

MY OWN UNIX:

```
#include<unistd.h>
#include<stdio.h>
#include<sys/types.h>
#include<sys/stat.h>
#include<fcntl.h>
#include<string.h>
#include<sys/wait.h>
#include<stdlib.h>
void oc(char *str);
void ot(char *str);
void oth(char *str);
void pip(char *str);
int main()
{
    char str[50];
    while(1)
    {
        printf("@saloni$\n");
        int n=read(0,str,sizeof(str));
        str[n-1]='\0';
        int i=0,j=0, ctr=0;
        char ns[3][50];
        for(i=0;i<=(strlen(str));i++)
        {
            if(str[i]==' ' || str[i]=='\0')
            {
                ns[ctr][j]='\0';
                ctr++;
            }
        }
    }
}
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        j=0;
    }
    else
    {
        ns[ctr][j]=str[i];
        j++;
    }
}

if(ctr==1)
{
    oc(str);
}
else if(ctr==2)
{
    ot(str);
}
else if( strcmp(ns[1],"")==0)
{

    int pid=fork();
    if(pid==-1)
    {
        printf("error");
    }
    else if(pid==0)
    {

        pip(str);

    }
}

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        else
        {
            wait(NULL);
        }

    }
    else
    {
        oth(str);
    }
}

return(0);
}

void oc(char * str)
{
    int pid,t,status;
    char fname[50];
    strcpy(fname,"/usr/bin/");
    strcat(fname,str);
    pid=fork();
    if(pid==-1)
    {
        printf("error");
    }
    else if(pid==0)
    {
        t=execl(fname,str,(char*)NULL);
        if(t==-1)
        {
            printf("Command not found\n");

```

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        exit(0);
    }
}
else
{
    wait(&status);
}

}

void ot(char str[])
{

    int i=0,j=0, ctr=0;
    char ns[2][50];
    for(i=0;i<=(strlen(str));i++)
    {
        if(str[i]==' ' || str[i]=='\0')
        {
            ns[ctr][j]='\0';
            ctr++;
            j=0;
        }
        else
        {
            ns[ctr][j]=str[i];
            j++;
        }
    }

    char *arr[3];
    arr[0]=ns[0];
    arr[1]=ns[1];

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arr[2]=NULL;

int pid,t,status;

char fname[50];

strcpy(fname, "/usr/bin/");

strcat(fname, ns[0]);


pid=fork();

if(pid==-1){printf("error");}

else if(pid==0)
{
    t=execv(fname, arr);

    if(t==-1){ printf("Command not found\n");
}
}

else
{
    wait(&status);
}
}

void oth(char* str)
{
    int i=0,j=0, ctr=0;

    char ns[3][50];

    for(i=0;i<=(strlen(str));i++)
    {
        if(str[i]==' ' || str[i]=='\0')
        {
            ns[ctr][j]='\0';

            ctr++;

            j=0;
        }
    }
}

```

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        else
        {
            ns[ctr][j]=str[i];

            j++;
        }
    }
    char *arr[4];
    arr[0]=ns[0];
    arr[1]=ns[1];
    arr[2]=ns[2];
    arr[3]=NULL;
    int pid,t,status;
    char fname[100];
    strcpy(fname,"/usr/bin/");
    strcat(fname,arr[0]);
    pid=fork();
    if(pid== -1){printf("error");}
    else if(pid==0)
    {
        t=execv(fname,arr);

        if(t== -1){ printf("Command not found\n");
    }
    }
    else
    {
        wait(&status);
    }
}

void pip(char* str)
{

```

```
int i=0,j=0, ctr=0;
char ns[3][50];
for(i=0;i<=(strlen(str));i++)
{
    if(str[i]==' ' | str[i]=='\0')
    {
        ns[ctr][j]='\0';
        ctr++;
        j=0;
    }
    else
    {
        ns[ctr][j]=str[i];
        j++;
    }
}
```

```
char*left[2];
left[0]=ns[0];
left[1]=NULL;
```

```
char *right[2];
right[0]=ns[2];
right[1]=NULL;
```

```
int pfd[2],status,pid;
int p=pipe(pfd);
char fleft[50],fright[50];
strcpy(fleft,"/usr/bin/");
strcat(fleft,ns[0]);
strcpy(fright,"/usr/bin/");
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strcat(fright,ns[2]);

    if(p== -1)
    {
        printf("error in pipe\n");
    }
    if(p==0)
    {
        pid=fork();
        if(pid>0)
        {
            wait(&status);
            close(pfd[1]);
            dup2(pfd[0],0);
            execv(fright,right);

        }
        else
        {
            close(pfd[0]);
            printf("child");
            dup2(pfd[1],1);
            execv(fleft,left);

        }

    }

}

```


Snapshot:

```
Activities Terminal Sep 4 14:28
saloni@saloni-Inspiron-5570: ~/cf

saloni@saloni-Inspiron-5570:~/cf$ gcc demo4.c
saloni@saloni-Inspiron-5570:~/cf$ ./a.out
ls
1.txt chain.c den.c demo4.c demo4.c.fifo fork3.c lab4_2.c lab5_1.c lab5_4.c lab6_5.c lab7_1.c lab72.c lab8.c nf pipe2.c pipe4.c.pwd.c test2.txt
a.out cp.c demo2.c demo.c dest.txt fork1.c fork4.c lab4_3.c lab5_2.c lab5_5.c lab6_6.c lab71.c lab7_3.c ls.c nfifo pipe3.c pipe5.c stat test3
cat.c dd.c demo3.c democat.c fan.c fork2.c lab4_1.c lab4.c lab5_3.c lab6_4.c lab6_7.c lab7_2.c lab7_4.c lsr.c pipe1.c pipe4.c ps.c test1.txt test.txt
@saloni$
pwd
/home/saloni/cf
@saloni$
ls -l
total 208
-rw-rw-r-- 1 saloni saloni 11 Sep 2 08:55 1.txt
-rwxrwxr-x 1 saloni saloni 17408 Sep 4 14:27 a.out
-rw-rw-r-- 1 saloni saloni 483 Jul 14 22:01 cat.c
-rw-rw-r-- 1 saloni saloni 701 Jul 20 22:23 chain.c
-rw-rw-r-- 1 saloni saloni 300 Jul 14 22:01 cp.c
-rw-rw-r-- 1 saloni saloni 861 Jul 14 22:12 dd.c
-rw-rw-r-- 1 saloni saloni 681 Aug 31 16:44 den.c
-rw-rw-r-- 1 saloni saloni 3147 Sep 2 08:42 demo2.c
-rw-rw-r-- 1 saloni saloni 3892 Sep 1 23:52 demo3.c
-rw-rw-r-- 1 saloni saloni 4858 Sep 4 14:27 demo4.c
-rw-rw-r-- 1 saloni saloni 1945 Sep 1 09:02 demo.c
-rw-rw-r-- 1 saloni saloni 215 Jul 12 10:40 democat.c
-rw-rw-r-- 1 saloni saloni 877 Jul 14 22:12 demolsr.c
-rwxrwxr-x 1 saloni saloni 17 Sep 4 14:26 dest.txt
-rw-rw-r-- 2 saloni saloni 561 Jul 20 22:07 fan.c
-rw-rw-r-- 1 saloni saloni 0 Aug 10 21:20 fifo
-rw-rw-r-- 1 saloni saloni 106 Jul 20 22:29 fork1.c
-rw-rw-r-- 1 saloni saloni 447 Jul 20 22:29 fork2.c
-rw-rw-r-- 1 saloni saloni 119 Jul 20 22:41 fork3.c
-rw-rw-r-- 1 saloni saloni 135 Jul 20 22:42 fork4.c
-rw-rw-r-- 1 saloni saloni 0 Aug 10 16:10 lab4_1.c
-rw-rw-r-- 1 saloni saloni 0 Aug 31 16:07 lab4_2.c
-rw-rw-r-- 1 saloni saloni 0 Aug 31 16:08 lab4_3.c
-rw-rw-r-- 1 saloni saloni 685 Jul 27 20:37 lab4.c
-rw-rw-r-- 1 saloni saloni 181 Aug 2 16:57 lab5_1.c
-rw-rw-r-- 1 saloni saloni 243 Aug 2 17:01 lab5_2.c
-rw-rw-r-- 1 saloni saloni 1240 Aug 2 17:14 lab5_3.c
-rw-rw-r-- 1 saloni saloni 1812 Aug 4 09:12 lab5_4.c
-rw-rw-r-- 1 saloni saloni 2204 Aug 4 09:13 lab5_5.c
-rw-rw-r-- 1 saloni saloni 482 Aug 10 22:55 lab6_4.c
-rw-rw-r-- 1 saloni saloni 571 Aug 10 22:55 lab6_5.c
-rw-rw-r-- 1 saloni saloni 615 Aug 10 22:31 lab6_6.c
-rw-rw-r-- 1 saloni saloni 849 Aug 10 22:18 lab6_7.c
-rw-rw-r-- 1 saloni saloni 207 Aug 31 17:42 lab7_1.c
-rw-rw-r-- 1 saloni saloni 506 Sep 4 14:23 lab71.c
-rw-rw-r-- 1 saloni saloni 172 Aug 31 16:18 lab7_2.c
-rw-rw-r-- 1 saloni saloni 770 Sep 4 14:26 lab72.c
-rw-rw-r-- 1 saloni saloni 242 Aug 31 16:12 lab7_3.c
```

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Activities Terminal Sep 4 14:28
saloni@saloni-Inspiron-5570: ~/cf

-rw-rw-r-- 1 saloni saloni 493 Jul 27 17:16 ls.c
-rw-rw-r-- 1 saloni saloni 948 Jul 14 22:30 lsr.c
-rw-rw-r-- 1 saloni saloni 0 Aug 10 17:05 nf
-rw-rw-r-- 1 saloni saloni 0 Aug 10 22:59 nfifo
-rw-rw-r-- 1 saloni saloni 302 Aug 10 21:09 pipe1.c
-rw-rw-r-- 1 saloni saloni 689 Aug 10 21:09 pipe2.c
-rw-rw-r-- 1 saloni saloni 988 Aug 10 21:09 pipe3.c
-rw-rw-r-- 1 saloni saloni 855 Aug 10 21:36 pipe4.c
-rw-rw-r-- 1 saloni saloni 0 Aug 10 21:36 pipe4.c.c
-rw-rw-r-- 1 saloni saloni 1111 Aug 10 21:13 pipe5.c
-rw-rw-r-- 1 saloni saloni 0 Jul 27 19:06 ps.c
-rw-rw-r-- 1 saloni saloni 139 Jul 14 22:02 pwd.c
-rw-rw-r-- 2 saloni saloni 0 Jul 27 18:09 stat
-rw-rw-r-- 1 saloni saloni 28 Aug 10 21:06 test1.txt
-rw-rw-r-- 1 saloni saloni 257 Aug 10 22:50 test2.txt
-rw-rw-r-- 1 saloni saloni 0 Aug 10 23:00 test3
-rw-rw-r-- 1 saloni saloni 23 Jul 15 08:59 test.txt
@saloni$
ls -lr
test1.txt test1.txt ps.c pipe4.c pipe1.c lsr.c lab7_4.c lab7_2.c lab6_7.c lab6_4.c lab5_3.c lab4.c lab4_1.c fork2.c fan.c democat.c demo3.c dd.c cat.c
test3 stat pipe5.c pipe3.c nfifo ls.c lab7_3.c lab71.c lab6_6.c lab5_5.c lab5_2.c lab4_3.c fork4.c fork1.c dest.txt demo.c demo2.c cp.c a.out
test2.txt pwd.c pipe4.c.c pipe2.c nf lab8.c lab72.c lab7_1.c lab6_5.c lab5_4.c lab5_1.c lab4_2.c fork3.c fifo demolsr.c demo4.c den.c chain.c 1.txt
@saloni$
ls | sort
1.txt
a.out
cat.c
chain.c
cp.c
dd.c
den.c
demo2.c
demo3.c
demo4.c
demo.c
democat.c
demolsr.c
dest.txt
fan.c
fifo
fork1.c
fork2.c
fork3.c
fork4.c
lab4_1.c
lab4_2.c
lab4_3.c
lab4.c
lab5_1.c
lab5_2.c
lab5_3.c
```

```
Activities Terminal Sep 4 14:29
saloni@saloni-inspron-5570: ~/cf

./main.c
fork2.c
fork3.c
fork4.c
lab4_1.c
lab4_2.c
lab4_3.c
lab4.c
lab5_1.c
lab5_2.c
lab5_3.c
lab5_4.c
lab5_5.c
lab6_4.c
lab6_5.c
lab6_6.c
lab6_7.c
lab7_1.c
lab71.c
lab72.c
lab7_3.c
lab7_4.c
lab8.c
ls.c
lsr.c
mf
nflro
pipe1.c
pipe2.c
pipe3.c
pipe4.c
pipe4.c.c
pipe5.c
ps.c
pwd.c
stat
test1.txt
test2.txt
test3
test.txt
@saloni$
cat dest.txt dest.txt
hy
hello
abc
bye
hy
hello
abc
bye
@saloni$
```