CS359 - Computer Network Lab

Lab 4

Socket Programming

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The folder contains three files:

1 server.c

2 client.c

3 sample.txt

Server Side Code: server.c

```c
#include<sys/socket.h>
#include<arpa/inet.h>
#include<stdio.h>
#include<unistd.h>
#include<fcntl.h>
#include<sys/types.h>
#include<string.h>
#include<stdlib.h>

int main(){

  char filebuffer[1500];
  char nameOfFile[150];

  for(int i=0;i<=150;i++){
    nameOfFile[i]='\0';
  }

  struct sockaddr_in serverAddress,clientAddress;

  int socketVar = socket(AF_INET, SOCK_DGRAM, 0);

  if(socketVar!=-1){
    printf("Socket was created successfully in  the server\n");
    }
  else{
    printf(" Socket could not be created in the server\n");
    exit(0);
    }
```

```
  bzero(&serverAddress, sizeof(serverAddress));

  serverAddress.sin_family = AF_INET;
  serverAddress.sin_addr.s_addr = INADDR_ANY;
  serverAddress.sin_port = htons(8000);
  memset(&(serverAddress.sin_zero),'\0',8);

  if(bind(socketVar, (struct sockaddr *)&serverAddress,
  sizeof(serverAddress)) != 0 ){
    printf("Cant bind\n");
  }
  else{
    printf("Binding done !\n");
  }

  int len=sizeof(clientAddress);

  while(1){
    char num;
    recvfrom(socketVar,&num,sizeof(num),0,(struct sockaddr
    *)&clientAddress, &len);

    recvfrom(socketVar,nameOfFile,1024,0,(struct sockaddr *)&clientAddress,
    &len);

    printf("NAME OF TEXT FILE RECEIVED : %s\n",nameOfFile);
    printf("Contents in the received text file : \n");
```

```
    recvfrom(socketVar,filebuffer,1024,0,(struct sockaddr *)&clientAddress,
    &len);

    printf("%s\n",filebuffer);

    memset(nameOfFile, '\0', sizeof(nameOfFile));
  }
  return(0);
}
```

Client Side Code: client.c

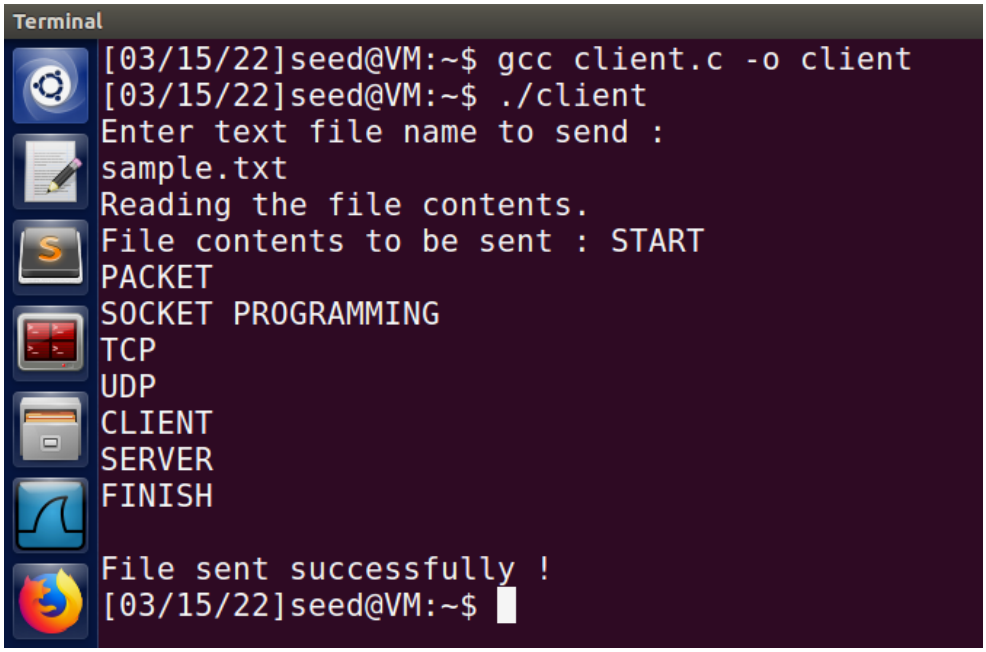
```c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main(){
  int fd;
  char nameOfFile[2000],file_buffer[2000];
  struct sockaddr_in serverAddress;

  if ( (fd = socket(AF_INET, SOCK_DGRAM, 0)) < 0 ){
    perror("Socket not created");
    exit(0);
  }

  memset(&serverAddress, 0, sizeof(serverAddress));
  bzero(&serverAddress,sizeof(serverAddress));

  serverAddress.sin_family = AF_INET;
  serverAddress.sin_port = htons(8000);
  serverAddress.sin_addr.s_addr = INADDR_ANY;
  char num='1';

  sendto(fd, &num, sizeof(num), 0,(struct sockaddr *)&serverAddress,
  sizeof(struct sockaddr));
```

```
  printf("Enter text file name to send : \n");
  scanf("%s",nameOfFile);
  sendto(fd, nameOfFile, strlen(nameOfFile), 0,(struct sockaddr
  *)&serverAddress, sizeof(struct sockaddr));

  FILE *fp;
  fp=fopen(nameOfFile,"r");

  if(fp){
    printf("Reading the file contents.\n");
    fseek(fp,0,SEEK_END);
    size_t file_size=ftell(fp);
    fseek(fp,0,SEEK_SET);
    if(fread(file_buffer,file_size,1,fp)<=0){
      printf("Unable to copy file into buffer or empty file.\n");
      exit(1);
    }
  }
  else{
    printf("File opening Failed.\n");
    exit(0);
  }
  printf("File contents to be sent : %s\n",file_buffer);
```

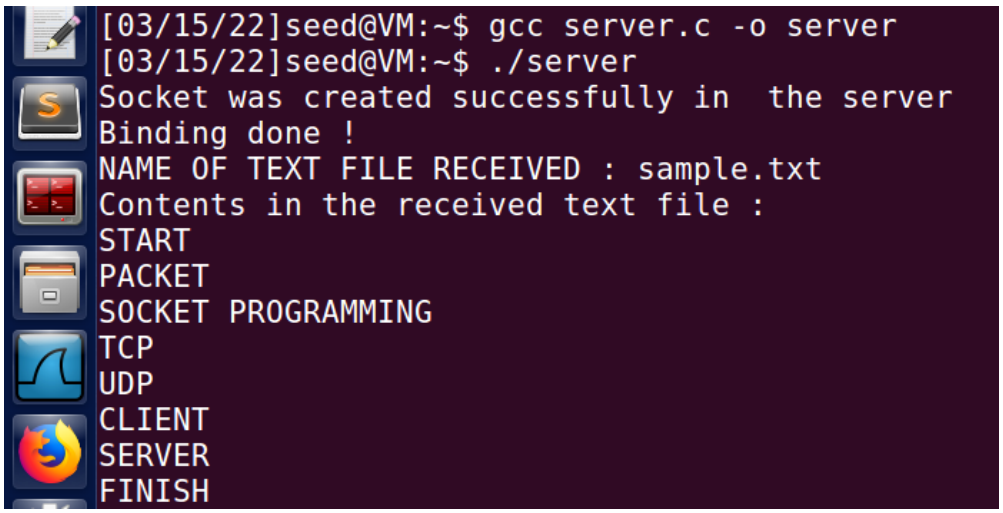
```
  if(sendto(fd, file_buffer,strlen(file_buffer), 0,(struct sockaddr
  *)&serverAddress, sizeof(struct sockaddr))<0){
    printf("ERROR: File not sent\n");
  }
  else{
    printf("File sent successfully !\n");
  }
  fclose(fp);
}
```

Output:

Client



Server



END
