ROYAL UNIVERSITY OF PHNOM PENH
FACULTY OF SCIENCE
IT CENTER

MASTER OF IT ENGINEERING (MITE)
DISTRIBUTED SYSTEM
Lecturer: Taing Nguonly

YEAR I, SEMESTER I

Assignment I
Deadline: Sunday December 18, 2011

SOK PONGSA METREY
Weekend Class

2011-2012

1. INTRODUCTION

In order to understand the unique behavior of TCP protocol, I implemented a FTP file server/client program in order to allow user to use some FTP commands as get a file, put a file or list files in server.

User is able to use the client program to access to the FTP server and interact with server with all available commands above. Server could accept many clients at the same time as I implemented to allow server to response in multi-threading.

2. WORKFLOW

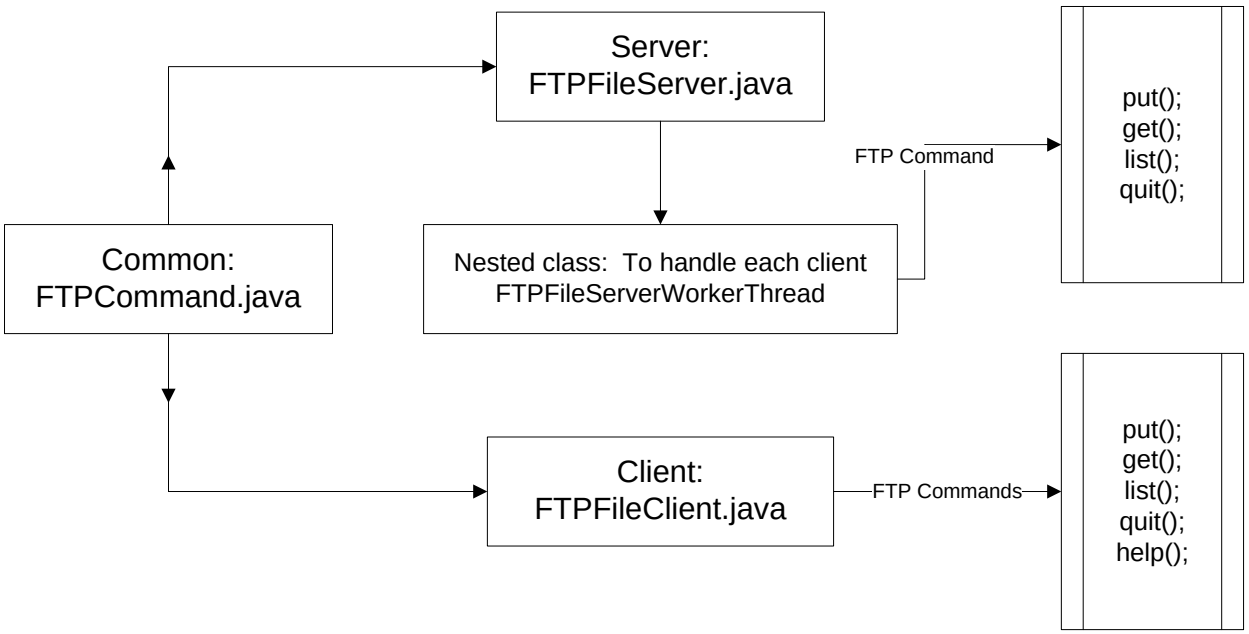
Available FTP commands:

- get <filename> : Get a file from server
  - At Server
    - Lookup the request filename in server
    - If file does not exist, server response to the client
    - If file exists, send the file to client
  - At client
    - Validate command before requesting to server
    - If file does not exist in server, give the message to user
    - If file exists, save the file to client directory but check as well if at client directory already has the same filename, give another name with system time as prefix
- put <filepath> : Put a file from local PC to server
  - At server
    - Receive filename, filesize and input stream from client
    - Save/Overwrite sent file in server
  - At client
    - Validate command, given file before request to server
    - Send filename, filesize with input stream to server
- list : List all files in server
  - At server
    - Lookup all filenames in server
    - Send number of files and all filenames to client
  - At client
    - Validate command before request to server
    - List filenames that received from server
- help : Information to help client user
  - At client only
    - List all available FTP commands and each syntax

3. IMPLEMENTATION

I design 3 java packages to handle this process:

- Common part: enumerated object, FTPCommand to handle the command constants.
- Server part with multi-threading
- Client part to access the server



Remark: Limitation on filename/filepath, no space be able to provide at the moment

4. USAGE AND RESULT

To use the application, please following as following steps:

1. Compile source code with batch file: **compile-java-classes.bat**
2. Start server and follow the instruction by execute batch file: **start-server.bat**
3. Start client access: **client.bat**

By default, the batch client.bat configured to connect to server on IP: **127.0.0.1**

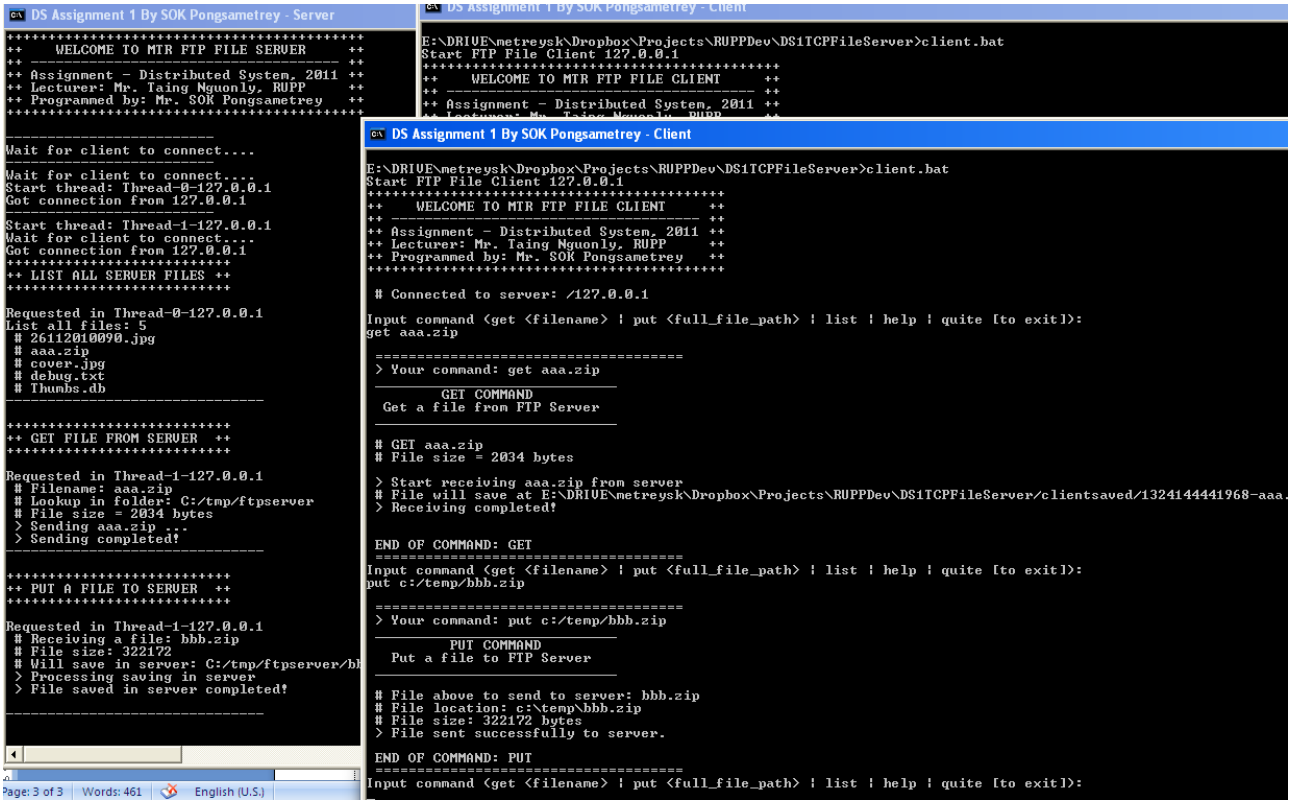
So if server hosted in another IP, please configure the IP in the batch file at line:

```
set IP_SERVER=127.0.0.1
```

You can start client as many as you want.

Sample Result Screen Tested:

- Server file stored in folder: c:\tmp\ftpserver
- Client files stored in folder: <current executed client program>/clientsaved


DS Assignment 1 By SOK Pongsametrey - Server
++ WELCOME TO MTR FTP FILE SERVER ++
++ Assignment - Distributed System, 2011 ++
++ Lecturer: Mr. Taing Nguonly, RUPP ++
++ Programmed by: Mr. SOK Pongsametrey ++
Wait for client to connect....
Start thread: Thread-0-127.0.0.1
Got connection from 127.0.0.1
Start thread: Thread-1-127.0.0.1
Wait for client to connect....
Got connection from 127.0.0.1
++ LIST ALL SERVER FILES ++
Requested in Thread-0-127.0.0.1
List all files: 5
26112010090.jpg
aaa.zip
cover.jpg
debug.txt
Thumbs.db
++ GET FILE FROM SERVER ++
Requested in Thread-1-127.0.0.1
Filename: aaa.zip
Lookup in folder: C:/tmp/ftpserver
File size = 2034 bytes
> Sending aaa.zip ...
> Sending completed!
++ PUT A FILE TO SERVER ++
Requested in Thread-1-127.0.0.1
Receiving a file: bbb.zip
File size: 322172
Will save in server: C:/tmp/ftpserver/bb
> Processing saving in server
> File saved in server completed!
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Words: 461
English (U.S.)
DS Assignment 1 By SOK Pongsametrey - Client
E:\DRIVE\metreysk\Dropbox\Projects\RUPPDev\DS1TCPFileServer>client.bat
Start FTP File Client 127.0.0.1
++ WELCOME TO MTR FTP FILE CLIENT ++
++ Assignment - Distributed System, 2011 ++
DS Assignment 1 By SOK Pongsametrey - Client
E:\DRIVE\metreysk\Dropbox\Projects\RUPPDev\DS1TCPFileServer>client.bat
Start FTP File Client 127.0.0.1
++ WELCOME TO MTR FTP FILE CLIENT ++
++ Assignment - Distributed System, 2011 ++
++ Lecturer: Mr. Taing Nguonly, RUPP ++
++ Programmed by: Mr. SOK Pongsametrey ++
# Connected to server: /127.0.0.1
Input command (get <filename> ¦ put <full_file_path> ¦ list ¦ help ¦ quite [to exit]):
get aaa.zip
> Your command: get aaa.zip
GET COMMAND
Get a file from FTP Server
GET aaa.zip
File size = 2034 bytes
> Start receiving aaa.zip from server
File will save at E:\DRIVE\metreysk\Dropbox\Projects\RUPPDev\DS1TCPFileServer/clientsaved/1324144441968-aaa.
> Receiving completed!
END OF COMMAND: GET
Input command (get <filename> ¦ put <full_file_path> ¦ list ¦ help ¦ quite [to exit]):
put c:/temp/bbb.zip
> Your command: put c:/temp/bbb.zip
PUT COMMAND
Put a file to FTP Server
File above to send to server: bbb.zip
File location: c:\temp\bbb.zip
File size: 322172 bytes
> File sent successfully to server.
END OF COMMAND: PUT
Input command (get <filename> ¦ put <full_file_path> ¦ list ¦ help ¦ quite [to exit]):