Aditya Pradhan OS lab 5 180905350

Q1)
Code
Producer

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/types.h>
#include<limits.h>
#include<fcntl.h>
#include<sys/msg.h>
#include<sys/stat.h>
#include<string.h>
#define FIFO_NAME "my_fifo"
#define BUFFER_SIZE 1000

int main(int argc, char *argv[]){
	int pipe_fd;
	int res;
	int open_mode=O_RDONLY;
	int n=0;
	char buffer[BUFFER_SIZE+1];
	memset(buffer,'\0',sizeof(buffer));


	printf("Process %d opening FIFO O_RDONLY\n",getpid());
	pipe_fd=open(FIFO_NAME,open_mode);
	printf("Process %d result %d\n",getpid(),pipe_fd);
	if (pipe_fd!=-1){
		do{
			res=read(pipe_fd,buffer,BUFFER_SIZE);
			printf("%s\n",buffer );
			n++;
		}while(n<4);
		(void)close(pipe_fd);
	}
	else
		exit(EXIT_FAILURE);
	printf("Process %d Finished, %d bytes read\n",getpid(),n );
	exit(EXIT_SUCCESS);

}
```

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Consumer

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/types.h>
#include<limits.h>
#include<fcntl.h>
#include<sys/msg.h>
#include<sys/stat.h>
#include<string.h>
#define FIFO_NAME "my_fifo"
#define BUFFER_SIZE 1000

int main(int argc, char *argv[]){
	int pipe_fd;
	int res;
	int open_mode=O_RDONLY;
	int n=0;
	char buffer[BUFFER_SIZE+1];
	memset(buffer,'\0',sizeof(buffer));


	printf("Process %d opening FIFO O_RDONLY\n",getpid());
	pipe_fd=open(FIFO_NAME,open_mode);
	printf("Process %d result %d\n",getpid(),pipe_fd);
	if (pipe_fd!=-1){
		do{
			res=read(pipe_fd,buffer,BUFFER_SIZE);
			printf("%s\n",buffer );
			n++;
		}while(n<4);
		(void)close(pipe_fd);
	}
	else
		exit(EXIT_FAILURE);
	printf("Process %d Finished, %d bytes read\n",getpid(),n );
	exit(EXIT_SUCCESS);

}
```

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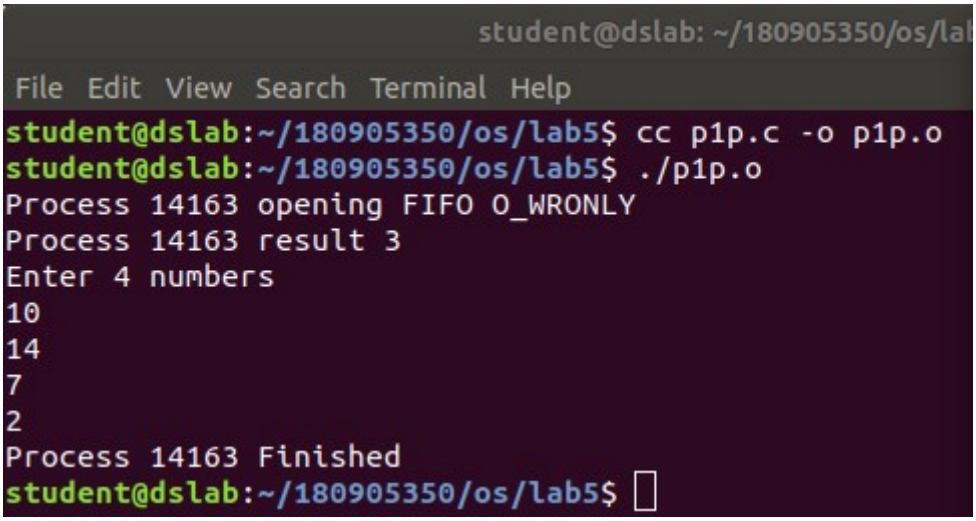
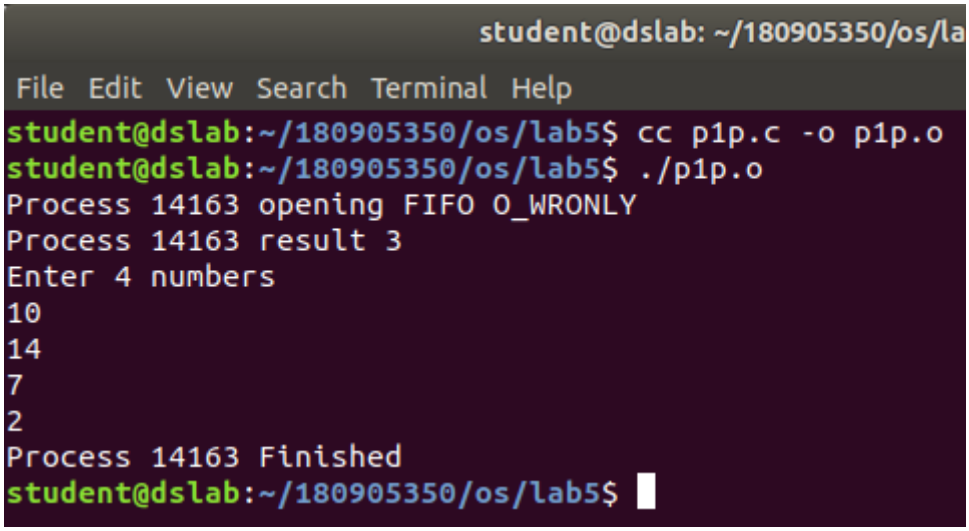
Output

Producer window



Consumer Window



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Q2)

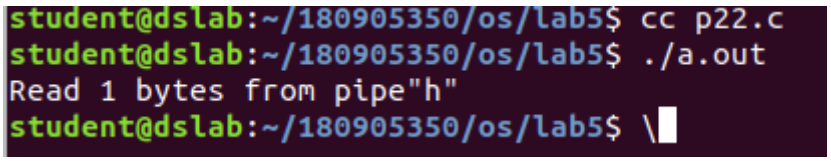
Code

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/types.h>
#include<sys/ipc.h>
#include<sys/msg.h>
#include<string.h>

int main(int argc, char *argv[]){
        int  n;
        int fd[2];
        char buf[1025];
        char *data="hello this is sample data";
        pipe(fd);
        write(fd[1],data,strlen(data));
        if(n=read(fd[0],buf,1024)>=0){
                buf[n]=0;
                printf("Read %d bytes from pipe\"%s\"\n",n,buf);

        }
        else
                perror("read");
        exit(0);
}
```

Output



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Q3)

Code
user1

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/types.h>
#include<limits.h>
#include<fcntl.h>
#include<sys/msg.h>
#include<sys/stat.h>
#include<string.h>
#define FIFO_NAME "my_fifo33"
#define BUFFER_SIZE 10000

int main(int argc, char *argv[]){
	int pipe_fd;
	int res;
	int open_mode1=O_WRONLY;
	int open_mode2=O_RDONLY;
	int n=0;
	char buffer[BUFFER_SIZE+1];
	if(access(FIFO_NAME,F_OK)==-1){
		res=mkfifo(FIFO_NAME,0777);
		if(res!=0){
			fprintf(stderr, "Could not create file%s\n",FIFO_NAME );
			exit(EXIT_FAILURE);
		}
	}
	printf("You can start chatting with user2 now\n");
	while(1){
		pipe_fd=open(FIFO_NAME,open_mode1);
		printf("\nEnter Text to send User2:  ");
		fgets(buffer,BUFFER_SIZE,stdin);
		res=write(pipe_fd,buffer,BUFFER_SIZE);

		close(pipe_fd);
		printf("Wait for user 2 reply\n");
		pipe_fd=open(FIFO_NAME,open_mode2);
		printf("\nText from User2:  ");
		res=read(pipe_fd,buffer,BUFFER_SIZE);
		printf("%s\n",buffer );
		close(pipe_fd);

	}
		(void)close(pipe_fd);
```

```
	printf("Process %d Finished\n",getpid() );
	exit(EXIT_SUCCESS);
}
```

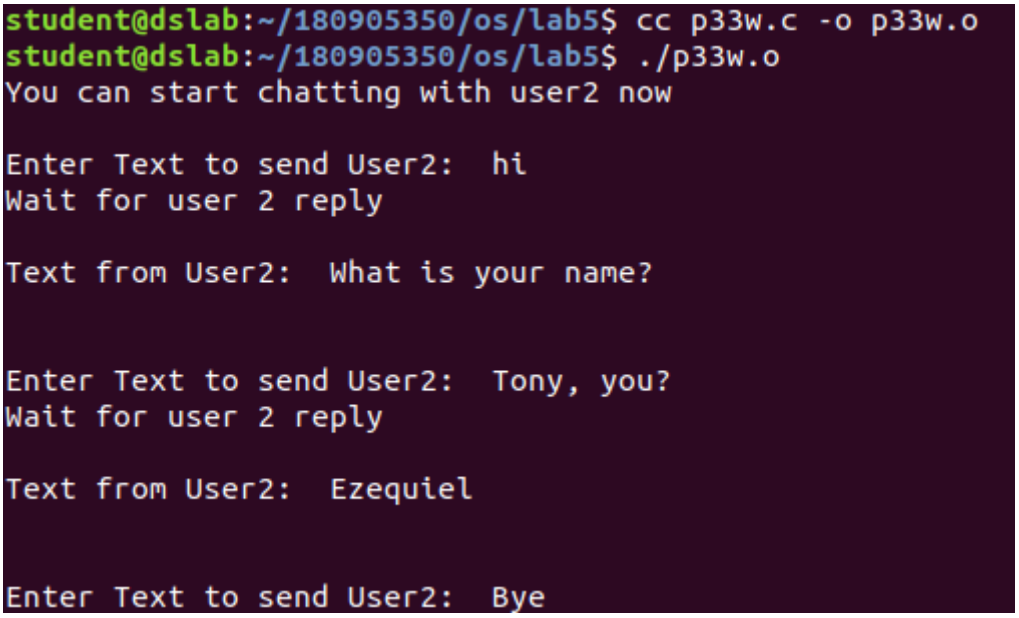
User2

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/types.h>
#include<limits.h>
#include<fcntl.h>
#include<sys/msg.h>
#include<sys/stat.h>
#include<string.h>
#define FIFO_NAME "my_fifo33"
#define BUFFER_SIZE 10000

int main(int argc, char *argv[]){
	int pipe_fd;
	int res;
	int open_mode1=O_WRONLY;
	int open_mode2=O_RDONLY;
	int n=0;
	char buffer[BUFFER_SIZE+1];
	if(access(FIFO_NAME,F_OK)==-1){
		res=mkfifo(FIFO_NAME,0777);
		if(res!=0){
			fprintf(stderr, "Could not create file%s\n",FIFO_NAME );
			exit(EXIT_FAILURE);
		}
	}
	printf("You can start chatting with user2 now\n");
	while(1){
		pipe_fd=open(FIFO_NAME,open_mode2);
		printf("\nText from User1:  ");
		res=read(pipe_fd,buffer,BUFFER_SIZE);
		printf("%s\n",buffer );
		close(pipe_fd);
		printf("Wait for user 1 reply\n");
		pipe_fd=open(FIFO_NAME,open_mode1);
		printf("\nEnter Text to send User1:  ");
		fgets(buffer,BUFFER_SIZE,stdin);
		res=write(pipe_fd,buffer,BUFFER_SIZE);

		close(pipe_fd);
```

```
        }
                (void)close(pipe_fd);


        printf("Process %d Finished\n",getpid() );
        exit(EXIT_SUCCESS);
}
```

Output

User1



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User2

```
student@dslab:~/180905350/os/lab5$ cc p33r.c -o p33r.o
student@dslab:~/180905350/os/lab5$ ./p33r.o
You can start chatting with user2 now

Text from User1:  hi

Wait for user 1 reply

Enter Text to send User1:  What is your name?

Text from User1:  Tony, you?

Wait for user 1 reply

Enter Text to send User1:  Ezequiel

Text from User1:  Bye

Wait for user 1 reply

Enter Text to send User1:  Bye
```

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Q4)
Code

```
#include <stdio.h>
int main()
{
   char ch;


   FILE *fpbr, *fpbw;

   fpbr = fopen("bin1.exe", "rb");

   if (fpbr == NULL)
   {
      puts("Input Binary file is having issues while opening");
   }

   fpbw= fopen("bin2.exe", "wb");

   if (fpbw == NULL)
   {
     puts("Output binary file is having issues while opening");
   }

   while(1)
   {
      ch = fgetc(fpbr);
      if (ch==EOF)
          break;
       else
          fputc(ch, fpbw);
    }

    fclose(fpbr);
    fclose(fpbw);

    return 0;
}
```

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Output