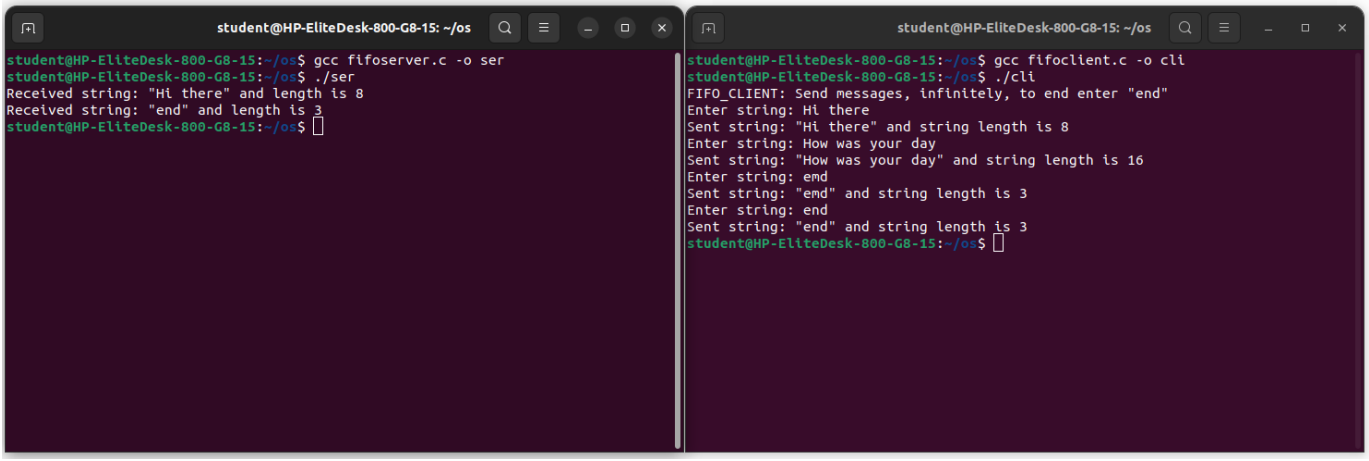
OS Lab 3

1

Server side

Client side



mknod is a system call which is used to create a special file which is used for named pipe with name MYFIFO.

An infinite while loop is used which terminates only when “end” is typed.

The client program sends a string, the server program receives the string and counts the number of characters in the string and sends the value back to the client. The client prints the string length.

2

Server file

```
#include <stdio.h>
#include <sys/stat.h>
#include <sys/types.h>
#include <fcntl.h>
#include <unistd.h>
#include <string.h>

#define FIFO_FILE "MYFIFO"
int main(){
   int fd;
   char readbuf[80];
   char end[10];
   int to_end;
   int read_bytes;
   char sbuf[80];
   int stringlen;
   int end_process;

   /*Create the FIFO if it does not exist*/
   mknod(FIFO_FILE, __S_IFIFO|0640,0);
   strcpy(end, "end");
   while (1)
   {
      fd= open(FIFO_FILE, O_RDWR);
      read_bytes= read(fd, readbuf, sizeof(readbuf));
      readbuf[read_bytes]='\0';
      printf("Received string: \"%s\" and length is %d\n", readbuf, (int)strlen(readbuf));
      for (int i=0;i<(int)strlen(readbuf);i++){
      if(readbuf[i]>='a' && readbuf[i]<='z'){
      sbuf[i]=readbuf[i]-32;}
      else{
      sbuf[i]=readbuf[i];}}


      to_end=strcmp(readbuf, end);
      if (to_end==0){
         close(fd);
         break;
      }
```

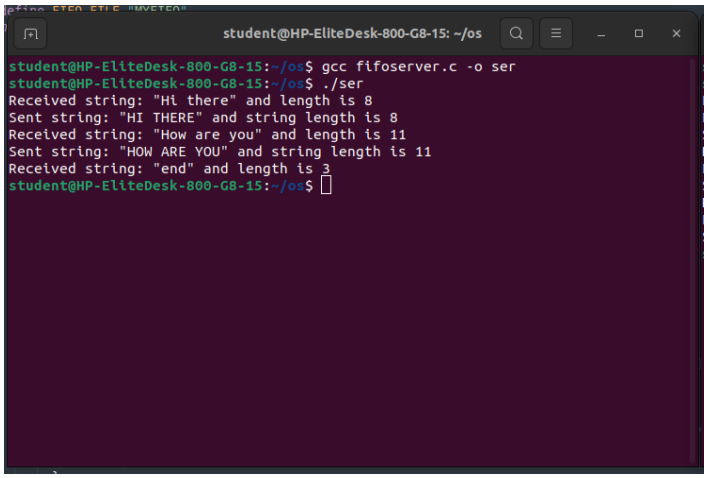
```
        stringlen = strlen(sbuf);
        sbuf[stringlen]='\0';
        end_process=strcmp(sbuf,end);
        //printf("end process is %d\n",end_process);
        if(end_process!=0){
            write(fd,sbuf,strlen(sbuf));
            printf("Sent string: \"%s\" and string length is %d \n", sbuf, (int)strlen(sbuf));
            memset(readbuf,0,strlen(readbuf));
                    memset(sbuf,0,strlen(sbuf));
        }
        else{
            write(fd,readbuf,strlen(readbuf));
            printf("Sent string: \"%s\" and string length is %d \n", sbuf, (int) strlen(sbuf));
            close(fd);
            break;
        }
    }

    return 0;

}
```

Client file

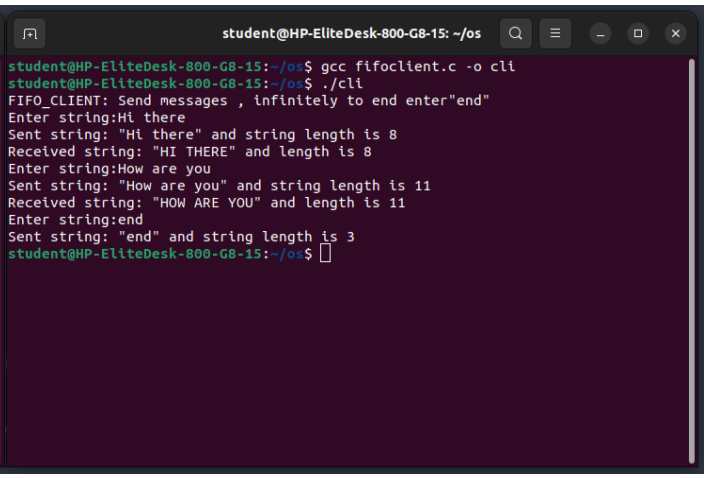
```
#include <stdio.h>
#include <sys/stat.h>
#include <sys/types.h>
#include <fcntl.h>
#include <unistd.h>
#include <string.h>

#define FIFO_FILE "MYFIFO"
int main(){
    int fd;
    int end_process;
    int stringlen;
    char readbuf[80];
    char end_str[5];
    int fd1;
    int read_bytes;
    char sbuf[80];
    printf("FIFO_CLIENT: Send messages , infinitely to end enter\"end\"\n");
```

```
fd=open(FIFO_FILE ,O_CREAT|O_RDWR);
strcpy(end_str,"end");
while(1){
    printf("Enter string:");
    fgets(readbuf, sizeof(readbuf),stdin);
    stringlen = strlen(readbuf);
    readbuf[stringlen-1]='\0';
    end_process=strcmp(readbuf,end_str);
    //printf("end process is %d\n",end_process);
    if(end_process!=0){
        write(fd,readbuf,strlen(readbuf));
        printf("Sent string: \"%s\" and string length is %d \n", readbuf, (int)strlen(readbuf));
    }
    else{
        write(fd,readbuf,strlen(readbuf));
        printf("Sent string: \"%s\" and string length is %d \n", readbuf, (int) strlen(readbuf));
        close(fd);
        break;
    }

    read_bytes= read(fd, sbuf, sizeof(sbuf));
    sbuf[read_bytes]='\0';
    printf("Received string: \"%s\" and length is %d\n", sbuf, (int)strlen(sbuf)); }

    return 0;
}
```

Server side



Client side



3

Server file

```
#include <stdio.h>
#include <sys/stat.h>
#include <sys/types.h>
#include <fcntl.h>
#include <unistd.h>
#include <string.h>
#include <stdlib.h>

#define FIFO_FILE "MYFIFO"
int main(){
   int fd;
   char readbuf[80];
   char end[10];
   int to_end;
   int read_bytes;
   char sbuf[80];
   int stringlen;
   int end_process;
   char message[50];
   int i=0;
   char ch;

   /*Create the FIFO if it does not exist*/
   mknod(FIFO_FILE, __S_IFIFO|0640,0);


      fd= open(FIFO_FILE, O_RDWR);
      read_bytes= read(fd, readbuf, sizeof(readbuf));
      readbuf[read_bytes]='\0';
      printf("Received filename: %s\n", readbuf);

     FILE *fptr;
     fptr = fopen(readbuf, "r");
      if (fptr == NULL)
      { printf("file can't be opened \n");
      strcpy(message,"file can't be opened.\n");
      write(fd, message, strlen(message) + 1);
      close(fd);
      exit(0);}
      else { while ((ch = fgetc(fptr)) != EOF)
```

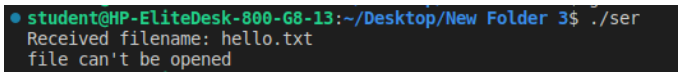
```
        { message[i] = ch; i++; }
        write(fd, message, strlen(message) + 1); }
        fclose(fptr);



    return 0;

}
```

Client file

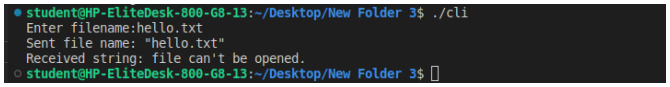
```
#include <stdio.h>
#include <sys/stat.h>
#include <sys/types.h>
#include <fcntl.h>
#include <unistd.h>
#include <string.h>

#define FIFO_FILE "MYFIFO"
int main(){
    int fd;
    int end_process;
    int stringlen;
    char readbuf[80];
    char end_str[5];
    int fd1;
    int read_bytes;
    char sbuf[80];

    fd=open(FIFO_FILE ,O_CREAT|O_RDWR);


        printf("Enter filename:");
        fgets(readbuf, sizeof(readbuf),stdin);
        stringlen = strlen(readbuf);
        readbuf[stringlen-1]='\0';
        write(fd,readbuf,strlen(readbuf));
        printf("Sent file name: \"%s\"\n",readbuf);
```

```
    read_bytes= read(fd, sbuf, sizeof(sbuf));
    sbuf[read_bytes]='\0';
    printf("Received string: %s", sbuf);

    return 0;
}
```

Server side

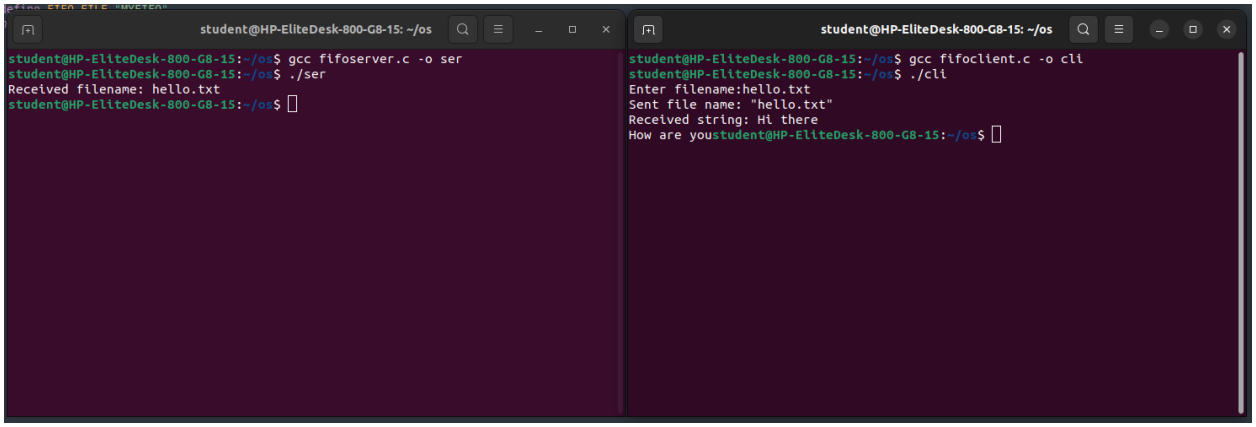


Server side



Server side

Client side



hello.txt