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System Programming Files

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System Programming File

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Program 1 : WAP to check whether the string starting with “a” or not.

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

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

```
void main ()
```

```
{
```

```
    char str[20];
```

```
    clrscr();
```

```
    printf("enter the string\n");
```

```
    gets(str);
```

```
    if(str[0]=='a')
```

```
    {
```

```
        printf ("string is starting with a");
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("string is not starting with a");
```

```
    }
```

```
    getch();
```

```
}
```

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```
enter a string  
aman  
string is starting with a
```

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Program 2 : WAP to count number of occurrences of substring “aba” in a string.

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

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

```
void main()
```

```
{
```

```
    char str[20];
```

```
    int i=0,count=0;
```

```
    clrscr();
```

```
    printf("enter the string\n");
```

```
    gets(str);
```

```
    while(str[i]!='\0')
```

```
    {
```

```
        if(str[i]=='a' && str[i+1]=='b' && str[i+2]=='a')
```

```
        {
```

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```
count++;

}

i++;

}

printf("The occurrence of aba in string %d",count);

getch();

}
```

```
enter a string
abababababa
the occurence of aba in string is 5_
```

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Program 3 : WAP to check whether the entered string is ended with character “a” or not.

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

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

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

```
void main()
```

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```
{  
  
    char str[20];  
  
    int n;  
  
    printf("enter the string");  
  
    gets(str);  
  
    n=strlen(str);  
  
    if(str[n-1]=='a')  
    {  
        printf("the string is ended with a");  
    }  
  
    else  
    {  
        printf("the string is not ended with a");  
    }  
  
    getch();  
}
```



```
enter a string  
yogita  
the string is ended with a_
```


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Program 4 : WAP to check whether the entered string contains character or not.

```
#include<stdio.h>

#include<conio.h>

void main()
{
    char str[20];
    int i=0,flag=0;
    clrscr();
    printf("enter the string");
    gets(str);
    while(str[i]!='\0')
    {
        if(str[i]=='z')
        {
            printf("this string contains 'z'");
            flag=1;
            break;
        }
        i++;
    }
```

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```
    }  
  
    if(flag==0)  
    {  
        printf("this string does not contain 'z'");  
    }  
  
    getch();  
}
```



```
enter a string  
zebra  
strong contains 'z' _
```

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Program 5 : WAP to check whether a string is keyword or not

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

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

```
void main ()
```

```
{
```

```
    char str[10][10]={ "goto" , "case" , "for" , "if" , "return" };
```

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```
char str1[10];

int flag=1,i;

clrscr();

printf("enter a string");

gets(str1);

for( i=0 ; i<10 ; i++)

{

    If(strcmp(str1,str[i])==0)

        flag=0;

}

If(flag==0)

{

    printf("string is keyword");

}

else

{

    printf("string is not keyword");

}

getch();

}
```

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```
enter a string  
case  
string is keyword
```

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Program 6 : WAP to check whether the entered character contains alphabet or not.

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

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

```
void main()
```

```
{
```

```
    char ch;
```

```
    printf("enter the character");
```

```
    scanf("%c",&ch);
```

```
    if(ch>='a' && ch<='z' || ch>='A' && ch<='Z')
```

```
    {
```

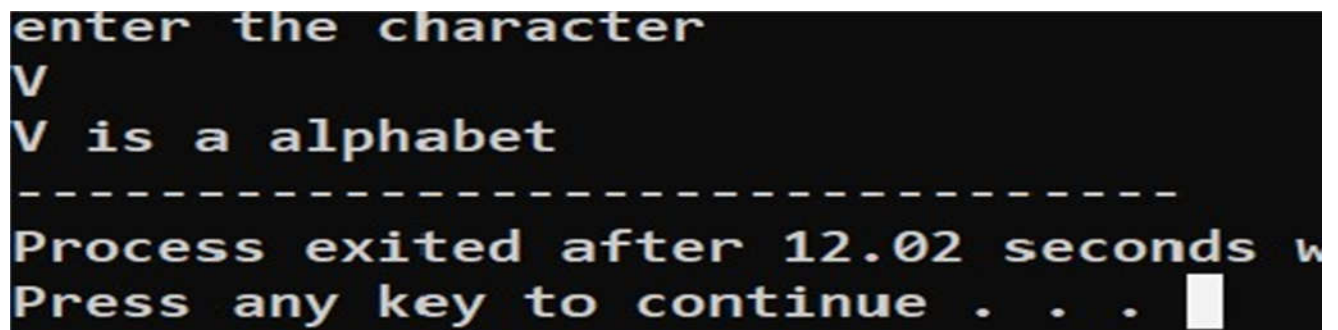
```
        printf("%c is a alphabet",ch);
```

```
    }
```

```
    else
```

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```
{  
  
    printf("%c is not alphabet",ch);  
  
}  
  
getch();  
}
```



A screenshot of a terminal window with a black background and white text. The text shows the execution of a C program. It starts with the prompt "enter the character", followed by the input "V". The program then outputs "V is a alphabet". Below this, there is a line of dashes "-----". The next line shows "Process exited after 12.02 seconds w", and the final line shows "Press any key to continue . . ." with a small white square cursor at the end.

```
enter the character  
V  
V is a alphabet  
-----  
Process exited after 12.02 seconds w  
Press any key to continue . . .
```

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Program 7 : WAP to check whether the entered string contains constant or not.

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

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

```
void main()
```

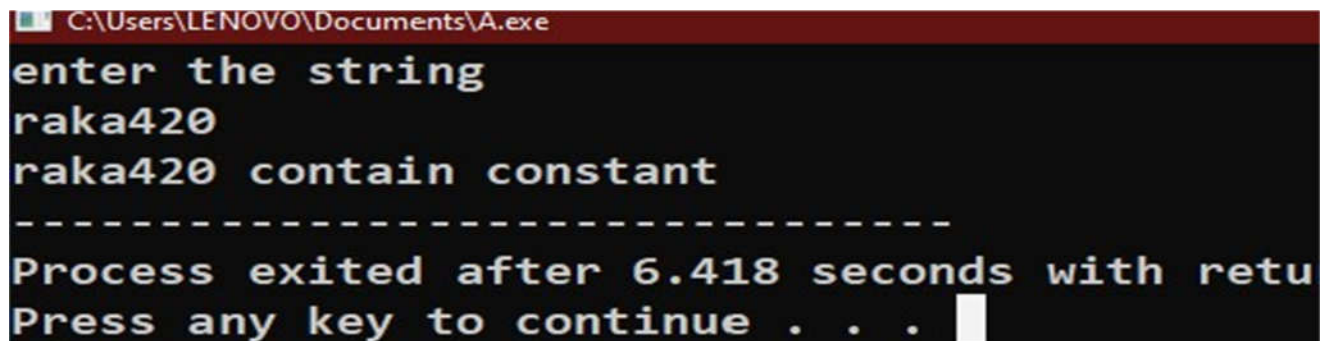
```
{
```

```
    char str[10];
```

```
    int i,count=0,len=0;
```


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```
printf("enter the string");  
  
gets(str);  
  
for(i=0;str[i]!='\0';i++)  
{  
    if(str[i]>='0' && str[i]<='9')  
    {  
        count++;  
    }  
}  
  
if(count!=0)  
    printf("%s contain constant",str);  
  
else  
    printf("%s doesnot contain constant",str);  
}
```



```
C:\Users\LENOVO\Documents\A.exe  
enter the string  
raka420  
raka420 contain constant  
-----  
Process exited after 6.418 seconds with return code 0  
Press any key to continue . . .
```

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Program 8 : WAP to check whether the entered string is identifier or not.

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

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

```
void main()
```

```
{
```

```
    char a[20];
```

```
    int i=1,count=0;
```

```
    printf("enter the string in the array\n");
```

```
    gets(a);
```

```
    if(a[0]>='a' && a[0]<='z' || a[0]>='A' && a[0]<='Z' || a[0]=='_' || a[0]=='$')
```

```
    {
```

```
        count++;
```

```
        while(a[i]!='\0')
```

```
        {
```

```
            if(a[i]>='a' && a[i]<='z' || a[i]>='A' && a[i]<='Z' || a[i]>='0' && a[i]<='9' ||
```

```
            a[i]=='_' || a[i]=='$')
```

```
            {
```

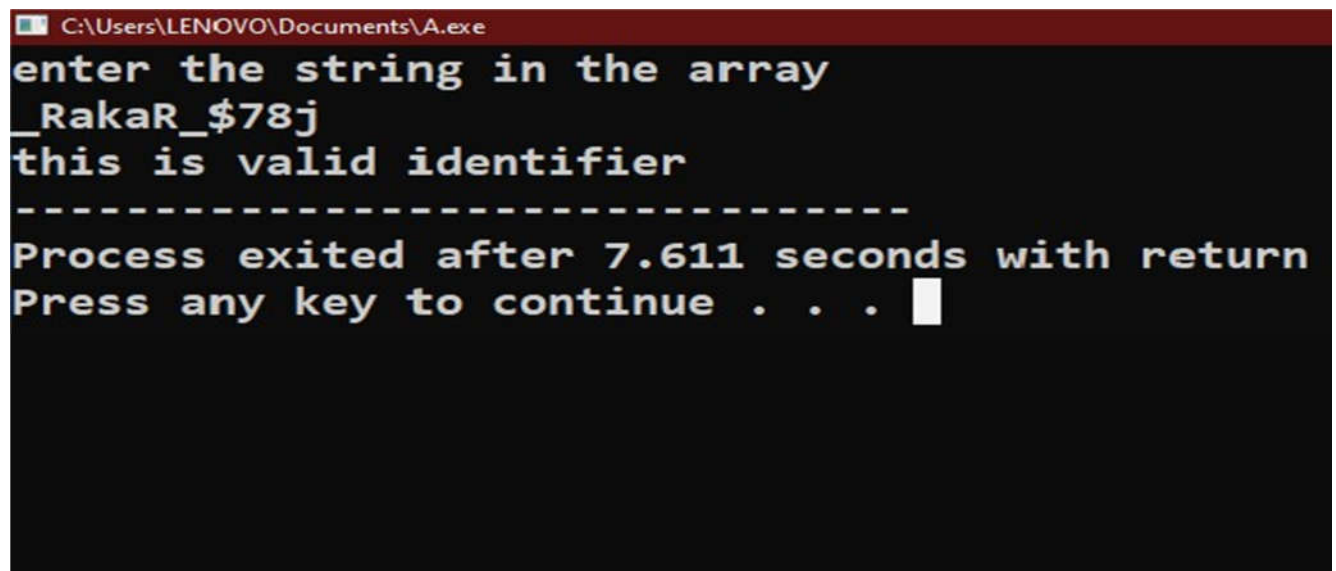
```
                count++;
```

```
            }
```

```
            i++;
```

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```
    }  
}  
  
if(count==strlen(a))  
{  
    printf("%s is valid identifier",a);  
}  
  
else  
{  
    printf("%s is not valid identifier",a);  
}  
}
```



```
C:\Users\LENOVO\Documents\A.exe  
enter the string in the array  
_RakaR_$78j  
this is valid identifier  
-----  
Process exited after 7.611 seconds with return  
Press any key to continue . . .
```

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Program 9 : WAP to implement finite automata for the relational operator.

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

```
int main()
```

```
{
```

```
    char str[3];
```

```
    int flag=0;
```

```
    printf("\nEnter value: ");
```

```
    gets(str);
```

```
    if(str[1]==NULL || str[2]==NULL)
```

```
    {
```

```
        if(str[0]=='=' || str[0]=='!' || str[0]=='>' || str[0]=='<')
```

```
        {
```

```
            if(str[1]==NULL)
```

```
                printf("Valid");
```

```
            else if(str[1]=='=')
```

```
                printf("Valid");
```

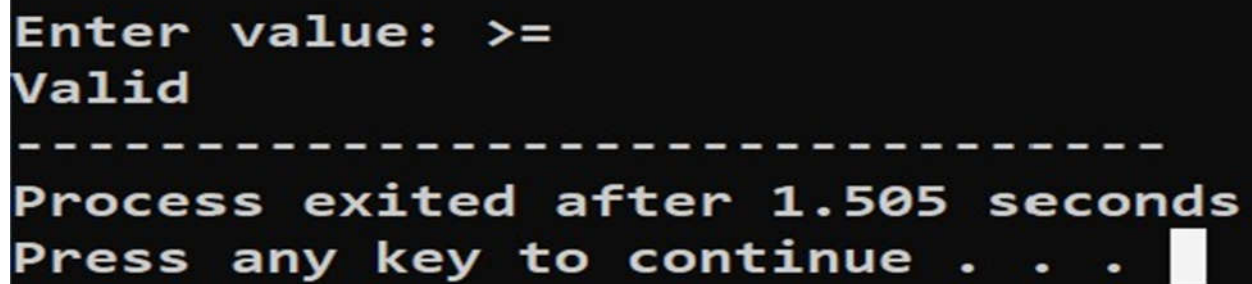
```
            else
```

```
                printf("Invalid");
```

```
        }
```

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```
        else  
            printf("Invalid");  
    }  
    else  
        printf("\nInvalid");  
}
```



Enter value: >=

Valid

Process exited after 1.505 seconds

Press any key to continue . . .

The screenshot shows a terminal window with a black background and white text. It displays the output of a program. The first line is 'Enter value: >=' followed by 'Valid' on the next line. A line of dashes separates this from the next output, which is 'Process exited after 1.505 seconds'. The final line is 'Press any key to continue . . .' followed by a small white square, likely representing a cursor or a key press.

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Program 10 : WAP to find the prefix of a given string.

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

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

```
void main()
```

```
{
```

```
    char str[20];
```

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```
int i=0,n;

printf("enter the string\n");

gets(str);

n=strlen(str);

while(n)

{

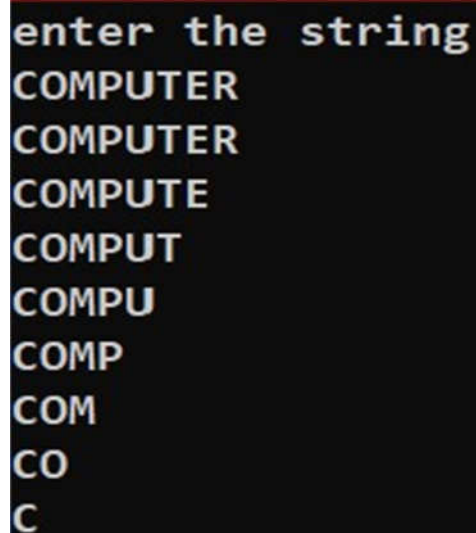
    printf("%s\n",str);

    str[n-1]='\0';

    n--;

}

}
```



```
enter the string
COMPUTER
COMPUTER
COMPUTE
COMPUT
COMPU
COMP
COM
CO
C
```

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Program 11 : WAP to find the suffix of the given string.

```
#include<stdio.h>

#include<string.h>

void main()
{
    char str[20],*p;

    int n,i=0;

    printf("enter the string\n");

    scanf("%s",str);

    n=strlen(str);

    printf("epsilon");

    while(i<=n)
    {
        p=&str[n-i];

        if(str!=p-1)
        {
            printf("%s\n",p);
        }

        i++;
    }
}
```


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```
enter the string
COMPUTER
epsilon
R
ER
TER
UTER
PUTER
MPUTER
COMPUTER
```

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Program 12 : Wap to find the proper prefix of a given string.

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

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

```
void main()
```

```
{
```

```
    char str[20];
```

```
    int n,i;
```

```
    printf ("enter the string\n");
```

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```
scanf("%s",str);

n=strlen(str);

i=0;

while (n)

{

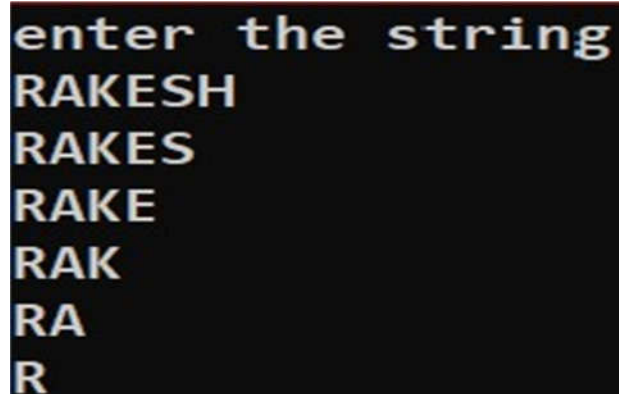
    str[n-1]='\0';

    printf("%s\n",str);

    n--;

}

}
```



```
enter the string
RAKESH
RAKES
RAKE
RAK
RA
R
```

Program 13 : WAP to find the proper suffix of given string.

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

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

```
void main()
```

```
{
```

```
    char str[20],*p;
```

```
    int n,i;
```

```
    printf("enter the string\n");
```

```
    scanf("%s",str);
```

```
    n=strlen(str);
```

```
    i=0;
```

```
    while(i<=n)
```

```
    {
```

```
        p=&str[n-i];
```

```
        if(str!=p)
```

```
        {
```

```
            printf("%s\n",p);
```

```
        }
```

```
        i++;
```

```
    }
```

```
}
```

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enter the string

UMBRELLA

A

LA

LLA

ELLA

RELLA

BRELLA

MBRELLA

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Program 14 : WAP to find all substrings of a given string.

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

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

```
int main()
```

```
{
```

```
    char ch[20];
```

```
    int i,len,t,j;
```

```
    printf("Enter string: ");
```

```
    gets(ch);
```

```
    len=strlen(ch);
```

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```
t=j=len;

while(len>0)

{

    for(i=0;i<len;i++)

    {

        printf("%c",ch[i]);

    }

    printf("\n");

    len--;

}

while(t>0)

{

    for(i=t;i<j;i++)

    {

        printf("%c",ch[i]);

    }

    printf("\n");

    t--;

}

}
```

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```
Enter string: HELLO
HELLO
HELL
HEL
HE
H

O
LO
LLO
ELLO
```


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Program 15 : WAP to open a file in read mode.

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

```
void main ()
```

```
{
```

```
    FILE *fp;
```

```
    char ch;
```

```
    fp=fopen("C:\\MCA\\3rd-SEm\\CoRe_JaVa\\new.txt","r");
```

```
    ch=getc(fp);
```

```
    while(ch!=EOF)
```

```
    {
```

```
        printf("%c",ch);
```

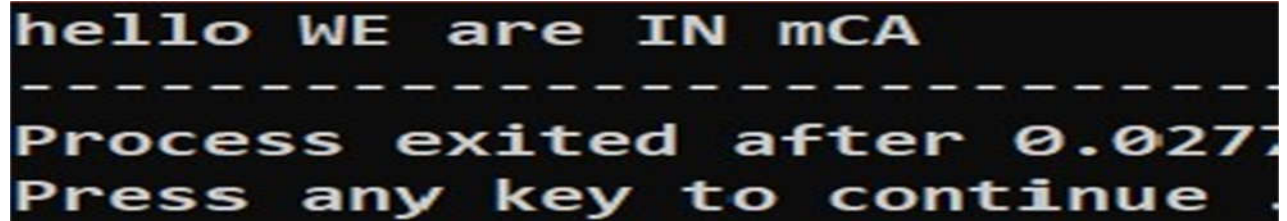
```
        ch=getc(fp);
```

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```
}
```

```
fclose(fp);
```

```
}
```



A screenshot of a terminal window with a black background and yellow text. The text displayed is: "hello WE are IN mCA", followed by a dashed line separator, "Process exited after 0.0277", and "Press any key to continue".

```
hello WE are IN mCA
-----
Process exited after 0.0277
Press any key to continue
```

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Program 16 : WAP to write in a file.

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

```
void main()
```

```
{
```

```
    FILE *fp;
```

```
    char ch;
```

```
    fp=fopen("C:\\MCA\\3rd-SEm\\CoRe_JaVa\\new.txt","w");
```

```
    printf("Enter any character:");
```

```
    scanf("%c",&ch);
```

```
    fputc(ch,fp);
```

```
    fclose(fp);
```

```
}
```

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```
Enter any character:R
```



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Program 17 : WAP to count no. of lines in a program.

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

```
int main()
```

```
{
```

```
    FILE *fp;
```

```
    int count=1;
```

```
    char ch;
```

```
    fp=fopen("C:\\MCA\\3rd-SEm\\CoRe_JaVa\\new.txt","r");
```

```
    printf("1. ");
```

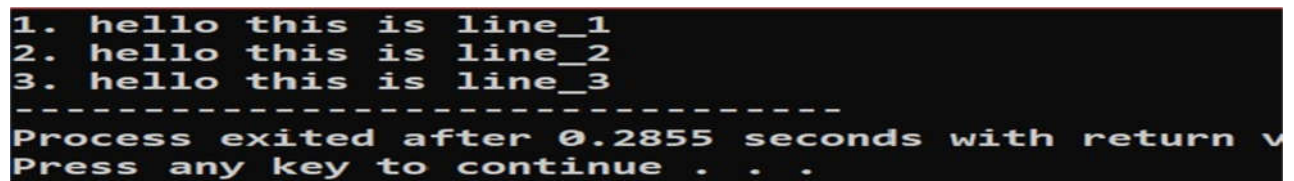
```
    while((ch=getc(fp))!=EOF)
```

```
    {
```

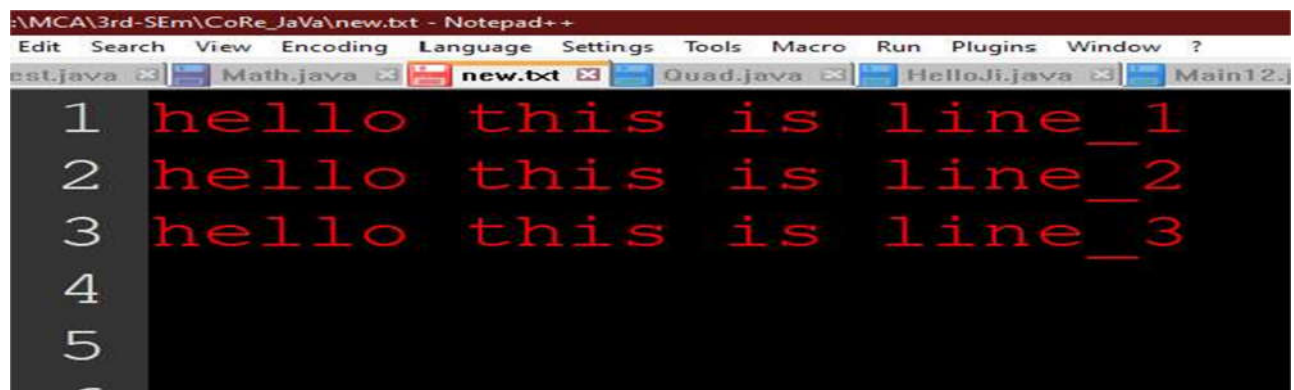
```
        if(ch=='\n')
```

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```
        {  
  
            count++;  
  
            printf("%c%d. ",ch,count);  
  
        }  
  
    else  
  
        printf("%c",ch);  
  
    }  
  
    fclose(fp);  
  
}
```



```
1. hello this is line_1  
2. hello this is line_2  
3. hello this is line_3  
-----  
Process exited after 0.2855 seconds with return v  
Press any key to continue . . .
```



```
1 hello this is line_1  
2 hello this is line_2  
3 hello this is line_3  
4  
5  
6
```

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Program 18. WAP in C to check validity of binary expression.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char s[30];
int i,l,flag=0;
clrscr();
printf("Enter expression : ");
gets(s);

l=strlen(s);

for(i=0;i<l;i=i+2)
{//for loop
if(s[i]>='a' && s[i]<='z' || s[i]>='0' && s[i]<='9')

    flag=1;
    else
    flag=0;

}

}

for(i=1;i<l;i=i+2)
{
if(s[i]=='+' || s[i]=='-' || s[i]=='/' || s[i]=='%')
    flag=1;
    else
    flag=0;

if(s[l-1]=='+' || s[l-1]=='-' || s[l-1]=='*' || s[l-1]=='/')
    flag=0;
```

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```
}
```

```
if(flag==1)
printf("valid");
else
printf("invalid");
```

```
getch();
}
```



```
Enter expression : x+5
valid
```


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Program 19) WAP in C to implement transition diagram for a real number.

```
#include<stdio.h>
#include<conio.h>
main()
{
char n[20];
int i,l,flag=0,flag1=0,flag2=0;
clrscr();
printf("Enter a number : ");
gets(n);
l=strlen(n);

if(n[0]=='+' || n[0]=='-' || n[0]>='0'&& n[0]<='9' )
flag1=1;
else
flag1=0;

for(i=1;i<l;i++)
{
if(n[i]>='0'&& n[i]<='9')
flag=1;

if(n[i]=='.' || n[i]=='e')
{
if(n[i+1]>='0' && n[i+1]<='9')
flag2=1;
}
}
}
```

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```
if(flag==1 && flag1==1 && flag2==1)
printf("Entered number is real number");
else
printf("not real number");
getch();
}
```

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Program 20) WAP in C to find unit production of a string.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
char null[20];
int j;
typedef struct productionrule{
char lhs[5],rhs[100];
}RULES;
int isnull(char ch,char null[])
{
    int l;
    for(l=0;l<j;l++)
    {
        if(ch==null[l])
            return 1;
    }
    return 0;
}
void removefromnull(char ch,char null[])
{
    int i,k;
    for(i=0;i<j;i++)
    {
        if(ch==null[i])
        {
            for(k=i+1;k<j;k++)
                null[k-1]=null[k];
            j--;
        }
    }
}
void main()
```

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```
{
int n,k,i,l;
RULES r[20];
char null[20];

clrscr();
puts("\n\nRemoval of null Production");
printf("Enter number of production:");
scanf("\n%d",&n);
j=0;
    for(i=0;i<n;i++)

{
printf("Rule %d\nLHS:",i+1);
scanf("\n%s",r[i].lhs);
printf("RHS:");
scanf("%s",r[i].rhs);
if(isnull(r[i].lhs[0],null))
removefromnull(r[i].lhs[0],null);
if(strcmp(r[i].rhs,"null")==0){
null[j++]=r[i].lhs[0];
}
}
printf("\n\n Result:\n\nLHS  RHS\n\n");
for(k=0;k<i;k++)
{
if(!isnull(r[k].lhs[0],null))
printf("%s\t",r[k].lhs);
else continue;
for(l=0;l<strlen(r[k].rhs);l++)
if(isnull(r[k].rhs[l],null)==0)
printf("%c",r[k].rhs[l]);
puts(" ");
}
```

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```
getch();  
}
```

```
Removal of null Production  
Enter number of production:3  
Rule 1  
LHS:A  
RHS:B  
Rule 2  
LHS:B  
RHS:C  
Rule 3  
LHS:C  
RHS:cD
```

Result:

LHS	RHS
A	B
B	C
C	cD

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Program 21) WAP in C to find NULL production of a string.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
typedef struct productionrule
{
char lhs[2],rhs[100];
int isunit,isconsidered;
}RULES;
int isunitproduction(RULES r)
{
if(r.rhs[1]=='\0')
return 1;
return 0;
}
void main()
{
RULES r[20];
int i,j,k,n;
clrscr();

printf("\n\nEnter no.of production:");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("Rules %d\n\n LHS:",i+1);
scanf("%s",r[i].lhs);
printf("RHS:");
scanf("%s",r[i].rhs);
if(isunitproduction(r[i]))
r[i].isunit=1;
else
r[i].isunit=0;
r[i].isconsidered=0;
```

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```
}
```

```
for(i=0;i<n;i++)
{
if((r[i].isunit==1 )&& (r[i].isconsidered==0))
{
RULES ru;
char next[2];
strcpy(ru.lhs,r[i].lhs);
strcpy(next,r[i].rhs);
for(j=i+1;j<n;j++)
{
if(strcmp(next,r[j].lhs)==0)
{
strcpy(next,r[j].rhs);
r[j].isconsidered=1;
}
}
strcpy(ru.rhs,next);
ru.isunit=0;
r[n++]=ru;
}
}
printf("\n\n Result:\nLHS    RHS\n\n");
for(k=0;k<n;k++)

{
if(r[k].isunit==0)
printf("%s \t %s\n",r[k].lhs,r[k].rhs);
}
getch();
}
```

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```
NeuTroN DOS-C++ 0.77, Cpu speed: max 100% cycles, Frameskip 0, Program:
Enter no.of production:3
Rules 1
    LHS:A
    RHS:B
Rules 2
    LHS:B
    RHS:
    null
Rules 3
    LHS:C
    RHS:cD

Result:
LHS      RHS
A
```