18. Write a C program that behaves like a shell (command interpreter). It has its own prompt say "NewShell$". Any normal shell command is executed from your shell by starting a child process to execute the system program corresponding to the command. It should additionally interpret the following command.
i) typeline +10 <filename> - print first 10 lines of file
ii) typeline -7 <filename> - print last 20 lines of file
iii) typeline a <filename> - print all lines of file

```
#include<stdio.h>
#include<sys/types.h>
#include<unistd.h>
#include<sys/stat.h>
#include<dirent.h>
#include<fcntl.h>
void typeline(char *op,char *fn)
{
     int handle,n,lc=0,i=0;
     char ch;
     handle=open(fn,O_RDONLY);
     if(handle==-1)
     {
          printf("Unable to open file %s\n",fn);
          return;
     }
     if(strcmp(op,"a")==0)
     {
          while(read(handle,&ch,1))
               printf("%c",ch);
          close(handle);
          return;
     }
     n=atoi(op);
     printf("========%d",n);
     if(n>0)
     {
          while(read(handle,&ch,1))
          {
               printf("%c",ch);
               if(ch=='\n')
                    i++;
               if(i==n)
                    break;
          }
     }
     else if(n<0)
     {
          while(read(handle,&ch,1))
               if(ch=='\n')
                    lc++;
                    printf("\n%d",lc);
          lseek(handle,0,SEEK_SET);     //reposition at offset
          while(read(handle,&ch,1))    //read file char by char
upto totalline+(-n)
          {
               if(ch=='\n')
                    i++;

               if(i==lc+n)
                    break;
          }
          while(read(handle,&ch,1))
               printf("%c",ch);
     }
     else
          printf("Invalid Option\n");
     close(handle);
}
int main()
{
     char buff[80],t1[30],t2[30],t3[30],t4[30];
     int pid,n;
     while(1)
     {
          printf("\n@MYSHELL..$");
          fflush(stdin);
          fgets(buff,80,stdin);
          n=sscanf(buff,"%s%s%s%s",t1,t2,t3,t4);
          switch(n)
          {
               case 1 :
                    pid=fork();
```

```
                    if(pid==0)
                         execlp(t1,t1,NULL);
                    else
                         wait();
                    break;
               case 2 :
                    pid=fork();
                    if(pid==0)
                         execlp(t1,t1,t2,NULL);
                    else
                         wait();
                    break;
               case 3 :
                    if(strcmp(t1,"typeline")==0)
                         typeline(t2,t3);
                    else
                    {
                         pid=fork();
                         if(pid==0)
                         {
                              if(execlp(t1,t1,t2,t3,NULL)==-1)
                                   printf("\nBad command");
                         }
                         else
                              wait();
                    }
                    break;
               case 4 :
                    pid=fork();
                    if(pid==0)
                         execlp(t1,t1,t2,t3,t4,NULL);
                    else
                         wait();
               break;
          }
     }
}

/*
shubham@shubham:~/Documents/C Programs$ gcc 18shelltypeline.c
-o test
18shelltypeline.c: In function ‘typeline’:
18shelltypeline.c:18:5: warning: implicit declaration of
function ‘strcmp’ [-Wimplicit-function-declaration]
```

```
  if(strcmp(op,"a")==0)
     ^~~~~~
18shelltypeline.c:25:4: warning: implicit declaration of
function ‘atoi’ [-Wimplicit-function-declaration]
  n=atoi(op);
    ^~~~
18shelltypeline.c: In function ‘main’:
18shelltypeline.c:77:6: warning: implicit declaration of
function ‘wait’; did you mean ‘main’? [-Wimplicit-function-
declaration]
      wait();
      ^~~~
      main
shubham@shubham:~/Documents/C Programs$ ./test

@MYSHELL..$typeline +10 demo.txt
========10Shubham

soham

yogiraj

kalyani

sanskruti


@MYSHELL..$typeline -7 demo.txt
========-7
16
manasi

soham
soham
soham
kalyani

@MYSHELL..$typeline a demo.txt
Shubham

soham

yogiraj
```

```
kalyani

sanskruti

manasi

soham
soham
soham
kalyani

*/
```