README
Name of the C compiler used: **gcc** → This gcc is linked to clang-902.0.39.2 on Apple

Command used to compile: **gcc –o partC assign1CClient.c**

NOTE*
The connection to ftp.ietf.org is very slow. Hence, I had installed an FTP server on my Ubuntu VM. The IP address for that VM is 192.168.1.127. I have provided some screenshots of the communication with the FTP server.

Explanation of Functions
In general, the program serves to achieve the following basic functionalities of an FTP client program:

1) It allows user to connect to an FTP server.

```
[[Dheerajaraj:CS3103/Assignments and HW/A0135769N-Assignment1] dheeraj% ./partC
Please Enter the IP address that you want to connect to: 192.168.1.127

 I am conneted to (192.168.1.127 , 21)220 (vsFTPd 3.0.3)

*********************************************
*************** MINI-FTP Client **************
*********************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
1
Enter username:
dheeraj
Enter Password:
Venkat1972

331 Please specify the password.

230 Login successful.
```

2) It allows user to print the working directory of the remote FTP server.

```
************************************************
*************** MINI-FTP Client **************
************************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
2

257 "/home/dheeraj" is the current directory
```

The current directory in the server is printed on the last line.

3) It allows user to navigate through the directories in the remote FTP server.

```
**************************************************
*************** MINI-FTP Client **************
**************************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
3
Please enter the new directory: Desktop

250 Directory successfully changed.
**************************************************
*************** MINI-FTP Client **************
**************************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
2

257 "/home/dheeraj/Desktop" is the current directory
```

Directory has been changed to Desktop when user inputs option 3. Then to check the current directory, user chooses option 2.

4) It allows user to list all the files in the directory of the FTP server.

```
Please Enter an option:
4

229 Entering Extended Passive Mode (||||17712|)


150 Here comes the directory listing.

 I am conneted to (192.168.1.127 , 17712)
drwxr-xr-x    2 1000     1000             4096 Sep 27 22:11 Desktop
drwxr-xr-x    2 1000     1000             4096 Aug 23 10:19 Documents
drwxr-xr-x    2 1000     1000             4096 Aug 23 10:19 Downloads
drwxr-xr-x    2 1000     1000             4096 Aug 25 11:17 Music
drwxr-xr-x    2 1000     1000             4096 Aug 23 10:19 Pictures
drwxr-xr-x    2 1000     1000             4096 Aug 23 10:19 Public
drwxr-xr-x    2 1000     1000             4096 Aug 23 10:19 Templates
drwxr-xr-x    2 1000     1000             4096 Aug 23 10:19 Videos
-rw-rw-r--    1 1000     1000                8 Sep 25 23:01 dheeraj.txt
-rw-r--r--    1 1000     1000             8980 Aug 23 10:16 examples.desktop
drwxrwsrwt    2 1000     1000             4096 Aug 26 13:34 permTest

Exited child process

226 Directory send OK.
```

5) It allows user to upload files from local host to the remote host

```
************************************************
*************** MINI-FTP Client **************
************************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
5
Please enter the absolute file path or file name: upload.txt

229 Entering Extended Passive Mode (||||48396|)

 I am conneted to (192.168.1.127 , 48396)trk: upload.txtExited child process

150 Ok to send data.


226 Transfer complete.
```

The figure above shows the transfer of the file upload.txt from the local server to the remote server. The figure below shows screenshot of Ubuntu desktop. At the first ls command, there is no upload.txt. After uploading upload.txt through FTP client, the upload.txt appears after second ls command. The data inside upload.txt is also preserved.

```
dheeraj@dheeraj-VirtualBox: ~
dheeraj@dheeraj-VirtualBox:~$ ls
Desktop     Downloads        Music      Pictures   Templates
Documents   examples.desktop permTest    Public     Videos
dheeraj@dheeraj-VirtualBox:~$ ls
Desktop     examples.desktop  Pictures    upload.txt
Documents   Music             Public      Videos
Downloads   permTest          Templates
dheeraj@dheeraj-VirtualBox:~$ cat upload.txt
I am going to upload this file to the FTP server. Stop me if you c
an muhahahaha
dheeraj@dheeraj-VirtualBox:~$ 
```

6) It allows user to download files from the remote server to current directory in the local host.

```
*************************************************
*************** MINI-FTP Client **************
*************************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
6
Please enter the file name: funnyQuotes.txt

229 Entering Extended Passive Mode (||||17292|)


150 Opening BINARY mode data connection for funnyQuotes.txt (259 bytes).

 I am conneted to (192.168.1.127 , 17292)
Here are some funny quotes:
1) Roses are red, Violets are blue, sugar is sweet, so are you
2) Keep the dream alive and hit the snooze button
3) All my life I thought air was free, until I bought a bag of chips
4) When life hands you lemons, you make lemonade

Exited child process

226 Transfer complete.
```

Download is completed and new file with the same name and data as the file in the server will be created locally.

7) It allows user to exit the application.

```
***********************************************
************** MINI-FTP Client **************
***********************************************
1. Connect to FTP server
2. Print working directory
3. Change working directory
4. List all files
5. Upload file
6. Download file
7. Quit

Please Enter an option:
7
[Dheerajaraj:CS3103/Assignments and HW/A0135769N-Assignment1] dheeraj%
```