EX3 – FILE TRANSFER USING TCP

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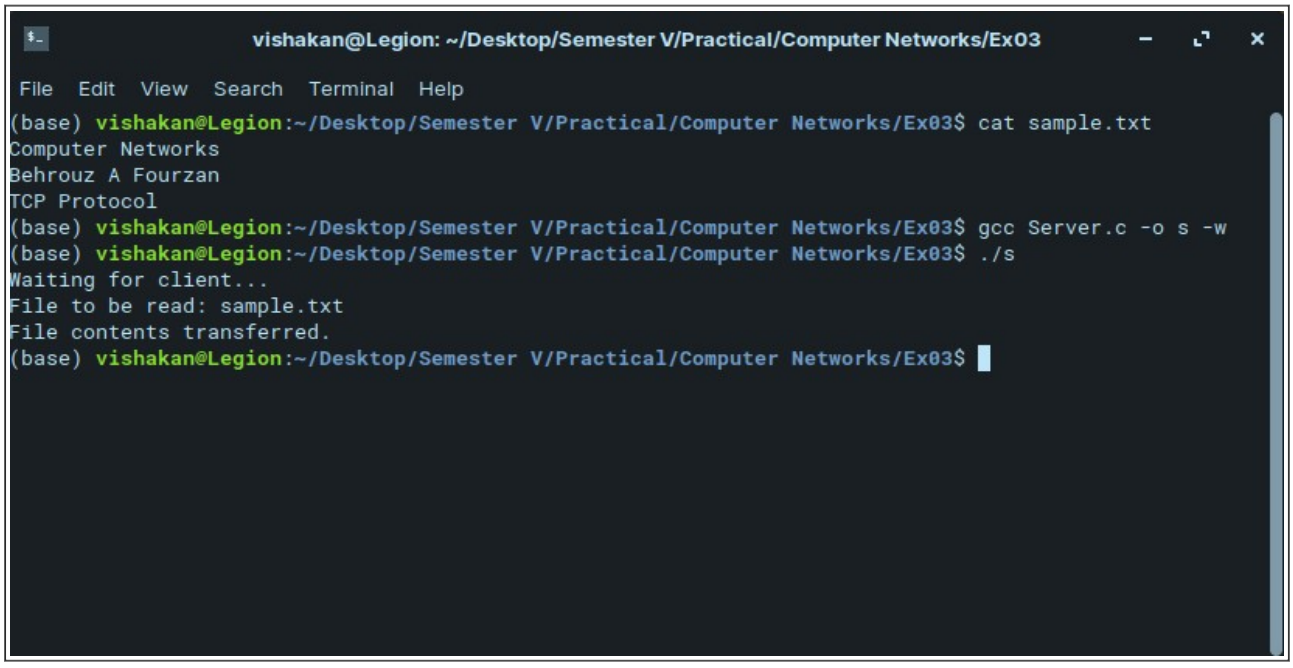
Server Program:

```
#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){
                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;
}
```

Output:



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: