Assignment 7

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Part A)

```
#include<stdio.h>
#include<unistd.h>
#include<string.h>
#include<stdlib.h>
int main(void)
{
int fd1[2], nbytes=1,fd2[2],a=0;
pid_t pid;
char string[80];
char readbuffer[80];
char ch='a',ch1='\n';
FILE *fp;
pipe(fd1);//PIPE CREATED
pipe(fd2);//PIPE CREATED
/*Error in fork*/
if((pid = fork()) == -1)
{
perror("fork");
exit(1);
}
//Child Process
if(pid == 0)
{
close(fd1[1]); /*closing write end of Pipe 1*/
read(fd1[0], readbuffer, sizeof(readbuffer)); /*reading filename through Pipe 1*/
printf("\nFilename '%s' is being read by Child Process through Pipe 1...\n",readbuffer);
fp=fopen(readbuffer,"r");
close(fd1[0]); /*closing read end of Pipe 1*/
close(fd2[0]); /*closing read end of Pipe 2*/
printf("\nContents of %s are being sent to Parent Process through Pipe 2...\n",readbuffer);
while(a!=-1)
{
a=fscanf(fp,"%c",&ch);
write(fd2[1], &ch, sizeof(ch)); /*writing contents of file on Pipe 2*/
```

```
}
close(fd2[1]); /*closing write end of Pipe 2*/
exit(0);
}
//Parent process
else
{

close(fd1[0]); /*closing read end of Pipe 1*/
printf("IN PARENT PROCESS\n" );
printf("\nEnter name of file:");
scanf("%s",string);
printf("Filename is being sent by Parent Process to Child Process through Pipe 1...\n");
write(fd1[1], string, (strlen(string)+1)); /*writing filename on Pipe 1*/
wait();
close(fd1[1]); /*closing write end of Pipe 1*/
close(fd2[1]); /*closing write end of Pipe 2*/
printf("\nContents of %s are being received by Parent Process through Pipe2...\n\n",string);
printf("IN PARENT PROCESS\n" );
printf("\nReceived Message:\n");
while(nbytes!=0)
{
printf("%c",ch1);
nbytes = read(fd2[0], &ch1, sizeof(ch1)); /*reading contents of file from Pipe 2*/
}
close(fd2[0]); /*closing read end of Pipe 2*/
}
return(0);
}
```

OUTPUT:

```
gauravghati@gauravghati:~/OS-Programming/assignment7-Pipes&FIFO$ ./a.out
IN PARENT PROCESS

Enter name of file:trail.txt
Filename is being sent by Parent Process to Child Process through Pipe 1...

Filename 'trail.txt' is being read by Child Process through Pipe 1...

Contents of trail.txt are being sent to Parent Process through Pipe 2...

Contents of trail.txt are being received by Parent Process through Pipe2...

IN PARENT PROCESS

Received Message:

gauravghati@gauravghati:~/OS-Programming/assignment7-Pipes&FIFO$
```

PART B - 1)

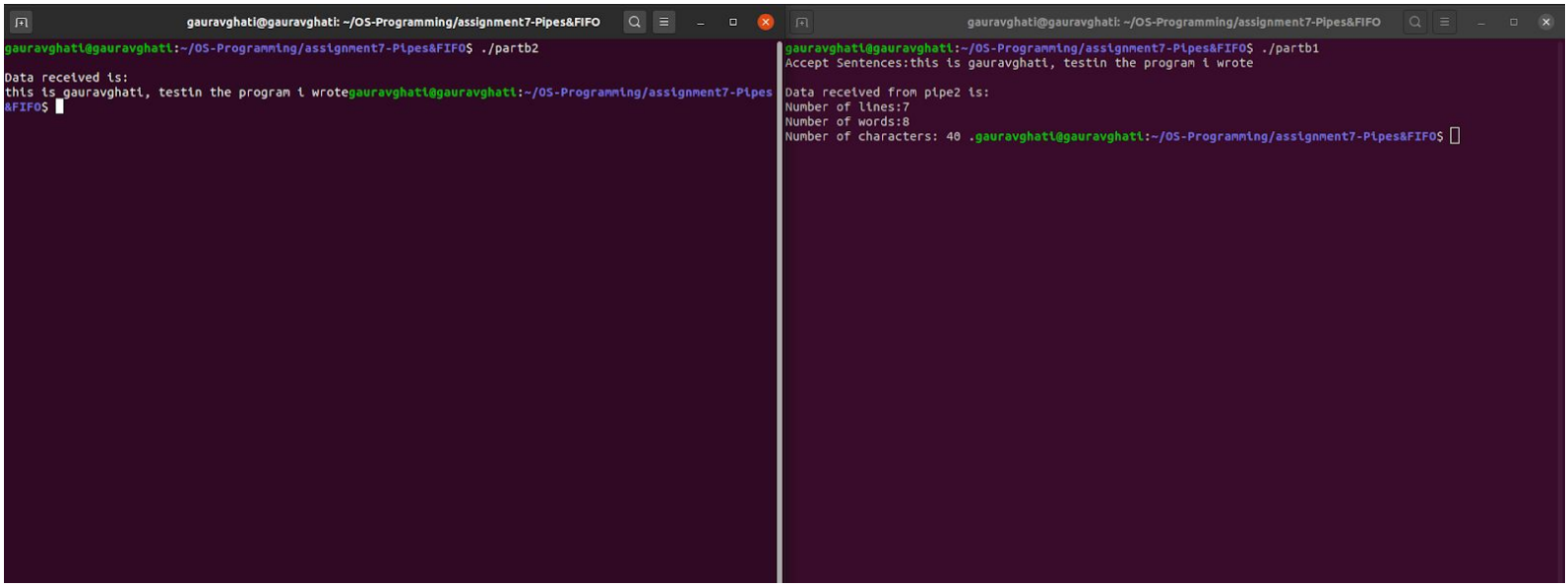
```
#include <stdio.h>
#include<sys/types.h>
#include<sys/stat.h>
#include<unistd.h>
#include<fcntl.h>
#include<sys/wait.h>
#include<stdlib.h>
int main ()
{
int fd1, fd2, i, j, k;
char buf[512];
int res = mkfifo("myfifo1",0777); //1
if(res != 0)
printf("\nError in creating FIFO\n");
printf("Accept Sentences:");
gets(buf);
fd1 = open("myfifo1", O_WRONLY);
write(fd1, buf, strlen(buf));
close(fd1);
res = mkfifo("myfifo2",0777);
if(res != 0)
printf("\nError in creating FIFO\n");
fd2=open("myfifo2",O_RDONLY);
read(fd2, buf, sizeof(buf));
printf("\nData received from pipe2 is:");
for(i=0;i<strlen(buf);i++)
printf("%c",buf[i]);

printf("\n");
close(fd2);
return 0;
}
```

Part B - 2)

```
#include<unistd.h>
#include<string.h>
#include<sys/types.h>
#include<sys/wait.h>
#include<fcntl.h>
#include<stdio.h>
#include<stdlib.h>
int main()
{
int fd2,fd1,i,j,k,chars,words,s;
char buf[512],str[512];
fd1=open("myfifo1",O_RDONLY); //1
read(fd1,buf,sizeof(buf)); //1
//2
printf("\nData received is:\n");
for(i=0;i<strlen(buf);i++)
{
printf("%c",buf[i]);
}
close(fd1);
s=0;
//2 Count characters, words , lines
for(i=0;i<strlen(buf);i++)
{
if(buf[i]==' ')
{
s++;
}
}
words = s + 1;
chars=strlen(buf)-s;
fd2=open("myfifo2",O_WRONLY); //3
//4
sprintf(str, "\nNumber of lines:%d\nNumber of words:%d\nNumber of characters: %d .", s ,
words, chars);
//5
write(fd2,str,strlen(str));
close(fd2);
return 0;
}
```

OUTPUT:


gauravghati@gauravghati: ~/OS-Programming/assignment7-Pipes&FIFO
gauravghati@gauravghati:~/OS-Programming/assignment7-Pipes&FIFO$ ./partb2
Data received is:
this is gauravghati, testin the program i wrotegauravghati@gauravghati:~/OS-Programming/assignment7-Pipes&FIFO$
gauravghati@gauravghati: ~/OS-Programming/assignment7-Pipes&FIFO
gauravghati@gauravghati:~/OS-Programming/assignment7-Pipes&FIFO$ ./partb1
Accept Sentences:this is gauravghati, testin the program i wrote
Data received from pipe2 is:
Number of lines:7
Number of words:8
Number of characters: 40 .gauravghati@gauravghati:~/OS-Programming/assignment7-Pipes&FIFO$