PROGRAM NUMBER :10

AIM:

Implement pass one of a two pass assembler.

PROGRAM

ng@ng-TravelMate-5742: ~/D

```
ng@ng-TravelMate-5742:~/Documents/two pass$ cat twopass.c
#include<stdio.h>
#include<string.h>
#include <stdlib.h>
void main()
{
        FILE *f1,*f2,*f3,*f4;
        int lc,sa,l,op1,o,len;
        char m1[20],la[20],op[20],otp[20];
        f1=fopen("input.txt","r");
        f3=fopen("symtab.txt","w");
        f4=fopen("intermediate.txt","w");
        fscanf(f1,"%s%s%d",la,m1,&op1);
        if(strcmp(m1,"START")==0)
        {
                sa=op1;
                lc=sa;
                printf("\t%s\t%s\t%d\n",la,m1,op1);
                fprintf(f4,"\t%s\t%s\t%d\n",la,m1,op1);
        }
        else
        {
                lc=0;
        }
        fscanf(f1,"%s%s",la,m1);
        while(!feof(f1))
        {
                fscanf(f1,"%s",op);
                printf("\n%d\t%s\t%s\t%s\n",lc,la,m1,op);
                fprintf(f4,"\n%d\t%s\t%s\t%s\n",lc,la,m1,op);
                if(strcmp(la,"-")!=0)
                {
                        fprintf(f3,"\n%d\t%s\n",lc,la);
                }
                f2=fopen("optab.txt","r");
                fscanf(f2,"%s%d",otp,&o);
                while(!feof(f2))
                {
```

```
            if(strcmp(m1,otp)==0)
            {
                    lc=lc+3;
                    break;
            }
            fscanf(f2,"%s%d",otp,&o);
            }
            fclose(f2);
            if(strcmp(m1,"WORD")==0)
            {
                    lc=lc+3;
            }
            else if(strcmp(m1,"RESW")==0)
            {
                    op1=atoi(op);
                    lc=lc+(3*op1);
            }
            else if(strcmp(m1,"BYTE")==0)
            {
                    if(op[0]=='X')
                    {
                            lc=lc+1;
                    }
                    else
                    {
                            len=strlen(op)-2;
                            lc=lc+len;
                    }
            }
            else if(strcmp(m1,"RESB")==0)
            {
                    op1=atoi(op);
                    lc=lc+op1;
            }
            fscanf(f1,"%s%s",la,m1);
        }
        if(strcmp(m1,"END")==0)
        {
                printf("program length=%d\n",lc-sa);
        }
        fclose(f1);
        fclose(f3);
        fclose(f4);
}
```

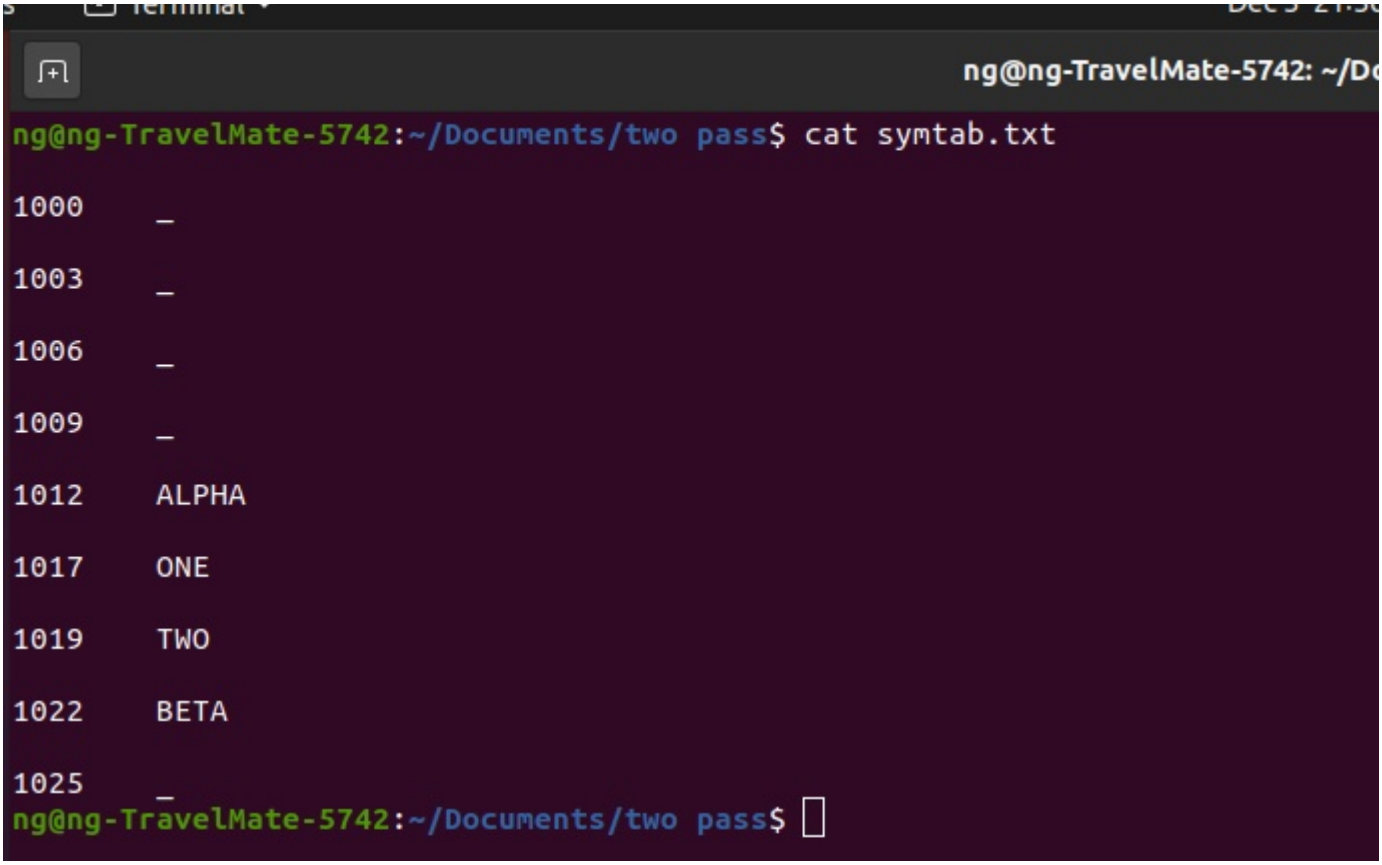
INPUT FILES

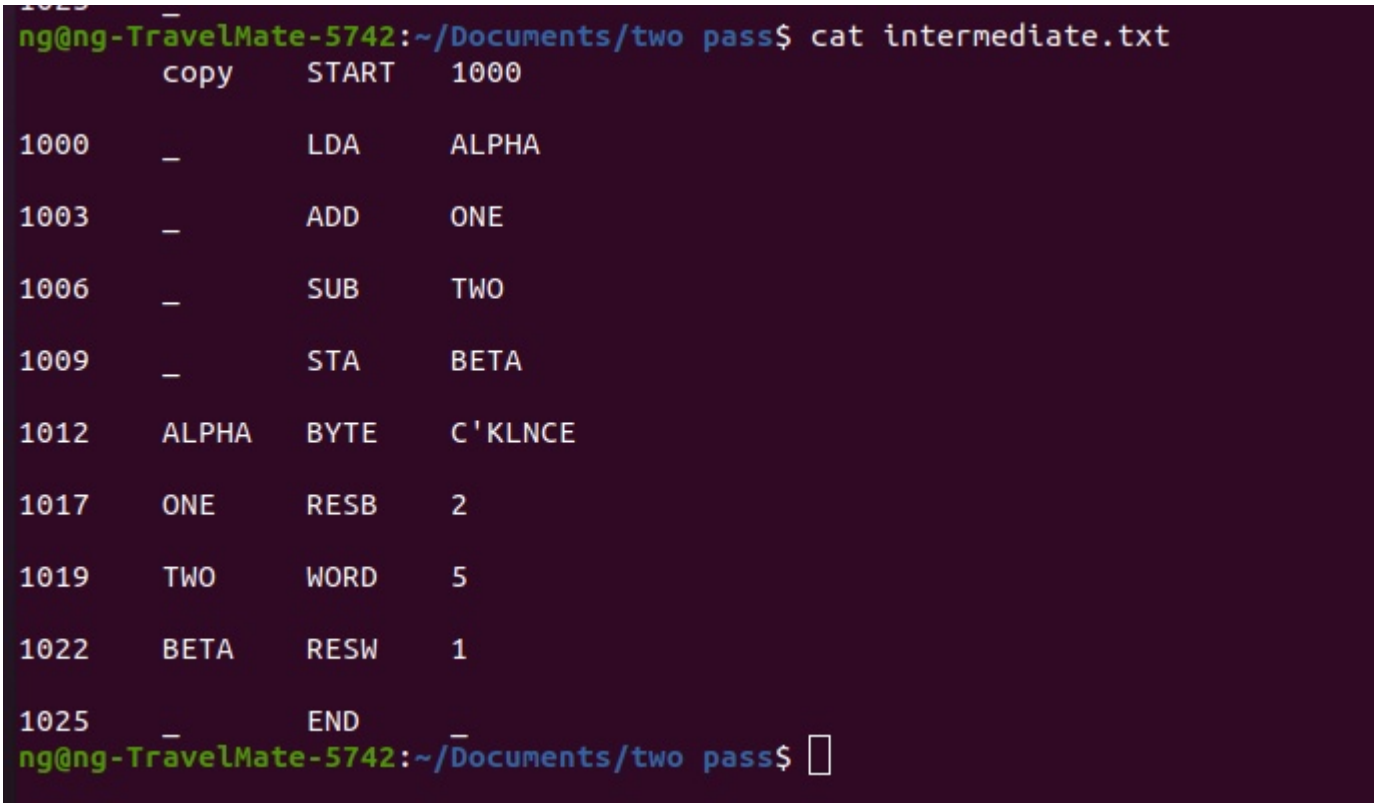
```
ng@ng-TravelMate-5742:~/Documents/two pass$ cat input.txt
copy    START   1000
 _      LDA     ALPHA
 _      ADD     ONE
 _      SUB     TWO
 _      STA     BETA
ALPHA   BYTE    C'KLNCE
ONE     RESB    2
TWO     WORD    5
BETA    RESW    1
 _      END     _

ng@ng-TravelMate-5742:~/Documents/two pass$ cat optab.txt
LDA     00
STA     23
ADD     01
SUB     05
```

OUTPUT

```
ng@ng-TravelMate-5742:~/Documents/two pass$ gcc twopass.c
ng@ng-TravelMate-5742:~/Documents/two pass$ ./a.out
        copy    START   1000

1000    _       LDA     ALPHA

1003    _       ADD     ONE

1006    _       SUB     TWO

1009    _       STA     BETA

1012    ALPHA   BYTE    C'KLNCE

1017    ONE     RESB    2

1019    TWO     WORD    5

1022    BETA    RESW    1

1025    _       END     _
program length=25
ng@ng-TravelMate-5742:~/Documents/two pass$
```

OUTPUT FILES





RESULT

Program is executed successfully and output is obtained.

BY NIVEA GIGEN
S5 C 43
CHN18CS092