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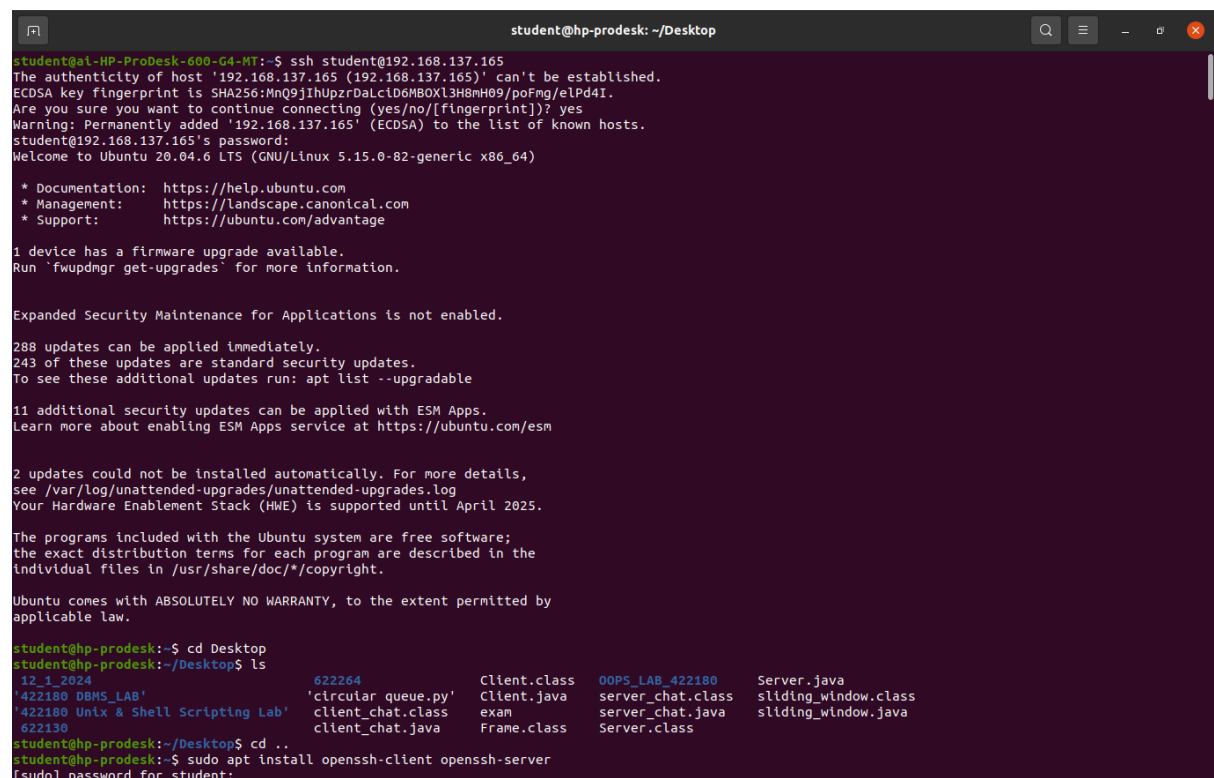
ROLLNO : **422180**

GROUP MATE : **ANUMANDLA PAVAN**

ROLL NO : **422178**

1)Using SSH command execute programs on two different machines

SCREEN SHOTS:



The screenshot shows a terminal window titled "student@hp-prodesk: ~/Desktop". The user has executed the command `ssh student@192.168.137.165`. The terminal output shows the SSH connection process, including the host's authenticity, the user's password, and the Ubuntu 20.04.6 LTS login banner. The banner includes links for documentation, management, and support, as well as information about updates and security. The user then navigates to the Desktop directory and lists the files. The files listed are:

File Name	File Type
12_1_2024	Client.class
'422180 DBMS_LAB'	Client.java
'422180 Unix & Shell Scripting Lab'	exam
622130	Frame.class
622264	Server.class
Server.java	Server.class
sliding_window.class	Server.class
sliding_window.java	Server.class

The user then navigates to the Desktop directory and lists the files. The files listed are:

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```
student@hp-prodesk: ~/Desktop

To see these additional updates run: apt list --upgradable

11 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

2 updates could not be installed automatically. For more details,
see /var/log/unattended-upgrades/unattended-upgrades.log
Your Hardware Enablement Stack (HWE) is supported until April 2025.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

student@hp-prodesk:~$ cd Desktop
student@hp-prodesk:~/Desktop$ ls
12_1_2024      622264      Client.class  OOPS_LAB_422180  Server.java
'422180 DBMS_LAB' 'circular queue.py' Client.java  server_chat.class  sliding_window.class
'422180 Unix & Shell Scripting Lab' 'client_chat.class' exam        server_chat.java  sliding_window.java
622130        client_chat.java  Frame.class  Server.class

student@hp-prodesk:~/Desktop$ cd ..
student@hp-prodesk:~$ sudo apt install openssh-client openssh-server
[sudo] password for student:
Reading package lists... Done
Building dependency tree
Reading state information... Done
openssh-client is already the newest version (1:8.2p1-4ubuntu0.11).
openssh-client set to manually installed.
openssh-server is already the newest version (1:8.2p1-4ubuntu0.11).
The following packages were automatically installed and are no longer required:
  glibc-locales-2.37-7 libevent-core-2.1-7 libevent-pthreads-2.1-7 libfwupdplugin1 libhtml-template-perl libsigsegv2 libxmlb1
  linux-headers-5.15.0-41-generic linux-hwe-5.15-headers-5.15.0-41 linux-image-5.15.0-41-generic linux-modules-5.15.0-41-generic
  linux-modules-extra-5.15.0-41-generic m4 shim
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 283 not upgraded.
student@hp-prodesk:~$ cd Desktop
student@hp-prodesk:~/Desktop$ ls
12_1_2024      622130      'circular queue.py'  Client.class  Frame.class  server_chat.class  Server.java
'422180 DBMS_LAB' 622264      client_chat.class    Client.java   OOPS_LAB_422180  server_chat.java  sliding_window.class
'422180 Unix & Shell Scripting Lab' awk_file.sh  client_chat.java    exam         sed_file.sh      Server.class      sliding_window.java
student@hp-prodesk:~/Desktop$ chmod +x awk_file.sh
student@hp-prodesk:~/Desktop$ ./awk_file.sh
printing using cat file1.txt
```

```
Activities Terminal Mar 20 16:10
student@hp-prodesk: ~/Desktop

student@hp-prodesk:~/Desktop$ ls
12_1_2024      622264      client_chat.java  file1.txt      server_chat.class  sliding_window.class
'422180 DBMS_LAB' awk_file.sh  Client.class      Frame.class    server_chat.java  sliding_window.java
'422180 Unix & Shell Scripting Lab' 'circular queue.py' Client.java     OOPS_LAB_422180  Server.class
622130        client_chat.class  exam             sed_file.sh    Server.java

student@hp-prodesk:~/Desktop$ ./awk_file.sh
printing using cat file1.txt
s01 em1 10000 25
s02 em2 12000 24
s03 em3 11020 22
s04 em4 13000 23
s05 em5 19000 21
s06 em6 20000 25
s07 em7 25000 27
s08 em8 32000 28

1)Printing entire file
s01 em1 10000 25
s02 em2 12000 24
s03 em3 11020 22
s04 em4 13000 23
s05 em5 19000 21
s06 em6 20000 25
s07 em7 25000 27
s08 em8 32000 28

2)Printing field 2 and 3
em1 10000
em2 12000
em3 11020
em4 13000
em5 19000
em6 20000
em7 25000
em8 32000

3)printing tuples of column 4 if contains 25
25
25
27

4)Numbering tuples
```

```
Activities Terminal Mar 20 16:11 student@hp-prodesk: ~/Desktop

em7 25000
em8 32000

3)printing tuples of column 4 if contains 25
25
25
27

4)Numbering tuples
1 25
2 24
3 22
4 23
5 21
6 25
7 27
8 28

5)printing 4th column
25
24
22
23
21
25
27
28

6)print number 4,3rd column
4 10000
4 12000
4 11020
4 13000
4 19000
4 20000
4 25000
4 32000

printing number 3 and 4 tuples of file1.txt
3 s03 em3 11020 22
4 s04 em4 13000 23

Activities Terminal Mar 20 16:11 student@hp-prodesk: ~/Desktop

0)print number 4,3rd column
4 10000
4 12000
4 11020
4 13000
4 19000
4 20000
4 25000
4 32000

printing number 3 and 4 tuples of file1.txt
3 s03 em3 11020 22
4 s04 em4 13000 23

numbering column 1
1-s01
2-s02
3-s03
4-s04
5-s05
6-s06
7-s07
8-s08

sum expression for summing numbers in 3rd column
142020

Average expression for average of numbers in 3rd column
17752.5

only printing 2 and 3rd character of column 1
01
02
03
04
05
06
07
08

printing 4th field
25
24
22
```

```
Activities Terminal Mar 20 16:11 student@hp-prodesk: ~/Desktop
08
printing 4th field
25
24
22
23
21
25
27
28

if else expressions
junior
junior
junior
junior
senior
senior
senior
senior

Begin and end keyword used
starting
s01 em1 10000 25
s02 em2 12000 24
s03 em3 11020 22
s04 em4 13000 23
s05 em5 19000 21
s06 em6 20000 25
s07 em7 25000 27
s08 em8 32000 28
ending

if and expression used
s05 em5 19000 21

another if else case
greater
greater
greater
greater
Lesser
greater
greater
greater

using while loop
s01
em1
10000
25
s02
em2
12000
24
s03
em3
11020
22
s04
em4
13000
23
s05
em5
19000
21
s06
em6
20000
25
s07
em7
25000
27
```

```
Activities Terminal Mar 20 16:12 student@hp-prodesk: ~/Desktop

using for loop
s01
em1
10000
25
s02
em2
12000
24
s03
em3
11020
22
s04
em4
13000
23
s05
em5
19000
21
s06
em6
20000
25
s07
em7
25000
27
s08
em8
32000
28

using arrays 1
num: 27 Name: s07
num: 23 Name: s04
num: 28 Name: s08
num: 25 Name: s06
num: 22 Name: s03
num: 21 Name: s05
num: 24 Name: s02

using arrays 2
s08 em8 32000 28
s07 em7 25000 27
s06 em6 20000 25
s05 em5 19000 21
s04 em4 13000 23
s03 em3 11020 22
s02 em2 12000 24
s01 em1 10000 25

printing NR NF and All columns
1 4 s01 em1 10000 25
2 4 s02 em2 12000 24
3 4 s03 em3 11020 22
4 4 s04 em4 13000 23
5 4 s05 em5 19000 21
6 4 s06 em6 20000 25
7 4 s07 em7 25000 27
8 4 s08 em8 32000 28

printing ORS AND OFS
1:4:em1
2:4:em2
3:4:em3
4:4:em4
5:4:em5
6:4:em6
7:4:em7
8:4:em8

Argument methods
NUMBER OF ARGUMENTS: 2
ARGUMENT 1 : file1.txt
ARGUMENT 2 :

Mathematical functions
```

```
Activities Terminal Mar 20 16:12 student@hp-prodesk: ~/Desktop

1:4:em1
2:4:em2
3:4:em3
4:4:em4
5:4:em5
6:4:em6
7:4:em7
8:4:em8

Argument methods
NUMBER OF ARGUMENTS: 2
ARGUMENT 1 : file1.txt
ARGUMENT 2 :

Mathematical functions
Square root of 16 is 4.000000
Exponential value of 16 is 8886110.520508
Natural logarithm of 16 is 2.772589
Integer part of 16 is 16
Random number between 0 and 1: 0.134940

String functions
length 5
string to lowercase hello
string to uppercase HELLO

Time functions
Current time: 1710930722
Formatted time: 2024-03-20 16:02:02

Taking Input from user
enter your number
5
Entered number is 5

General user function for square(x)
square of 5 is : 25

General user function for finding factorial
FACTORIAL OF 5 is : 120

student@hp-prodesk:~/Desktop$
student@hp-prodesk:~/Desktop$ chmod +x sed_file.sh
student@hp-prodesk:~/Desktop$ ./sed_file
-bash: ./sed_file: No such file or directory
student@hp-prodesk:~/Desktop$ ./sed_file.sh
Displaying in file
cat: in.txt: No such file or directory
```

```
Activities Terminal Mar 20 16:13 student@hp-prodesk: ~/Desktop
sed: can't read in.txt: No such file or directory
student@hp-prodesk:~/Desktop$ ./sed_file.sh
Displaying in file
"
Hello students
welcome to unix programming.
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"
changing every to each in all occurrences
"
Hello students
welcome to unix programming.
This is to inform that each one must submit lab records to mam.every one and every one.
Thank you to each one here.
Bye each one and every one.
"
changing every to each in second occurrence in a line
"
Hello students
welcome to unix programming.
This is to inform that every one must submit lab records to mam.each one and every one.
Thank you to every one here.
Bye every one and each one.
"
changing every to each in all occurrence using global g
"
Hello students
welcome to unix programming.
This is to inform that each one must submit lab records to mam.each one and each one.
Thank you to each one here.
Bye each one and each one.
"
changing every to each in all second and all occurrence using global g
"
Hello students
welcome to unix programming.
This is to inform that every one must submit lab records to mam.each one and each one.
Thank you to every one here.
Bye every one and each one.
```



```
Activities Terminal Mar 20 16:13 student@hp-prodesk: ~/Desktop

Bye every one and each one.
"
deleting second line
"
welcome to unix programming.
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"
printing new third line
"
Hello students
THIS IS NEW THIRD LINE
welcome to unix programming.
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"
print lines only containing word to
welcome to unix programming.
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
"
deleting line containing word every
"
Hello students
welcome to unix programming.
"
deleting 1 to 3 lines
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"
deleting last line
"
Hello students
welcome to unix programming.
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"

Activities Terminal Mar 20 16:13 student@hp-prodesk: ~/Desktop

"
Hello students
welcome to unix programming.
"
deleting 1 to 3 lines
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"
deleting last line
"
Hello students
welcome to unix programming.
This is to inform that every one must submit lab records to mam.every one and every one.
Thank you to every one here.
Bye every one and every one.
"
appending last line
"
appended line
Hello students
appended line
welcome to unix programming.
appended line
This is to inform that every one must submit lab records to mam.every one and every one.
appended line
Thank you to every one here.
appended line
Bye every one and every one.
appended line
"
appended line
"
capitalising all lines
"
HELLO STUDENTS
WELCOME TO UNIX PROGRAMMING.
THIS IS TO INFORM THAT EVERY ONE MUST SUBMIT LAB RECORDS TO MAM.EVERY ONE AND EVERY ONE.
THANK YOU TO EVERY ONE HERE.
BYE EVERY ONE AND EVERY ONE.
"
student@hp-prodesk:~/Desktop$
```