**Task No 2**

**a. How you executed the task**

Preparing Server (Ubuntu in VirtualBox):  
 1. Install Virtual Box  
 2. Download and install ubuntu in virtual box / virtual machine  
 3. Set the Manual IP address  
 a. IP = 192.168.10.177  
 b. Network = 255.255.255.0  
 c. Gateway = 192.168.10.1 (route address)  
 d. DNS = 8.8.8.8 , 4.2.2.2  
 4. Install SSH in server by using commands  
 a. sudo apt update  
 b. sudo apt install openssh-server  
 5. Activate the SSH server in ubuntu  
 a. Open terminal by Ctrl+Alt+T  
 b. run command (sudo systemctl status ssh)  
 6. Optional/Extra Commands for information  
 a. Stop SSH services on ubuntu (sudo systemctl stop ssh)  
 b. To start it again run (sudo systemctl start ssh)  
 c. To disable the SSH service (sudo systemctl disable ssh)  
 d. To enable it again type (sudo systemctl enable ssh)  
  
  
Run code in pycharm:  
 1. install requirements.txt packages in the environment  
 2. IP of ubuntu / server = 192.168.10.177  
 3. Username of ubuntu operating system in virtual machine = "ashfaq"  
 A. How to know username of ubuntu  
 a. Open terminal  
 b. ashfaq@ashfaq-VirtualBox  
 c. It can also be represent as ashfaq@192.168.10.177  
 d. Here 'ashfaq' is the username  
 4. Password of ubuntu = "ashfaq"  
 5. Command = "ls"  
 A. Commands may be different (ls,mkdir,date,df,free,and many more)  
 B. Check this for more commands https://vitux.com/40-most-used-ubuntu-commands/  
 6. Set there parameters and run program  
 7. Program will first make connection with the server (client.connect(address, username=usr, password=pwd) )  
 8. Run command on the server and return (\_, ss\_stdout, ss\_stderr = client.exec\_command(command) )  
 A. error while running commands (ss\_stderr)  
 B. Output of commands (ss\_stdout)  
 9. Print Output or Error

**b. What libraries/resources you have used for development**

The libraries which I used in the project is:

1. It is python library used of SSH connections

import paramiko

**c. Any issues that you met during the process**

One of the biggest issue which I have faced in this task is I never work for these type of networking task so background knowledge is zero

1. After a lot of searching that how we make a SSH function I have found a function at this [link](https://exitcode0.net/python-3-ssh-with-paramiko/). So it solved my problem
2. Configuring an SSH at server side (Ubuntu) is also a problem for me then I found the links from internet to activate SSH at server. Those commands has already discussed
3. After this the next issue is to manually set the IP for my ubuntu so I see a video on youtube to manually set IP of the ubuntu so solved this issue

**d. Any additional development that you did out of the requirements**

No additional development in this task