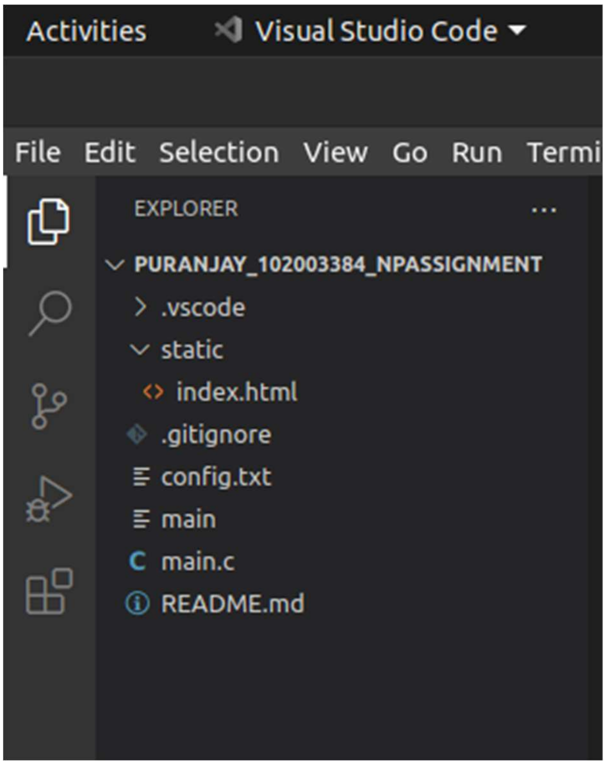
1. **Roll number: 102003384**
2. **Name: Puranjay Singh**
3. **Group No: 3CO9**

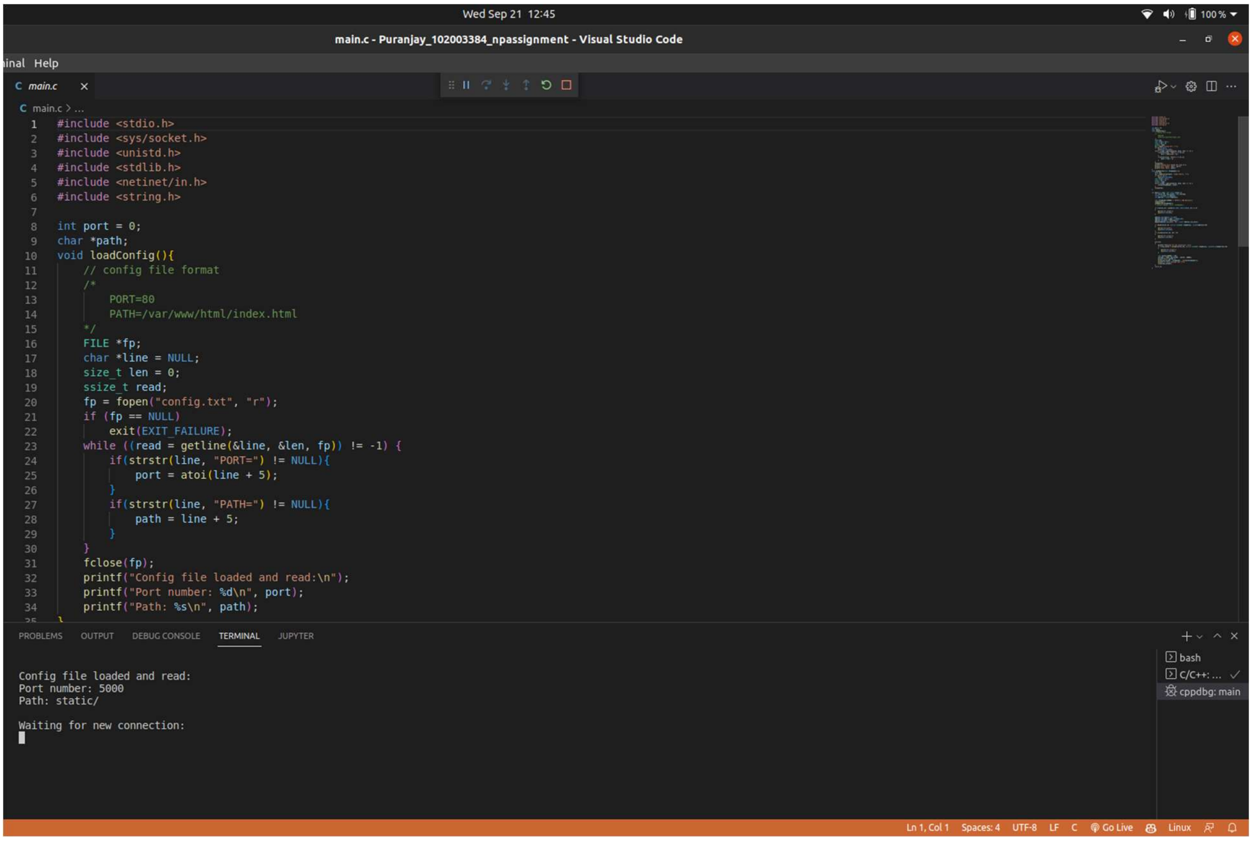
4. **Output Screenshots:**

a. Directory structure of the server



```
PURANJAY_102003384_NPASSIGNMENT
  > .vscode
  v static
     index.html
  .gitignore
  config.txt
  main
  main.c
  README.md
```

b. Running code waiting for connection



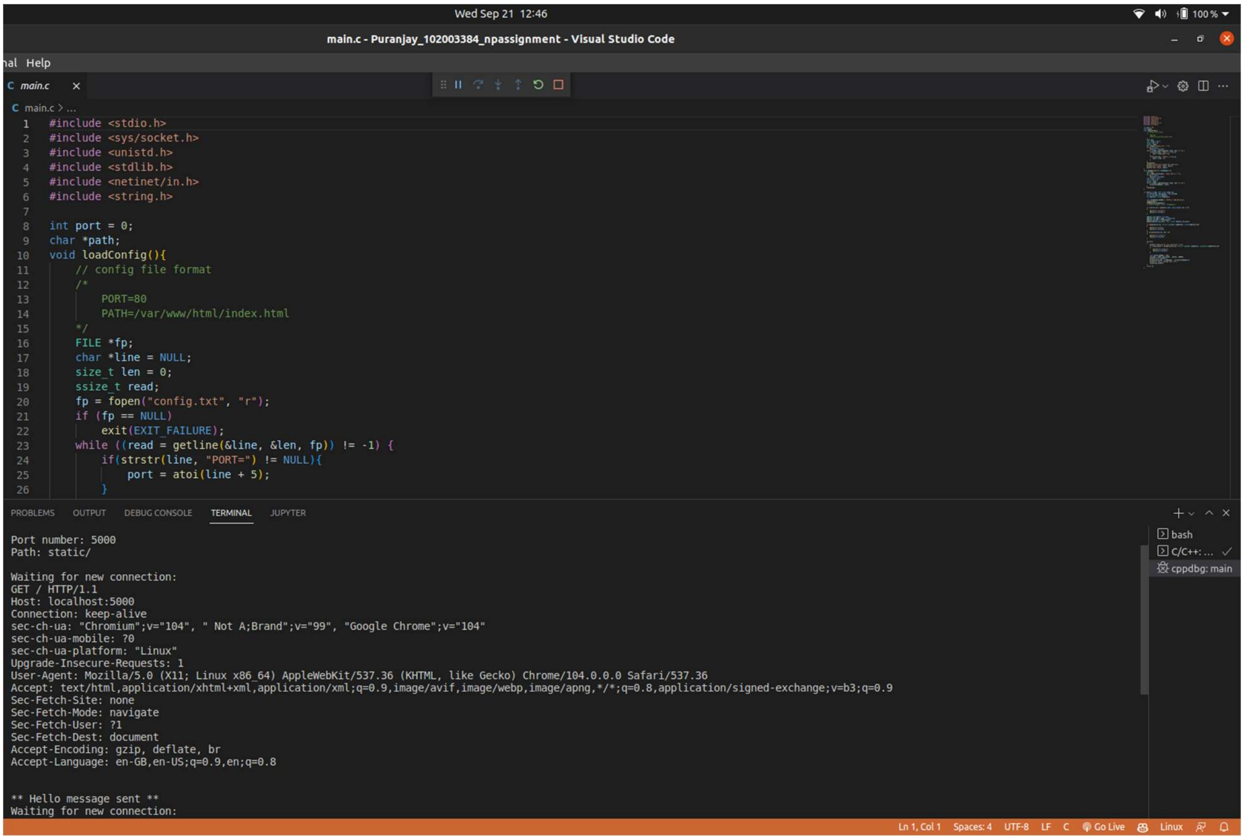
```c
#include <stdio.h>
#include <sys/socket.h>
#include <unistd.h>
#include <stdlib.h>
#include <netinet/in.h>
#include <string.h>

int port = 0;
char *path;
void loadConfig(){
    // config file format
    /*
        PORT=80
        PATH=/var/www/html/index.html
    */
    FILE *fp;
    char *line = NULL;
    size_t len = 0;
    ssize_t read;
    fp = fopen("config.txt", "r");
    if (fp == NULL)
        exit(EXIT_FAILURE);
    while ((read = getline(&line, &len, fp)) != -1) {
        if(strstr(line, "PORT=") != NULL){
            port = atoi(line + 5);
        }
        if(strstr(line, "PATH=") != NULL){
            path = line + 5;
        }
    }
    fclose(fp);
    printf("Config file loaded and read:\n");
    printf("Port number: %d\n", port);
    printf("Path: %s\n", path);
```

```
Config file loaded and read:
Port number: 5000
Path: static/

Waiting for new connection:
```

c. After accepting a connection



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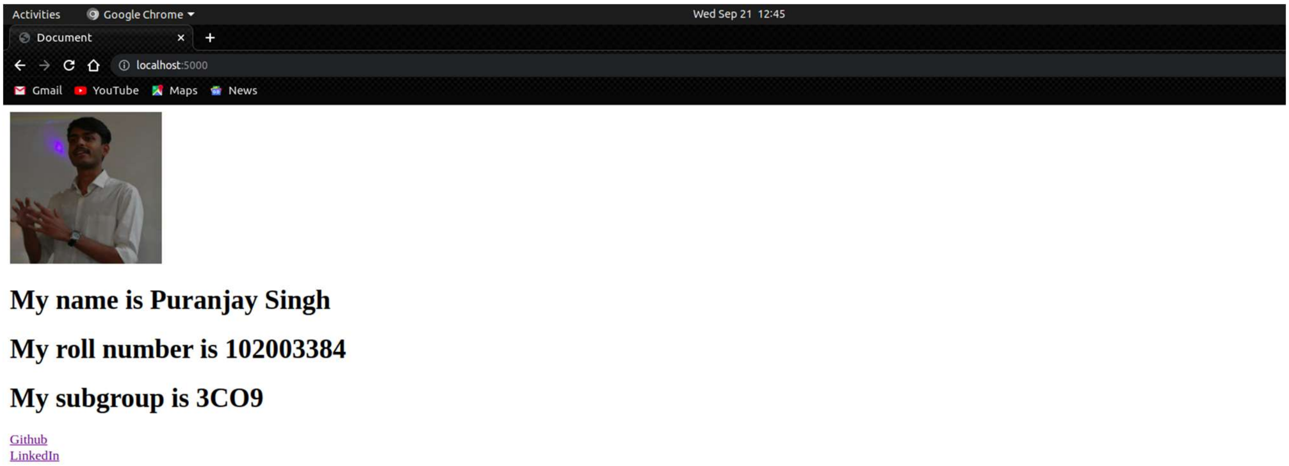
    FILE *fp;
    char *line = NULL;
    size_t len = 0;
    ssize_t read;
    fp = fopen("config.txt", "r");
    if (fp == NULL)
        exit(EXIT_FAILURE);
    while ((read = getline(&line, &len, fp)) != -1) {
        if(strstr(line, "PORT=") != NULL){
            port = atoi(line + 5);
        }
```

```
Port number: 5000
Path: static/

Waiting for new connection:
GET / HTTP/1.1
Host: localhost:5000
Connection: keep-alive
sec-ch-ua: "Chromium";v="104", " Not A;Brand";v="99", "Google Chrome";v="104"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Linux"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/104.0.0.0 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-GB,en-US;q=0.9,en;q=0.8


** Hello message sent **
Waiting for new connection:
```

d. Output page



My name is Puranjay Singh

My roll number is 102003384

My subgroup is 3CO9

Github
LinkedIn

5. Running code:

a. main.c(server code)

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

int port = 0;
char *path;
void loadConfig(){
    // config file format
    /*
        PORT=80
        PATH=/var/www/html/index.html
    */
    FILE *fp;
    char *line = NULL;
    size_t len = 0;
    ssize_t read;
    fp = fopen("config.txt", "r");
    if (fp == NULL)
        exit(EXIT_FAILURE);
    while ((read = getline(&line, &len, fp)) != -1) {
        if(strstr(line, "PORT=") != NULL){
            port = atoi(line + 5);
        }
        if(strstr(line, "PATH=") != NULL){
            path = line + 5;
        }
    }
    fclose(fp);
    printf("Config file loaded and read:\n");
    printf("Port number: %d\n", port);
    printf("Path: %s\n", path);
}
void setUpServer(char httpHeader[]){
    FILE *fp;
    fp = fopen(strcat(path, "index.html"), "r");
    if (fp == NULL)
        exit(EXIT_FAILURE);
    char *line = NULL;
    size_t len = 0;
    ssize_t read;
    while ((read = getline(&line, &len, fp)) != -1) {
        strcat(httpHeader, line);
    }
    fclose(fp);
}

int main(int argc, char const *argv[]){
    int server_fd, new_socket; long valread;
    struct sockaddr_in address;
    int addrlen = sizeof(address);
    char httpHeader[50000] = "HTTP/1.1 200 OK\r\n\n";
    loadConfig();
    setUpServer(httpHeader);
    // printf("Header: %s\n", httpHeader);

    if ((server_fd = socket(AF_INET, SOCK_STREAM, 0)) ==
0)
    {
        perror("In socket");
        exit(EXIT_FAILURE);
    }

    address.sin_family = AF_INET;
    address.sin_addr.s_addr = INADDR_ANY;
    address.sin_port = htons(port);
    memset(address.sin_zero, '\0', sizeof address.sin_zero);

    if (bind(server_fd, (struct sockaddr *)&address,
sizeof(address))<0)
    {
        perror("In bind");
        exit(EXIT_FAILURE);
    }
    if (listen(server_fd, 10) < 0)
    {
        perror("In listen");
        exit(EXIT_FAILURE);
    }

    while(1)
    {
        printf("\nWaiting for new connection: \n");
        if ((new_socket = accept(server_fd, (struct sockaddr
*)&address, (socklen_t*)&addrlen))<0)
```

```
        {
            perror("In accept");
            exit(EXIT_FAILURE);
        }

        char buffer[30000] = {0};
        valread = read( new_socket , buffer, 30000);
        printf("%s\n",buffer );
        write(new_socket , httpHeader , strlen(httpHeader));
        printf("** Hello message sent **");
        close(new_socket);
    }
    return 0;
}
```

b. config file

```
PORT=5000
PATH=static/
```

c. index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <a href="https://ibb.co/LrpZkqZ"><img src="https://i.ibb.co/LrpZkqZ/DSC-8152.jpg" alt="DSC-8152" border="0"></a>
    <br>
    <h1>My name is Puranjay Singh</h1>
    <h1>My roll number is 102003384</h1>
    <h1>My subgroup is 3CO9</h1>
    <a href="https://github.com/purjaysin">Github</a>
    <br>
    <a href="https://www.linkedin.com/in/singhpuranjay/">LinkedIn</a>
</body>
</html>
```