Department of Computer Science and Engineering

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30 August 2020

UCS1511 - Networks Laboratory

Exercise 2: File Transfer using TCP

Objective:

Transfer a file from server to client using TCP socket programming.

Code:

Server:

```
#include<stdio.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<netinet/in.h>
#include<string.h>
#include<fcntl.h>

```

```
int main(int argc,char **argv){
    int len;
    int sockfd, newfd, n;
    struct sockaddr_in serveraddr, clientaddr;
    char buffer[1024], file_cont[1024];
    char str[1000];
    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if(sockfd < 0)
        perror("Error: Unable to create socket");

    bzero(&serveraddr, sizeof(serveraddr));

    serveraddr.sin_family = AF_INET;
    serveraddr.sin_addr.s_addr = INADDR_ANY;
    serveraddr.sin_port = htons(4500);

    if(bind(sockfd, (struct sockaddr*)&serveraddr, sizeof(
   serveraddr))<0)
        perror("Bind error");

    printf("\nWaiting for Client...\n");
    listen(sockfd, 2);

    len = sizeof(clientaddr);
    newfd = accept(sockfd, (struct sockaddr*)&clientaddr, &
   len);

    //Receiving the message
    n = read(newfd, buffer, sizeof(buffer));
    printf("\nFile to be transferred to Client: %s\n", buffer
   );

    int sourcefd = open(buffer, O_RDONLY);
    if(sourcefd == -1){
        printf("\nNo source file");
    }
    else{
        int readfd = read(sourcefd, file_cont, sizeof(
   file_cont));
        file_cont[readfd] = '\0';
        int w = write(newfd, file_cont, sizeof(file_cont));
        close(sourcefd);
    }
    printf("\n File successfully transferred\n");
    close(sockfd);
    close(newfd);
    return 0;
}
```

Client:

```
#include<stdio.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<netinet/in.h>
#include<string.h>
#include<fcntl.h>

int main(int argc,char** argv){
    int len;
    int sockfd, n;
    struct sockaddr_in serveraddr, clientaddr;
    char str[1000];
    char buffer[1024], file_cont[1024];

    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if(sockfd < 0)
        perror("Error: Unable to create socket");

    bzero(&serveraddr, sizeof(serveraddr));

    serveraddr.sin_family = AF_INET;
    serveraddr.sin_addr.s_addr = inet_addr(argv[1]);
    serveraddr.sin_port = htons(4500);

    if(bind(sockfd, (struct sockaddr*)&serveraddr, sizeof(serveraddr))<0)
        perror("Bind error");

    connect(sockfd, (struct sockaddr*)&serveraddr, sizeof(serveraddr));
    //Sending Message
    len = sizeof(clientaddr);

    printf("Enter the path of file: ");scanf(" %[^\n]", buffer);
    n = write(sockfd, buffer, sizeof(buffer));

    listen(sockfd, 2);
    printf("\nFile successfully received\n");

    int r = read(sockfd, file_cont, sizeof(file_cont));
    printf("\nFile contents: %s\n", file_cont);

    int destfd = open("dest.txt", O_RDWR|O_CREAT);
    if(destfd == -1){
        printf("\nUnable to create destination file\n");
    }
    else{
        int writefd = write(destfd, file_cont, sizeof(
   file_cont));
        close(destfd);
        printf("\nFile Saved at: dest.txt\n");
    }
    close(sockfd);
    return 0;
}
```

Output:

Server:

```
Waiting for Client...

File to be transferred to Client: ./source.txt

File successfully transferred
```

Client:

```
Enter the path of file: ./source.txt

File successfully received

File contents: hi this is from ssn cse
hello world
123
456
789
000

File Saved at: ./dest.txt
```