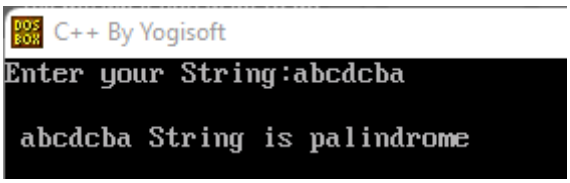
Program 1: Write a C Program to check if a Given String is Palindrome or Not String: ABCDCBA.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
 char s[200];
 int l,i,c=0;
 clrscr();
 printf("Enter your String:");
 scanf("%s",&s);
 l=strlen(s);
 for(i=0;i<l/2;i++)
 {
  if(s[i]==s[l-i-1])
  {
   c++;
  }
 }
  if(c==i)
  {
   printf("\n %s String is palindrome",s);
  }
  else
  {
   printf("\n %s String is not palindrome",s);
```

```
    }
  getch();
}
```

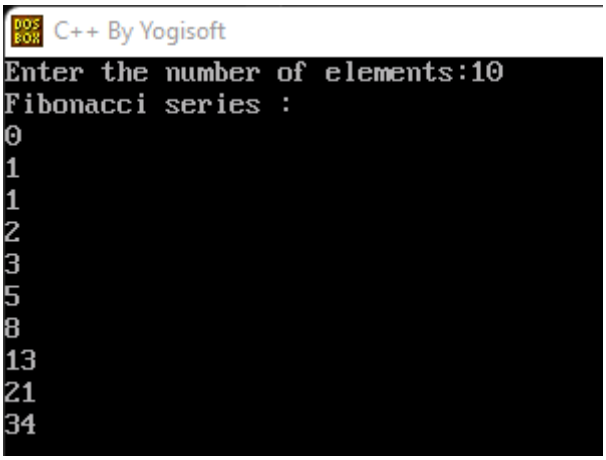
Output:



Program 2: C program to print Fibonacci series using recursion.

```
#include<stdio.h>
#include<conio.h>
int Fibonacci(int);
void main(){
 int n,i=0,c;
 clrscr();
 printf("Enter the number of elements:");
 scanf("%d",&n);
 printf("Fibonacci series :\n");
 for(c=1;c<=n;c++){
  printf("%d\n",Fibonacci(i));
  i++;
 }
 getch();
}
int Fibonacci(int n){
 if(n==0)
  return 0;
  else if(n==1)
   return 1;
  else
   return (Fibonacci(n-1)+Fibonacci(n-2));

}
```

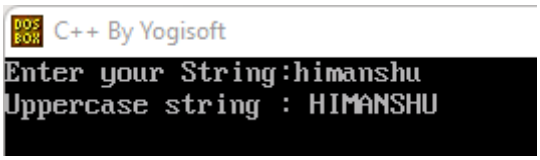
Output:


C++ By Yogisoft
Enter the number of elements:10
Fibonacci series :
0
1
1
2
3
5
8
13
21
34

Program 3: Write a Program to convert string from lower case to upper case.

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

void main(){
 char str[50];
 int i;
 clrscr();
 printf("Enter your String:");
 gets(str);

 for(i=0;str[i]!='\0';i++){
  if(str[i]>='a' && str[i]<='z'){
   str[i]=str[i] - 32;
  }
 }
 printf("Uppercase string : %s",str);
 getch();
}
```

Output:

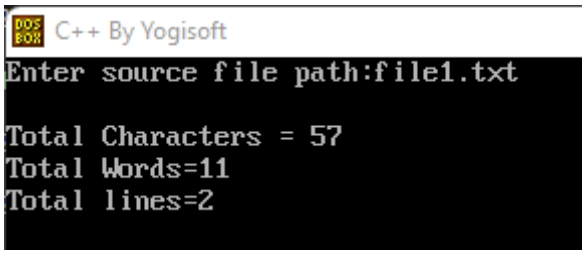

C++ By Yogisoft
Enter your String:himanshu
Uppercase string : HIMANSHU

Program 4: Write a C Program to Scan and Count the number of characters, words, and lines in a file.

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

void main(){
 FILE * file;
 char path[200];

 char ch;
 int characters,words,lines;
 clrscr();
 printf("Enter source file path:");
 scanf("%s",path);

 file=fopen(path,"r");

 if(file==NULL){
  printf("\n Unable to open the file. \n");
  printf("Please check if file exists and you have read privilege.\n");

  exit(EXIT_FAILURE);
 }

 characters=words=lines=0;
```

```
while((ch=fgetc(file))!=EOF){
 characters++;

 if(ch=='\n' || ch=='\0')
  lines++;

 if(ch==' ' || ch=='\t' || ch=='\n' || ch=='\0')
  words++;
}
if(characters > 0){
 words++;
 lines++;
}

printf("\n");
printf("Total Characters = %d\n",characters);
printf("Total Words=%d\n",words);
printf("Total lines=%d\n",lines);

fclose(file);
getch();
}
```

Output:


C++ By Yogisoft
Enter source file path:file1.txt
Total Characters = 57
Total Words=11
Total lines=2

Program 5: Write a C program to identify whether a given line is a comment or not.

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

void main(){
 char com[100];
 int i=2,a=0;

 clrscr();

 printf("\n Enter Comment:");
 gets(com);

 if(com[0]=='/'){
  if(com[1]=='/'){
   printf("\n The give string is a comment");
  }else if(com[1]=='*'){
   for(i=2;i<=100;i++){
    if(com[i]=='*' && com[i+1]=='/'){
     printf("\n The give string is a Comment");
     a=1;
     break;
    }else{
     continue;
    }
    if(a==0)
     printf("\n it is not a comment");
```

```
    }
   }else{
    printf("\n It is not a comment");
   }
  }
  getch();
 }
```

Output:

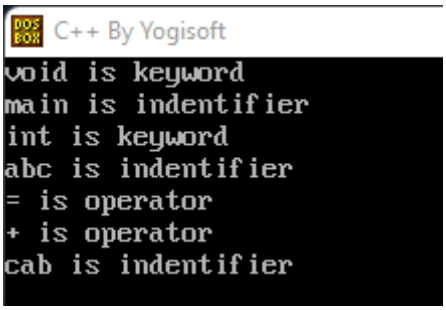
Program 6: Write a C program to detect tokens.

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

int isKeyword(char buffer[]){
 char keywords[32][10] =
{"auto","break","case","char","const","continue","default",
 "do","double","else","enum","extern","float","for","goto",
 "if","int","long","register","return","short","signed",
 "sizeof","static","struct","switch","typedef","union",
 "unsigned","void","volatile","while"};
 int i, flag = 0;
 for(i = 0; i < 32; ++i){
 if(strcmp(keywords[i], buffer) == 0){
 flag = 1;
 break;
 }
 }
 return flag;
}

void main(){
 char ch, buffer[15], operators[] = "+-*/%=";
 FILE *fp;
 int i,j=0;
```

```
clrscr();
fp = fopen("test.txt","r");
if(fp == NULL){
printf("error while opening the file\n");
exit(0);
}
while((ch = fgetc(fp)) != EOF){
 for(i = 0; i < 6; ++i){
 if(ch == operators[i])
 printf("%c is operator\n", ch);
 }

 if(isalnum(ch)){
 buffer[j++] = ch;
 }
 else if((ch == ' ' || ch == '\n') && (j != 0)){
 buffer[j] = '\0';
 j = 0;

 if(isKeyword(buffer) == 1)
 printf("%s is keyword\n", buffer);
 else
 printf("%s is indentifier\n", buffer);
 }

}
fclose(fp);
```

```
 getch();
}
```

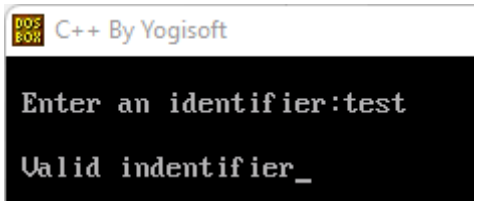
Output:



Program 7: Write a C program to test whether a given identifier is valid or not.

```
#include<stdio.h>
#include<conio.h>
#include<ctype.h>
void main(){
 char a[50];
 int flag,i=1;
 clrscr();

 printf("\n Enter an identifier:");
 gets(a);

 if(isalpha(a[0]))
 flag=1;
 else
 printf("\n Not a vaild identifier");
 while(a[i]!='\0'){
  if(!isdigit(a[1]) && !isalpha(a[i])){
   flag=0;
   break;
  }
  i++;
 }
 if(flag==1)
 printf("\n Valid indentifier");
 getch();
}
```

Output:



Program 8: Write a lex program to find out total number of vowels, and consonants from the given input string.

```
%{
 int ac=0;
 int bc=0;
%}
%%
[aeiouAEIOU] {ac++;}
[a-zA-z] {bc++;}
%%
int yywrap() {}
int main()
{
  printf("Enter the string \n");
  yylex();
  printf("THe number of vowel are %d\n",ac);
  printf("The number of consonant is %d",bc);
  return 0;
}
```

Output:

```
Enter the string
this is easycodingzone

THe number of vowel are 8
The number of consonant is 12
```

Program 9: Write a C program to recognize strings under 'a*', 'a*b+', 'abb'.

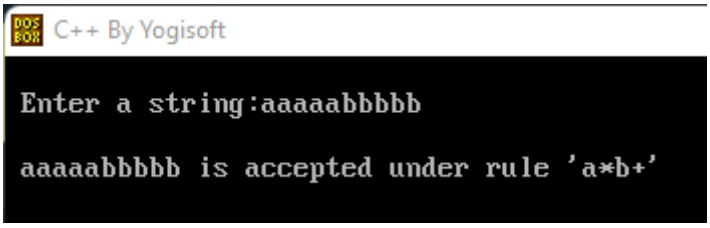
```
#include<stdio.h>
#include<conio.h>
#include<string.h>
#include<stdlib.h>

void main()
{
 char s[20],c;
 int state=0,i=0;
 clrscr();

 printf("\n Enter a string:");
 gets(s);

 while(s[i]!='\0'){
  switch(state)

  {
   case 0: c=s[i++];
    if(c=='a')
   state=1;
   else if(c=='b')
  state=2;
   else
  state=6;
   break;
```

```
case 1: c=s[i++];
 if(c=='a')
state=3;
 else if(c=='b')
state=4;
 else
state=6;
 break;
case 2: c=s[i++];
 if(c=='a')
state=6;
 else if(c=='b')
state=2;
 else
state=6;
 break;
case 3: c=s[i++];
 if(c=='a')
state=3;
 else if(c=='b')
state=2;
 else
state=6;
 break;
case 4: c=s[i++];
 if(c=='a')
state=6;
```

```
 else if(c=='b')
state=5;
 else
state=6;
 break;
case 5: c=s[i++];
 if(c=='a')
state=6;
 else if(c=='b')
state=2;
 else
state=6;
 break;
 case 6: printf("\n %s is not recognised.",s);
 exit(0);
 }

}

if(state==1)
 printf("\n %s is accepted under rule 'a'",s);
else if((state==2)||(state==4))
 printf("\n %s is accepted under rule 'a*b+'",s);
else if(state==5)
 printf("\n %s is accepted under rule 'abb'",s);
getch();
```

```
}
```

Output:


C++ By Yogisoft
Enter a string:aaaaabbbbb
aaaaabbbbb is accepted under rule 'a*b+'

Program 10: Write a C program to simulate lexical analyzer for validating operators.

```
#include<stdio.h>
#include<conio.h>
void main()
{
char s[5];
clrscr();
printf("\n Enter any operator:");
gets(s);
switch(s[0])
{
case'>': if(s[1]=='=')
printf("\n Greater than or equal");
else
printf("\n Greater than");
break;
case'<': if(s[1]=='=')
printf("\n Less than or equal");
else
printf("\nLess than");
break;
case'=': if(s[1]=='=')
printf("\nEqual to");
else
printf("\nAssignment");
break;
case'!': if(s[1]=='=')
```

```
printf("\nNot Equal");
else
printf("\n Bit Not");
break;
case'&': if(s[1]=='&')
printf("\nLogical AND");
else
printf("\n Bitwise AND");
break;
case'|': if(s[1]=='|')
printf("\nLogical OR");
else
printf("\nBitwise OR");
break;
case'+': printf("\n Addition");
break;
case'-': printf("\nSubstraction");
break;
case'*': printf("\nMultiplication");
break;
case'/': printf("\nDivision");
break;
case'%': printf("Modulus");
break;
default: printf("\n Not a operator");
}
getch();
```

```
}
```

Output: