EX3 – FILE TRANSFER USING TCP

- S. Vishakan CSE - C 18 5001 196

Server Program:

```
#include <stdio.h>
#include <unistd.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 sockfd, flag, newfd, i = 0, len;
struct sockaddr in server, client;
FILE *fp;
char file name[100];
char buffer[1024];
sockfd = socket(AF_INET, SOCK_STREAM, 0);
if(sockfd < 0){
perror("\nSocket cannot be created.");
exit(0);
}
bzero(&server, sizeof(server));
server.sin family = AF INET;
server.sin addr.s addr = INADDR ANY;
server.sin port = htons(7228);
if(bind(sockfd, (struct sockaddr*)&server, sizeof(server)) < 0){</pre>
perror("\nBind error occurred.");
exit(0);
}
printf("Waiting for client...\n");
listen(sockfd, 2);
len = sizeof(client);
newfd = accept(sockfd, (struct sockaddr*)&client, &len);
flag = read(newfd, file name, sizeof(file name));
```

```
printf("File to be read: %s", file_name);

fp = open(file_name, O_RDONLY); //Open the specified file in read-only mode

if(fp < 0) { //If file does not exist.
    perror("\nSpecified file could not be found.\n");
    strcpy("Error 404", buffer);
    return 1;
    }

else {
    len = read(fp, buffer, 1024); //len stores the no. of characters read by read()
    close(fp);

flag = write(newfd, buffer, len);
    printf("\nFile contents transferred.\n");
    }
    close(newfd);
    close(sockfd);

return 0;
}</pre>
```

Output:

```
File Edit View Search Terminal Help
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$ cat sample.txt
Computer Networks
Behrouz A Fourzan
TCP Protocol
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$ gcc Server.c -o s -w
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$ ./s
Waiting for client...
File to be read: sample.txt
File contents transferred.
(base) vishakan@Legion:~/Desktop/Semester V/Practical/Computer Networks/Ex03$
```

Client Program:

```
#include <stdio.h>
#include <unistd.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 sockfd, flag, i = 0, len;
struct sockaddr in server, client;
FILE *fp;
char file name[100];
char buffer[1024];
sockfd = socket(AF INET, SOCK STREAM, 0);
if(sockfd < 0){
perror("\nSocket cannot be created.");
exit(0);
}
bzero(&server, sizeof(server));
server.sin family = AF INET;
server.sin addr.s addr = inet addr(argv[1]);
server.sin port = htons(7228);
printf("\nEnter the File Location: ");
scanf(" %[^\n]", file_name);
connect(sockfd, (struct sockaddr*)&server, sizeof(server));
flag = write(sockfd, file name, sizeof(file name));
flag = read(sockfd, buffer, sizeof(buffer));
if(strcmp(buffer, "Error 404") == 0){ //if file was not found
printf("File %s was not found.\n", file name);
close(sockfd);
exit(0);
}
printf("File contents transferred.");
fp = open("newfile.txt", O WRONLY|O CREAT, S IRWXU);
//create a newfile to store the content in client machine with proper permissions
len = strlen(buffer);
```

```
write(fp, buffer, len);
close(fp);
printf("\nContents of %s written to \"newfile.txt.\"\n", file_name);
close(sockfd);
return 0;
}
```

Output:

```
vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03 - x

File Edit View Search Terminal Help
(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$ gcc Client.c -o c -w
(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$ ./c 127.0.0.1

Enter the File Location: sample.txt
File contents transferred.
Contents of sample.txt written to "newfile.txt."
(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$ cat sample.txt
Computer Networks
Behrouz A Fourzan
TCP Protocol
(base) vishakan@Legion: ~/Desktop/Semester V/Practical/Computer Networks/Ex03$
```