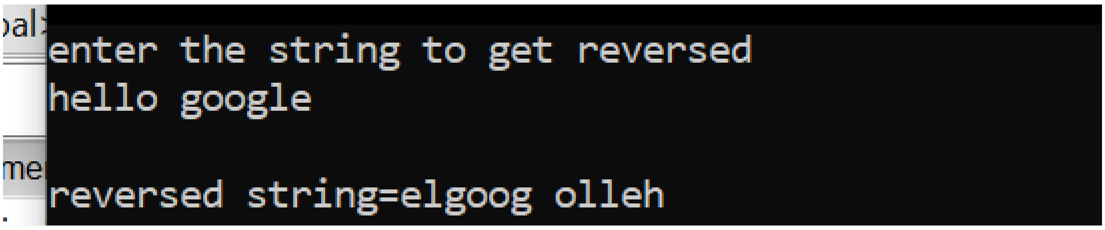
5. perform String Reversal (With and Without String Handling Functions).

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

void main()
{
   int i,n;
   char str[20];
   printf("Enter the String to get reversed\n");
   gets(str);
   n=strlen(str);
   printf("\nReversed string is \n");
   for(i=n-1;i>=0;i--)
   {
     printf("%c",str[i]);
   }

}
```



```
Enter the String to get reversed
Google

Reversed string is
elgooG
```

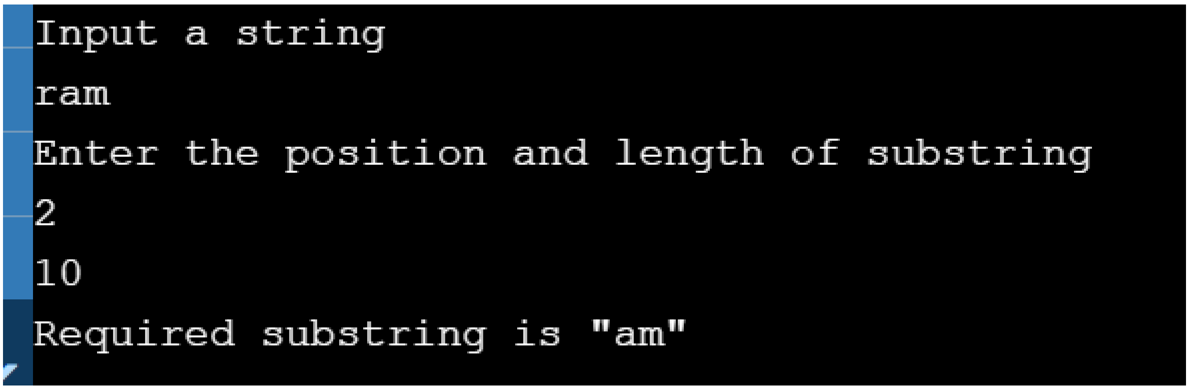
```
#include<stdio.h>
#include<string.h>

void main()
{
   char str[20];
   printf("Enter the String to get reversed\n");
   gets(str);
   printf("\nReversed string = %s",strrev(str));
}
```



```
enter the string to get reversed
hello google

reversed string=elgoog olleh
```

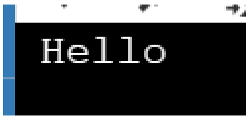
6. perform Substring Extraction (With and Without String Handling Functions).

```
#include <stdio.h>

int main()
{
  char string[1000], sub[1000];
  int position, length, c = 0;

  printf("Input a string\n");
  gets(string);

  printf("Enter the position and length of substring\n");
  scanf("%d%d", &position, &length);

  while (c < length) {
    sub[c] = string[position+c-1];
    c++;
  }
  sub[c] = '\0';

  printf("Required substring is \"%s\"\n", sub); // '\"' to print
"

  return 0;
}
```



```
Input a string
ram
Enter the position and length of substring
2
10
Required substring is "am"
```

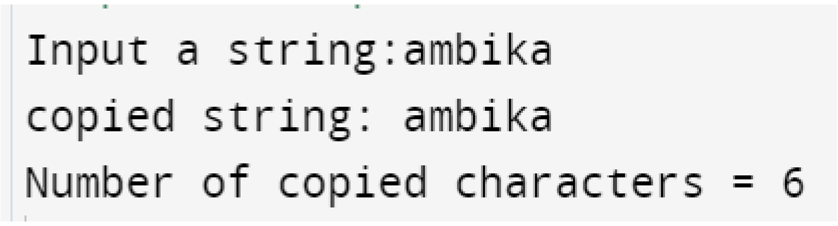
```
#include<stdio.h>
#include <string.h>

int main() {
  char string[50] = "Hello world";
  // Extract the first token
  char * token = strtok(string, " ");
  printf( " %s\n", token ); //printing the token
  return 0;
}
```



```
Hello
```

7. copy one string into another and count the no of elements copied. (With and Without String Handling Functions).

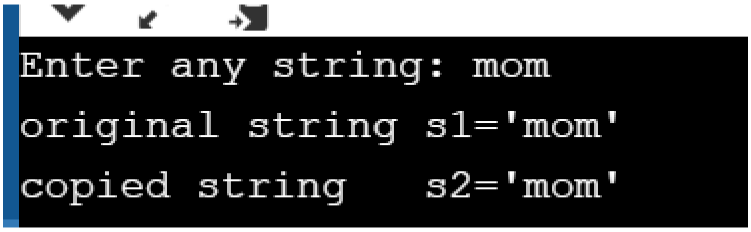
```
#include<stdio.h>

#include<string.h>

int main()
{
char str1[80], str2[80];
int i;
printf("Input a string:");
scanf("%s", str2);
for(i=0; str2[i]!='\0'; i++)
str1[i]=str2[i];
str1[i]='\0';
printf("\n");
printf("copied string: %s", str1);
printf("\nNumber of copied characters = %d\n", i);
return 0;
}
```



```
Input a string:ambika
copied string: ambika
Number of copied characters = 6
```

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

```
void stringcopy(char *s1,char *s2)
{
                                int i;
   for(i=0;s2[i]=s1[i];i++);

   s2[i]='\0';



}
int main()
{
   char s1[1000],s2[1000];
   int i;

   printf("Enter any string: ");
   gets(s1);
   stringcopy(s1,s2);

   printf("original string s1='%s'\n",s1);
   printf("copied string   s2='%s'",s2);

   return 0;

}
```

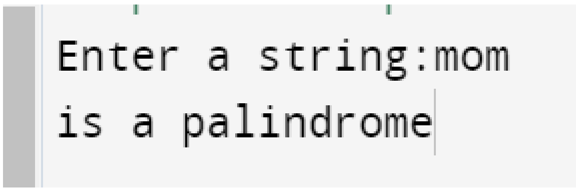


```
Enter any string: mom
original string s1='mom'
copied string   s2='mom'
```

8. read a string and prints if it is a palindrome or not.

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

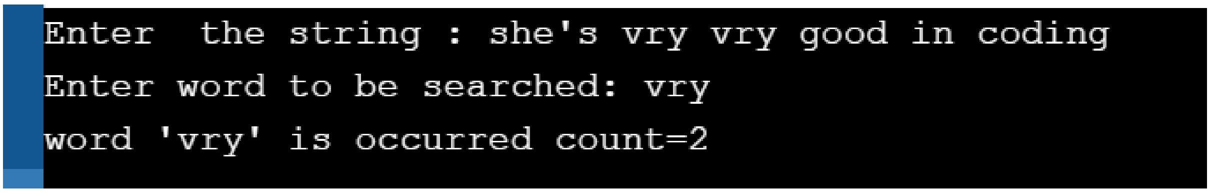
```
#include <string.h>

int main(){
    char string1[20];
    int i, length;
    int flag = 0;

    printf("Enter a string:");
    scanf("%s", string1);

    length = strlen(string1);

    for(i=0;i < length ;i++){
        if(string1[i] != string1[length-i-1]){
            flag = 1;
            break;
   }
}

    if (flag) {
        printf("%s is not a palindrome", string1);
    }
    else {
        printf("%s is a palindrome", string1);
    }
    return 0;
}
```



```
Enter a string:mom
is a palindrome
```

9. read a line of text and count all occurrences of particular word.

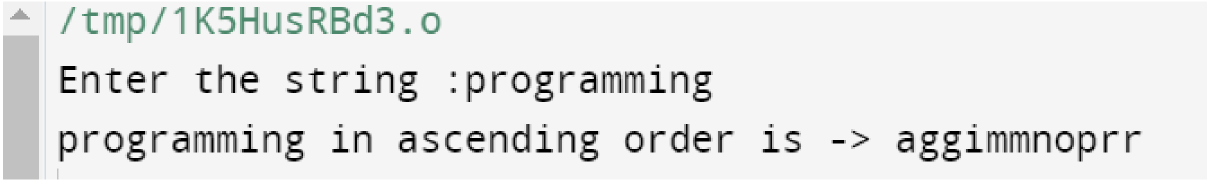
```
#include <stdio.h>
#include <string.h>
int main()
{
  char s[1000],w[1000];
  int n,a[1000],i,j,k=0,l,found=0,t=0;
  printf("Enter  the string : ");
  gets(s);
  printf("Enter word to be searched: ");
  gets(w);
  for(i=0;s[i];i++)
  {
                              if(s[i]==' ')
                              {
                                a[k++]=i;
                                }
                              }
                              a[k++]=i;
                              j=0;
                              for(i=0;i<k;i++)
                              {
                                n=a[i]-j;
                                if(n==strlen(w))
                                {
                                        t=0;
                                        for(l=0;w[l];l++)
                                        {
                                                if(s[l+j]==w[l])
                                                {
                                                        t++;
                                                }
                                        }
                                        if(t==strlen(w))
                                  {
                                                found++;

                                  }
                                }

                                j=a[i]+1;
                              }

                               printf("word '%s' is occurred count=%d ",w,found);

}
```



```
Enter  the string : she's vry vry good in coding
Enter word to be searched: vry
word 'vry' is occurred count=2
```

10. read a string and rewrite it in the alphabetical order.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char str[100],temp;
    int i,j;

    printf("Enter the string :");
    gets(str);
    printf("%s in ascending order is -> ",str);
    for(i=0;str[i];i++)
    {
        for(j=i+1;str[j];j++)
        {
            if(str[j]<str[i])
            {
                temp=str[j];
                str[j]=str[i];
                str[i]=temp;
            }
        }
    }
    printf("%s\n",str);

    return 0;
}
```

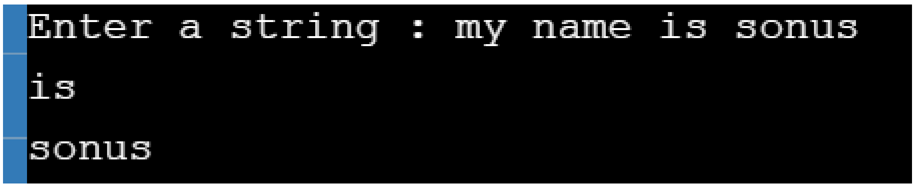


```
/tmp/1K5HusRBd3.o
Enter the string :programming
programming in ascending order is -> aggimmnoprr
```

11. Print the Words Ending with Letter S

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

char str[100];

int main()
{
   int i, t, j, len;

   printf("Enter a string : ");
   scanf("%[^\n]s", str);

   len = strlen(str);

   str[len] = ' ';

   for (t = 0, i = 0; i < strlen(str); i++)
   {
      if ((str[i] == ' ') && (str[i - 1] == 's'))
      {
         for (j = t; j < i; j++)
            printf("%c", str[j]);
         t = i + 1;
         printf("\n");
      }
      else
```

```
        {
            if (str[i] == ' ')
            {
                t = i + 1;
            }
        }
    }
    return 0;
}
```

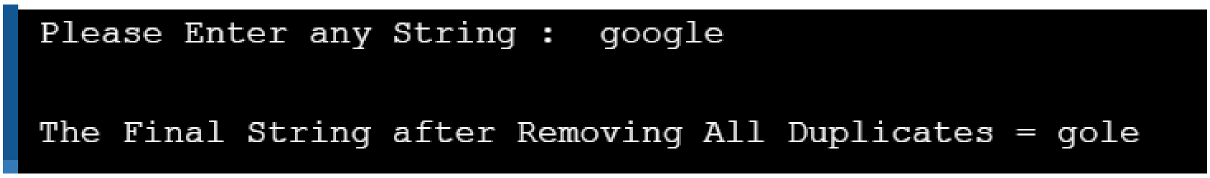


```
Enter a string : my name is sonus
is
sonus
```

12. Delete All Repeated Words in the line of text.

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

int main()
{
                    char str[100];
                    int i, j, k;

                    printf("\n Please Enter any String :  ");
                    gets(str);

                    for(i = 0; i < strlen(str); i++)
                    {
                      for(j = i + 1; str[j] != '\0'; j++)
                      {
                            if(str[j] == str[i])
                            {
```

```
                                        for(k = j; str[k] != '\0'; k++)
                                        {
                                                str[k] = str[k + 1];
                                        }
                                }
                        }
                    }

                    printf("\n The Final String after Removing
All Duplicates = %s ", str);

                    return 0;
}
```



```
Please Enter any String :  google

The Final String after Removing All Duplicates = gole
```

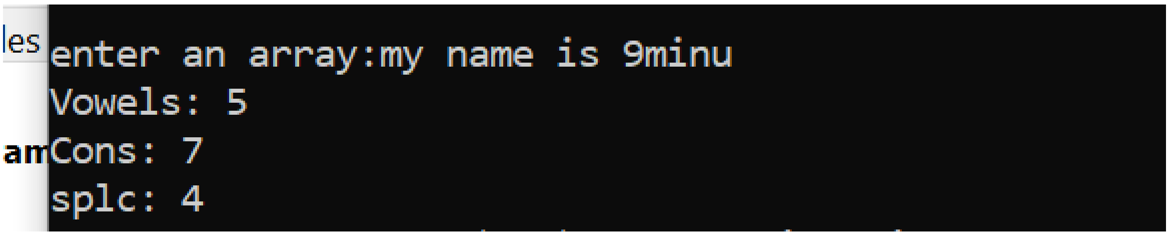
Practice Questions [Optional]:

Write a C Program for the following problem statements

1. **find the number of vowels, consonants, numerals and special characters in a text string.**

```
#include <stdio.h>
#include <string.h>
int main()
{

   char line[100];
   int vowels, cons, splc;
   int i,vol=cons=splc=0;
   printf("\nenter an array:");
   gets(line);
```

```
    for (int i = 0; line[i] != '\0'; ++i) {
        if (line[i] == 'a' || line[i] == 'e' || line[i] == 'i' ||
            line[i] == 'o' || line[i] == 'u' || line[i] == 'A' ||
            line[i] == 'E' || line[i] == 'I' || line[i] == 'O' ||
            line[i] == 'U') {
            ++vowels;
        } else if ((line[i] >= 'a' && line[i] <= 'z') || (line[i] >= 'A' && line[i] <= 'Z')) {
            ++cons;
        } else if ((line[i] >= '0' && line[i] <= '9') ||(line[i] == ' ')) {
            ++splc;
        }
    }
    printf("Vowels: %d", vowels);
    printf("\nCons: %d", cons);
    printf("\nsplc: %d", splc);

    return 0;

}
```

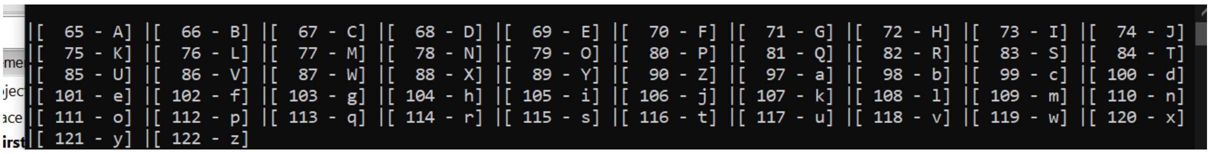


```
enter an array:my name is 9minu
Vowels: 5
Cons: 7
splc: 4
```

2. print the alphabet set a to z and A to Z in decimal and character form.

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

```
int main() {
  char chr;
  printf("\n");
  for (chr = 65; chr <= 122; chr++) {
    if (chr > 90 && chr < 97)
      continue;
    printf("|[%4d - %c] ", chr, chr);
  }
  return 0;
}
```

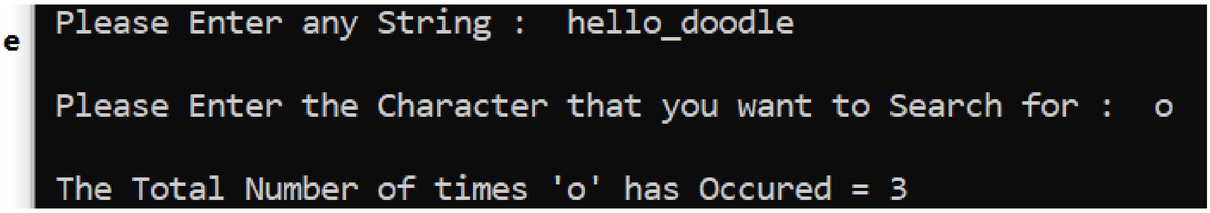


```
|[  65 - A] |[  66 - B] |[  67 - C] |[  68 - D] |[  69 - E] |[  70 - F] |[  71 - G] |[  72 - H] |[  73 - I] |[  74 - J]
|[  75 - K] |[  76 - L] |[  77 - M] |[  78 - N] |[  79 - O] |[  80 - P] |[  81 - Q] |[  82 - R] |[  83 - S] |[  84 - T]
|[  85 - U] |[  86 - V] |[  87 - W] |[  88 - X] |[  89 - Y] |[  90 - Z] |[  97 - a] |[  98 - b] |[  99 - c] |[ 100 - d]
|[ 101 - e] |[ 102 - f] |[ 103 - g] |[ 104 - h] |[ 105 - i] |[ 106 - j] |[ 107 - k] |[ 108 - l] |[ 109 - m] |[ 110 - n]
|[ 111 - o] |[ 112 - p] |[ 113 - q] |[ 114 - r] |[ 115 - s] |[ 116 - t] |[ 117 - u] |[ 118 - v] |[ 119 - w] |[ 120 - x]
|[ 121 - y] |[ 122 - z]
```

3**: read a line of text and count all occurrences of particular character**

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

int main()
{
                char str[100], ch;
                int i, Count;
                Count = 0;

                printf("\n Please Enter any String :  ");
                gets(str);
```

```
                    printf("\n Please Enter the Character
that you want to Search for :  ");
                    scanf("%c", &ch);

                    for(i = 0; i <= strlen(str); i++)
                    {
                      if(str[i] == ch)
                      {
                             Count++;
                      }
                    }
                    printf("\n The Total Number of times
'%c' has Occured = %d ", ch, Count);

                    return 0;
}
```

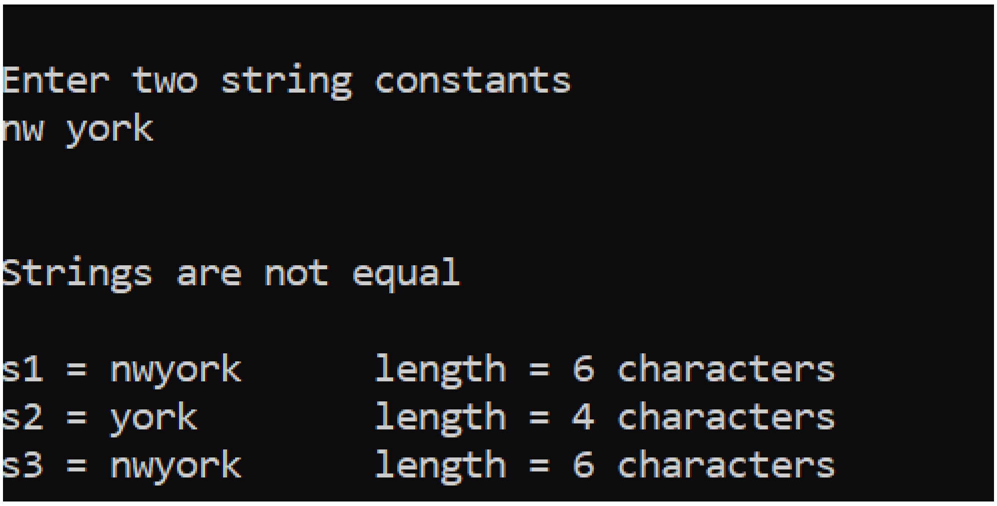


```
e  Please Enter any String :  hello_doodle

   Please Enter the Character that you want to Search for :  o

   The Total Number of times 'o' has Occured = 3
```

4: ***read 2 string constants into a and b. Compare whether they are equal or not. if not, join them together. Then copy the contents of a to the variable c. At the end of the program, print the contents of all three variables and their length. (With and Without String Handling Functions).***

```
#include <string.h>
main()
  {  char s1[20], s2[20], s3[20];
```

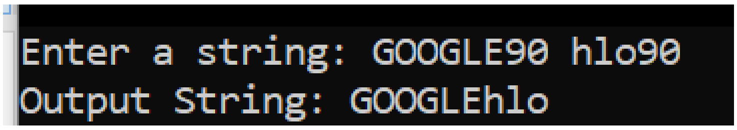
```
      int x, a,b,c;
      printf("\nEnter two string constants \n");

      scanf("%s %s", s1, s2);
/* comparing s1 and s2 */
      x = strcmp(s1, s2);
      if(x != 0)
      { printf("\n\nStrings are not equal \n");
      strcat(s1, s2); /* joining s1 and s2 */
      }
else
      printf("\n\nStrings are equal \n");
// copying s1 to s3
      strcpy(s3, s1);
/* Finding length of strings */
      a = strlen(s1);
      b = strlen(s2);
     c = strlen(s3);
/* output */
      printf("\ns1 = %s\t length = %d characters\n", s1, a);
      printf("s2 = %s\t length = %d characters\n", s2, b);
      printf("s3 = %s\t length = %d characters\n", s3, c);
}
```



```
Enter two string constants
nw york


Strings are not equal

s1 = nwyork      length = 6 characters
s2 = york        length = 4 characters
s3 = nwyork      length = 6 characters
```

5. **Remove all Characters in a String except alphabet**

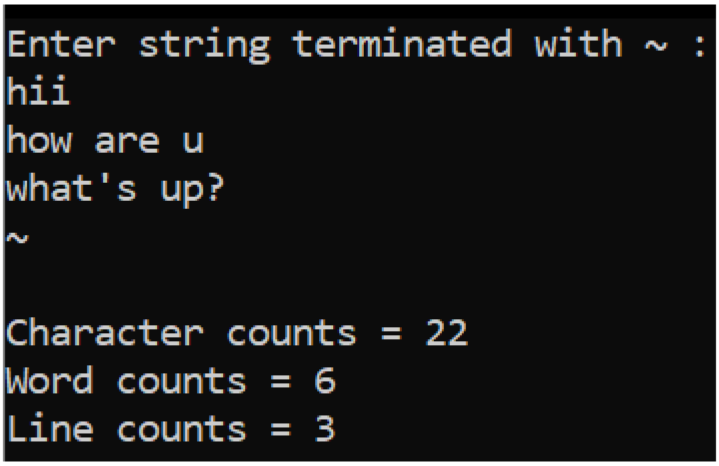
```
#include <stdio.h>
int main() {
  char line[150];

  printf("Enter a string: ");
  fgets(line, sizeof(line), stdin);

  for (int i = 0, j; line[i] != '\0'; ++i) {

    while (!(line[i] >= 'a' && line[i] <= 'z') && !(line[i] >= 'A' && line[i] <= 'Z') && !(line[i] == '\0')) {
      for (j = i; line[j] != '\0'; ++j) {



        line[j] = line[j + 1];
      }
      line[j] = '\0';
    }
  }
  printf("Output String: ");
  puts(line);
  return 0;
}
```



```
Enter a string: GOOGLE90 hlo90
Output String: GOOGLEhlo
```

6. **count no of characters and words in the line of text**.

```
#include<stdio.h>
int main()
{

  char str[200];
  int line, word, ch;



  line = word = ch = 0;



  printf("Enter string terminated with ~ :\n");
  scanf("%[^~]", str);

  for(int i=0; str[i]!='\0'; i++)
  {

    if(str[i]=='\n')
    {
      line++;
      word++;
    }


    else
    {

      if(str[i]==' '||str[i]=='\t')
      {
        word++;
        ch++;
      }


      else {
        ch++;
      }
    }
  }


  printf("\nCharacter counts = %d\n", ch);
  printf("Word counts = %d\n", word);
  printf("Line counts = %d\n", line);

  return 0;
}
```



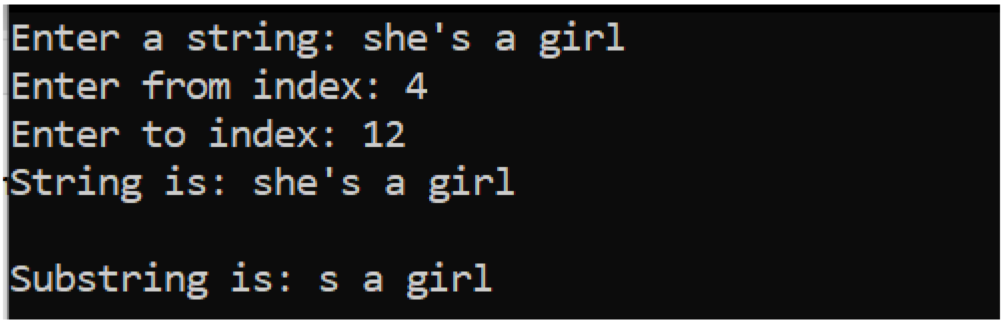
```
Enter string terminated with ~ :
hii
how are u
what's up?
~

Character counts = 22
Word counts = 6
Line counts = 3
```

8. extract the portion of character string and print the extracted string.

```
#include <stdio.h>


int getSubString(char *source, char *target,int from, int to);

int main()
{
        char text [100]={0};
        char text1[50] ={0};
        int from,to;

        printf("Enter a string: ");
        fgets(text,100,stdin);

        printf("Enter from index: ");
        scanf("%d",&from);
        printf("Enter to index: ");
        scanf("%d",&to);
```

```
                printf("String is: %s\n",text);

                if(getSubString(text,text1,from,to)==
0)
                  printf("Substring is: %s\n",text1);
  else
    printf("Function execution failed!!!\n");

                return 0;
}

int  getSubString(char *source, char *target,int from,
int to)
{
                int length=0;
                int i=0,j=0;

                //get length
                while(source[i++]!='\0')
                 length++;

                if(from<0 || from>length){
                 printf("Invalid \'from\' index\n");
                 return 1;
                }
                if(to>length){
                 printf("Invalid \'to\' index\n");
                 return 1;
                }
```

```
                    for(i=from,j=0;i<=to;i++,j++){
                      target[j]=source[i];
                    }



                    target[j]='\0';

                    return 0;
}
```

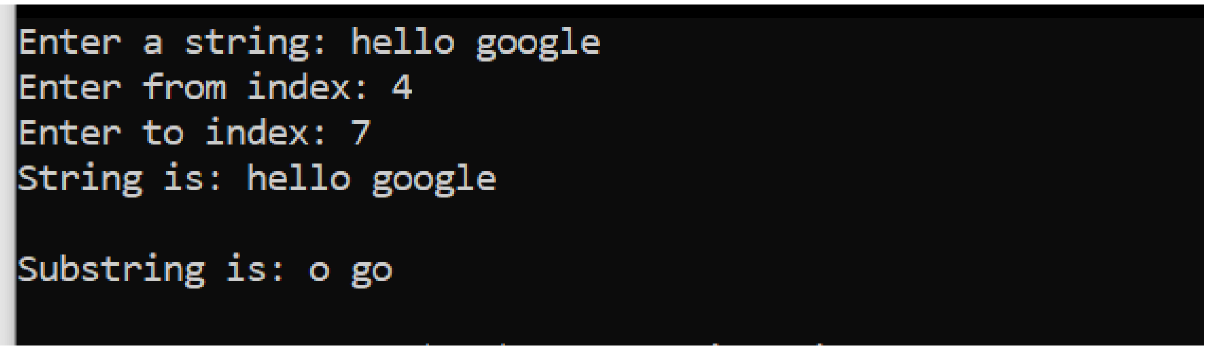


```
Enter a string: she's a girl
Enter from index: 4
Enter to index: 12
String is: she's a girl

Substring is: s a girl
```

9. extract the portion of words from line of text and print the extracted line of tex

```
#include <stdio.h>
void main()
{
  char str[100], sstr[100];
  int pos, l, c = 0;

      printf("\n\nExtract a substring from a given
string:\n");
      printf("--------------------------------------------\n");
```

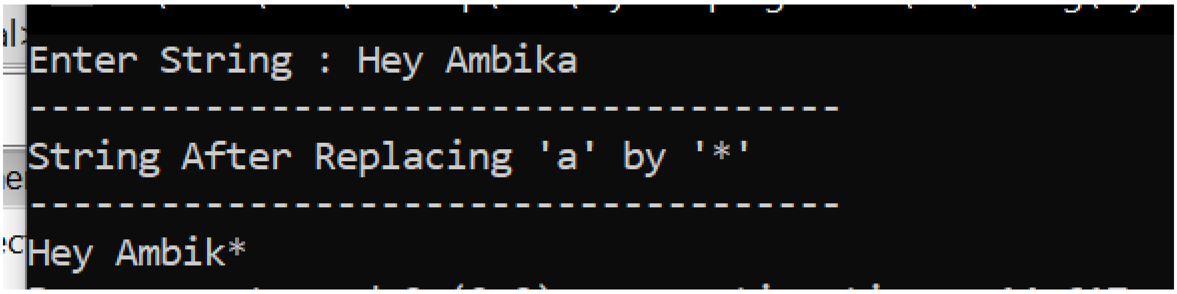
```
       printf("Input the string : ");
       fgets(str, sizeof str, stdin);

   printf("Input the position to start extraction :");
   scanf("%d", &pos);

   printf("Input the length of substring :");
   scanf("%d", &l);

   while (c < l)
   {
       sstr[c] = str[pos+c-1];
      c++;
   }
   sstr[c] = '\0';

   printf("The substring retrieve from the string is : "
%s\ "\n\n", sstr);

}
```



```
Enter a string: hello google
Enter from index: 4
Enter to index: 7
String is: hello google

Substring is: o go
```

10. replace a particular character by another character in a string.

```
#include<stdio.h>
int main()
{
    int i=0;
    char s[50];
    printf("Enter String : ");
    gets(s);
    while(s[i]!='\0')
    {
        if(s[i]=='a')
        {
            s[i]='*';
        }
        i++;
    }
    printf("-------------------------------------");
    printf("\nString After Replacing 'a' by '*'");
    printf("\n-------------------------------------\n");
    printf("%s",s);
    return 0;
}
```

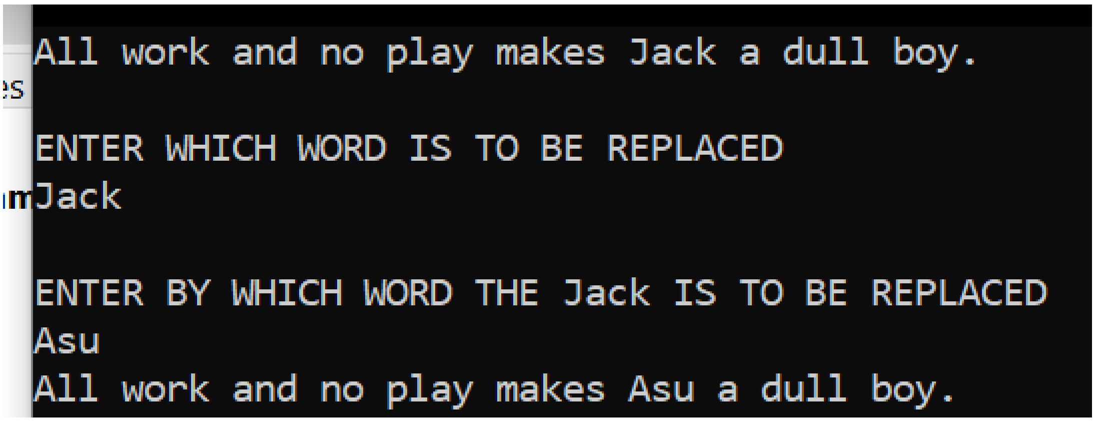


```
Enter String : Hey Ambika
-------------------------------------
String After Replacing 'a' by '*'
-------------------------------------
Hey Ambik*
```

11. replace a particular word by word character in a line of text.

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


void main()
{
  char s[] = "All work and no play makes Jack a dull boy.";
  char word[10],rpwrd[10],str[10][10];
  int i=0,j=0,k=0,w,p;

  printf("All work and no play makes Jack a dull boy.\n");
  printf("\nENTER WHICH WORD IS TO BE REPLACED\n");
  scanf("%s",word);
  printf("\nENTER BY WHICH WORD THE %s IS TO BE REPLACED\n",word);
  scanf("%s",rpwrd);
  p=strlen(s);

  for (k=0; k<p; k++)
    {
      if (s[k]!=' ')
        {
          str[i][j] = s[k];
          j++;
        }
      else
        {
          str[i][j]='\0';
          j=0; i++;
        }
    }
```

```
 str[i][j]='\0';
 w=i;

 for (i=0; i<=w; i++)
  {
   if(strcmp(str[i],word)==0)
    strcpy(str[i],rpwrd);

   printf("%s ",str[i]);
  }

}
```



```
All work and no play makes Jack a dull boy.

ENTER WHICH WORD IS TO BE REPLACED
Jack

ENTER BY WHICH WORD THE Jack IS TO BE REPLACED
Asu
All work and no play makes Asu a dull boy.
```