

Description	Input	Client output	Server output	Pass?
Normal Login	USER bob PASS donuts	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed.	Successful username verification  Successful login	yes
Attempted login with an invalid username	USER sam PASS donuts	USER sam 530 Not logged in. PASS donuts 530 Not logged in.		yes
Attempted login with an invalid password	USER bob PASS cake	USER bob 331 Username OK, need password. PASS cake 530 Not logged in.	Successful username verification	yes
Attempted STOR without login	STOR beasts.pdf	STOR beasts.pdf 530 Not logged in.		yes
STOR after login (pdf)	USER bob PASS donuts  STOR beasts.pdf	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. STOR beasts.pdf 200 PORT command successful 150 File status okay; about to open data	Successful username verification  Successful login  Port received: 127,0,0,1,206,175  File okay, beginning data connections  Connecting to	yes

		connection 226 Transfer complete.	Client Transfer Socket... Connection Successful 226 Transfer complete.	
STOR after login (jpg)	USER bob PASS donuts  STOR harrypotter.jpg	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. STOR harrypotter.jpg 200 PORT command successful 150 File status okay; about to open data connection 226 Transfer complete.	Successful username verification  Successful login  Port received: 127,0,0,1,206,2 15  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.	yes
STOR after login (csv)	USER bob PASS donuts  STOR magic_items.csv	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. STOR magic_items.csv 200 PORT command successful 150 File status okay; about to open data connection 226 Transfer complete.	Successful username verification  Successful login  Port received: 127,0,0,1,206,2 16  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.	yes

STOR after login (docx)	<p>USER bob PASS donuts</p> <p>STOR spells.docx</p>	<p>USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. STOR spells.docx 200 PORT command successful 150 File status okay; about to open data connection 226 Transfer complete.</p>	<p>Successful username verification</p> <p>Successful login</p> <p>Port received: 127,0,0,1,206,216</p> <p>File okay, beginning data connections</p> <p>Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.</p>	yes
STOR after login but with a CWD to store in 'images' subdirectory (jpg)	<p>USER bob PASS donuts</p> <p>CWD images STOR harrypotter.jpg</p>	<p>USER bob PASS donuts 331 Username OK, need password. 230 User logged in, proceed. CWD images 200 directory changed to /Users/aliabdullahjafri/Desktop/UNIDOCS/Computer Networks/NetworksProject1/server/./server/bob/images STOR harrypotter.jpg 200 PORT command successful 150 File status okay; about to</p>	<p>Successful username verification</p> <p>Successful login</p> <p>Port received: 127,0,0,1,207,29</p> <p>File okay, beginning data connections</p> <p>Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.</p>	yes

		open data connection 226 Transfer complete.		
STOR after login but with a CWD to store in nonexistent 'images123' subdirectory (jpg)	USER bob PASS donuts  CWD images123 STOR harrypotter.jpg	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. CWD images123 200 directory changed to /Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/server/./server/bob/images123 STOR harrypotter.jpg 200 PORT command successful 150 File status okay; about to open data connection -	Successful username verification  Successful login  Port received: 127,0,0,1,207,42  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful Error in creating file.: No such file or directory Closed!	yes
STOR after login (but with a file that doesn't exist in the client directory)	USER bob PASS donuts  STOR beasts123.pdf	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. STOR beasts123.pdf 200 PORT command successful 150 File status	Successful username verification  Successful login  Port received: 127,0,0,1,207,50  File okay, beginning data connections	yes

		okay; about to open data connection 550 No such file or directory.	Connecting to Client Transfer Socket... Connection Successful Issue with file	
Attempted RETR without login	RETR friends.pdf	RETR friends.pdf 530 Not logged in.		yes
RETR after login (pdf)	USER harry PASS pass  RETR friends.pdf	USER harry 331 Username OK, need password. PASS pass 230 User logged in, proceed. RETR friends.pdf 200 PORT command successful 150 File status okay; about to open data connection 226 Transfer complete.	Successful username verification  Successful login  Port received: 127,0,0,1,207,63  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.	yes
RETR after login (docx)	USER harry PASS pass  RETR bio.docx	USER harry 331 Username OK, need password. PASS pass 230 User logged in, proceed. RETR bio.docx 200 PORT command successful 150 File status okay; about to	Successful username verification  Successful login  Port received: 127,0,0,1,207,68  File okay, beginning data connections	yes

		open data connection 226 Transfer complete.	Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.	
RETR after login with a CWD to access the 'images' directory (png)	USER bob PASS donuts  CWD images RETR gryffindor.png	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. CWD images 200 directory changed to /Users/aliabdulla hjafr/Deskto/p/NIDOCs/Computer Networks/NetworksProject1/server/./server/bob/images RETR gryffindor.png 200 PORT command successful 150 File status okay; about to open data connection 226 Transfer complete.	Successful username verification  Successful login  Port received: 127,0,0,1,207,69  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.	yes
RETR after login with a CWD to access the 'images' directory (jpg)	USER bob PASS donuts  CWD images RETR slytherin.jpg	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. CWD images 200 directory	Successful username verification  Successful login  Port received: 127,0,0,1,207,70	yes

		<p>changed to /Users/aliabdulla hjafr/Desktp/U NIDOCS/Compu ter Networks/Netwo rksProject1/serv er/./server/bob/i mages RETR slytherin.jpg 200 PORT command successful 150 File status okay; about to open data connection 226 Transfer complete.</p>	<p>File okay, beginning data connections</p> <p>Connecting to Client Transfer Socket... Connection Successful 226 Transfer complete.</p>	
RETR after login with a CWD to access the nonexistent 'images123' directory (jpg)	<p>USER bob PASS donuts</p> <p>CWD images123 RETR slytherin.jpg</p>	<p>USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. cwd images123 202 Command not implemented. CWD images123 200 directory changed to /Users/aliabdulla hjafr/Desktp/U NIDOCS/Compu ter Networks/Netwo rksProject1/serv er/./server/bob/i mages123 RETR slytherin.jpg 200 PORT command successful 150 File status</p>	<p>Successful username verification</p> <p>Successful login</p> <p>Port received: 127,0,0,1,207,8 9</p> <p>File okay, beginning data connections</p> <p>Connecting to Client Transfer Socket... Connection Successful Issue with file</p>	yes

		okay; about to open data connection 550 No such file or directory.		
LIST before login	LIST	LIST 530 Not logged in.		yes
!LIST before login	!LIST	!LIST magic_items.csv potion.txt slytherin.jpg client2 spells.docx friends.pdf bio.docx harrypotter.jpg gryffindor.png beasts.pdf		yes
LIST after login	USER bob PASS donuts  LIST	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. LIST 200 PORT command successful 150 File status okay; about to open data connection .DS_Store magic_items.csv images spells.docx harrypotter.jpg  226 Transfer completed.	Successful username verification  Successful login  Port received: 127,0,0,1,207,92  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful Listing directory 226 Transfer complete.	yes



!LIST after login	USER bob PASS donuts  !LIST	!LIST magic_items.csv potion.txt slytherin.jpg client2 spells.docx friends.pdf bio.docx harrypotter.jpg gryffindor.png beasts.pdf		yes
LIST after login and after CWD to 'images' directory	USER bob PASS donuts  CWD images LIST	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. CWD images 200 directory changed to /Users/aliabdulla hjafr/Deskto/p NIDOCs/Compu ter Networks/Netwo rksProject1/serv er/./server/bob/i mages LIST 200 PORT command successful 150 File status okay; about to open data connection slytherin.jpg ravenclaw.jpg harrypotter.jpg gryffindor.png hufflepuff.png  226 Transfer completed.	Successful username verification  Successful login  Port received: 127,0,0,1,207,1 22  File okay, beginning data connections  Connecting to Client Transfer Socket... Connection Successful Listing directory 226 Transfer complete.	yes
!CWD after login	USER bob	USER bob	Successful	yes

to /code directory (using !LIST to verify)	PASS donuts !CWD ../code !LIST	331 Username OK, need password. PASS donuts 230 User logged in, proceed. !CWD ../code Local directory: /Users/aliabdulla hjafri/Desktop/UNIDOCS/Computer Networks/NetworksProject1/client/./client/./code !LIST .DS_Store server server.c client.c client	username verification  Successful login	
!CWD after login to invalid directory '../test123' (using !LIST to verify)	USER bob PASS donuts !CWD ../test123 !LIST	USER bob 331 Username OK, need password. PASS donuts 230 User logged in, proceed. !CWD ../test123 Local directory: /Users/aliabdulla hjafri/Desktop/UNIDOCS/Computer Networks/NetworksProject1/client/./client/./test123 !LIST	Successful username verification  Successful login	yes
PWD before login	PWD	PWD 530 Not logged in.		yes
PWD after login	USER bob PASS donuts	USER bob PASS donuts	Successful username	yes

	PWD	331 Username OK, need password. 230 User logged in, proceed. PWD 257 "/Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/server/./server/bob" is the current directory.	verification  Successful login	
!PWD before login	!PWD	!PWD /Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/client/./client		yes
!PWD after login	USER bob PASS donuts  !PWD	USER bob PASS donuts 331 Username OK, need password. 230 User logged in, proceed. !PWD /Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/client/./client		yes

Simultaneous users test:

Server

```
Connection established with user 5
Their port: 53520

Connection established with user 6
Their port: 53522

Successful username verification

Successful login

Successful username verification

Successful login

Port received: 127,0,0,1,209,17

File okay, beginning data connections

Connecting to Client Transfer Socket...
Connection Successful
226 Transfer complete.
Port received: 127,0,0,1,209,19

File okay, beginning data connections

Connecting to Client Transfer Socket...
Connection Successful
226 Transfer complete.
```

Clients:

```
Hello!! Please Authenticate to run server commands
1. type "USER" followed by a space and your username
2. type "PASS" followed by a space and your password

"QUIT" to close connection at any moment
Once Authenticated
  this is the list of commands :
"STOR" + space + filename |to send a file to the server
"RETR" + space + filename |to download a file from the server
"LIST" to to list all the files under the current server directory
"CWD" + space + directory |to change the current server directory
"PWD" to display the current server directory
Add "!" before the last three commands to apply them locally

220 Service ready for new user.
USER harry
331 Username OK, need password.
PASS pass
230 User logged in, proceed.
PWD
257 "/Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/s
erver/./server/harry" is the current directory.
PWD
257 "/Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/s
erver/./server/harry" is the current directory.
RETR friends.pdf
200 PORT command successful
150 File status okay; about to open data connection
226 Transfer complete.
```

```
Hello!! Please Authenticate to run server commands
1. type "USER" followed by a space and your username
2. type "PASS" followed by a space and your password

"QUIT" to close connection at any moment
Once Authenticated
  this is the list of commands :
"STOR" + space + filename |to send a file to the server
"RETR" + space + filename |to download a file from the server
"LIST" to to list all the files under the current server directory
"CWD" + space + directory |to change the current server directory
"PWD" to display the current server directory
Add "!" before the last three commands to apply them locally

220 Service ready for new user.
USER bob
331 Username OK, need password.
PASS donuts
230 User logged in, proceed.
PWD
257 "/Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks/NetworksProject1/se
rver/./server/bob" is the current directory.
CWD images
200 directory changed to /Users/aliabdullahjafri/Desktop/UNIDOCs/Computer Networks
/NetworksProject1/server/./server/bob/images
RETR slytherin.jpg
200 PORT command successful
150 File status okay; about to open data connection
226 Transfer complete.
```