

UNIT- 2

Practice – 5

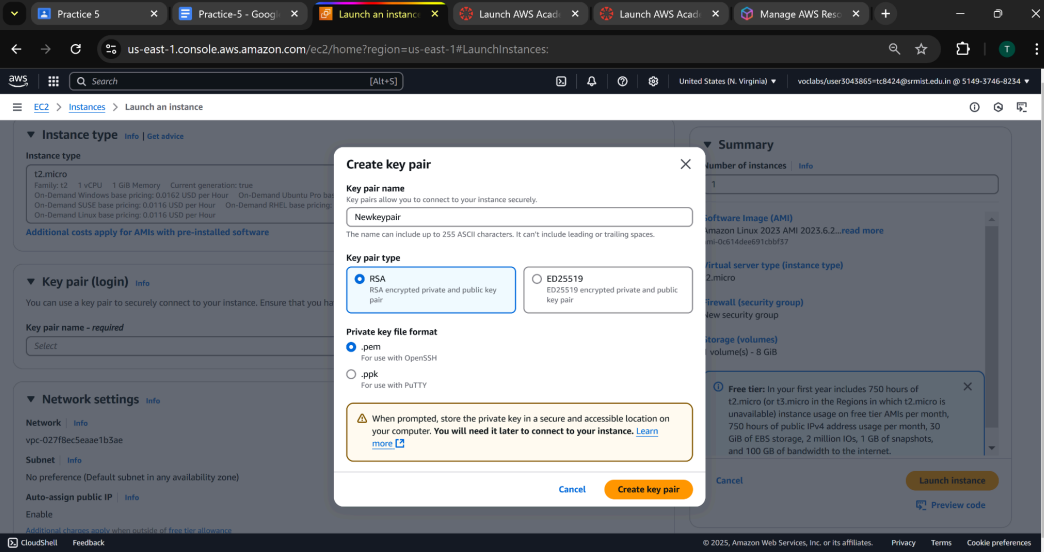
Tharun Subramanian C

RA2211003011187

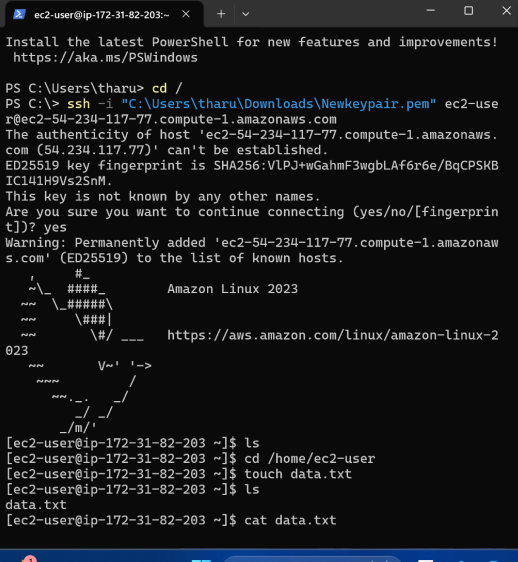
B2

1. File Manipulation:

- List the contents of your current directory using `ls`.
- Change directory to a different location using `cd`.
- Create a new empty file named `data.txt` using `touch`.
- View the contents of `data.txt` using `cat`.



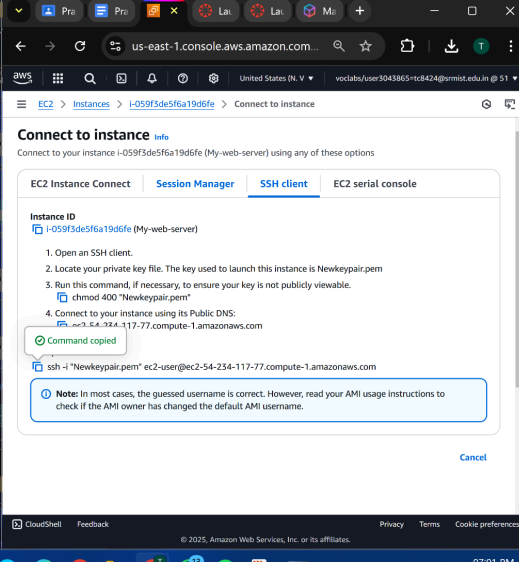
The screenshot shows the AWS Management Console 'Launch Instance' page. A 'Create key pair' modal is open, allowing the user to create a new key pair named 'Newkeypair' using RSA encryption and a .pem file format. The console background shows instance configuration details like 't2.micro' instance type and 'Amazon Linux 2023' AMI.



The terminal window shows the user logging into an EC2 instance and performing the following commands:

```
PS C:\Users\tharu> cd /
PS C:\> ssh -i "C:\Users\tharu\Downloads\Newkeypair.pem" ec2-user@ec2-54-234-117-77.compute-1.amazonaws.com
The authenticity of host 'ec2-54-234-117-77.compute-1.amazonaws.com (54.234.117.77)' can't be established.
ED25519 key fingerprint is SHA256:VLPJwGahmF3wgbLAf6r6e/BqCPSKBIC14IH9Vs25nM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-234-117-77.compute-1.amazonaws.com' (ED25519) to the list of known hosts.

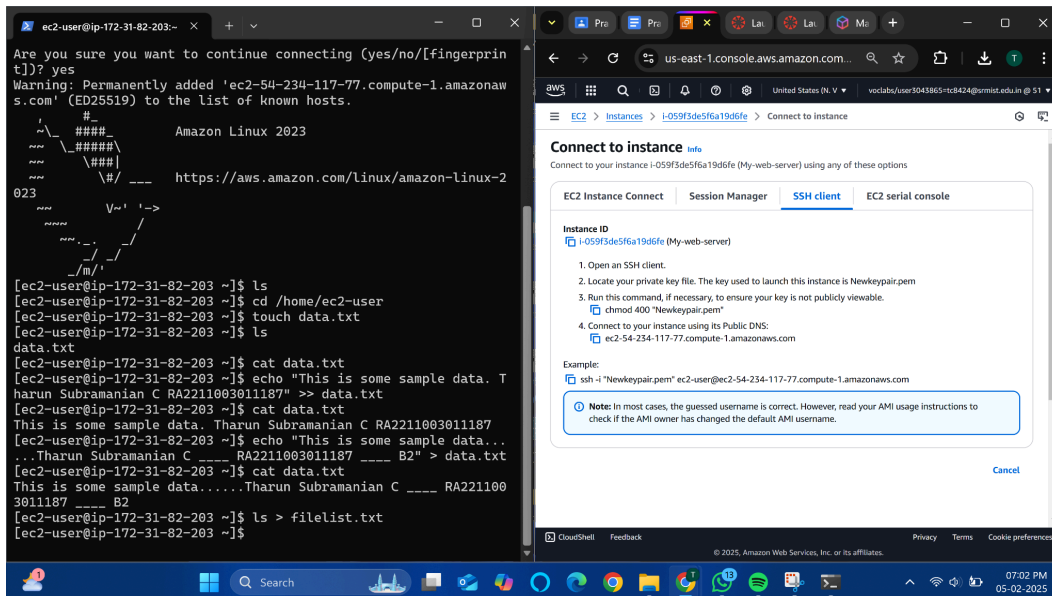
Amazon Linux 2023
[ec2-user@ip-172-31-82-203 ~]$ ls
[ec2-user@ip-172-31-82-203 ~]$ cd /home/ec2-user
[ec2-user@ip-172-31-82-203 ~]$ touch data.txt
[ec2-user@ip-172-31-82-203 ~]$ ls
data.txt
[ec2-user@ip-172-31-82-203 ~]$ cat data.txt
```



The screenshot shows the 'Connect to instance' page in the AWS console. The 'SSH client' tab is selected, providing instructions on how to connect to the instance using the 'ssh' command with the private key file.

2. Redirection Operators:

- Append the following line to data.txt using echo "This is some sample data" >> data.txt.
- Overwrite the contents of data.txt with the same line using echo "This is some sample data" > data.txt.
- Redirect the standard output of the ls command to a new file named filelist.txt using ls > filelist.txt.



3. Standard Streams (STDIN, STDOUT, STDERR):

- Explain the difference between Standard Input (STDIN), Standard Output (STDOUT), and Standard Error (STDERR).

Answer:

STDIN (Standard Input): This is where input comes from (usually the keyboard).

STDOUT (Standard Output): This is where output goes (usually the terminal/screen).

STDERR (Standard Error): This is where error messages go.

- Provide an example of how each is used in a shell command.

Answer:

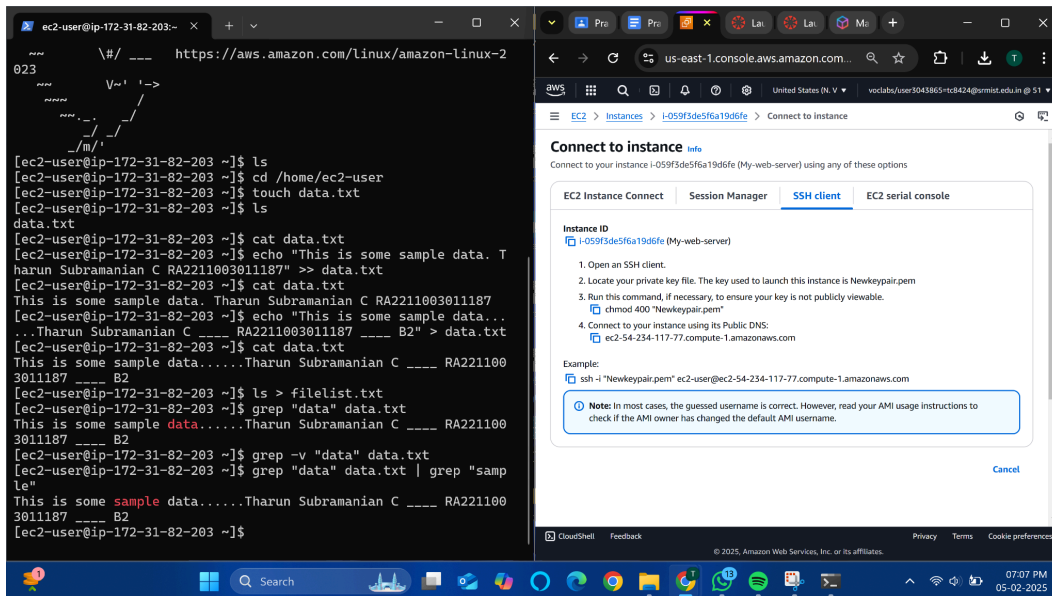
STDIN: Inputting text via “cat” or a script.

STDOUT: Output from commands like “ls” or “echo”.

STDERR: Errors from commands like “cat non_existent_file”.

4. Grep Command:

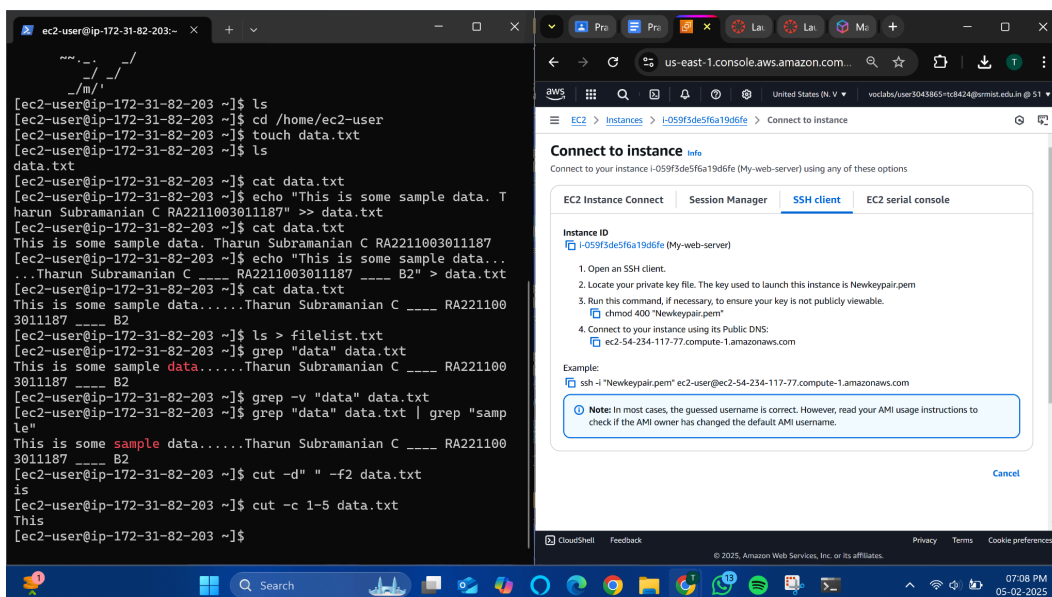
- Use `grep "data" on data.txt` to find lines containing the word "data".
- Search for lines that **don't** contain "data" using `grep -v "data" data.txt`.
- Combine `grep` with pipes (`|`) to search for lines with "data" and then filter for those containing "sample" using `grep "data" data.txt | grep "sample"`.



```
ec2-user@ip-172-31-82-203:~$ ls
ec2-user@ip-172-31-82-203:~$ cd /home/ec2-user
ec2-user@ip-172-31-82-203:~$ touch data.txt
ec2-user@ip-172-31-82-203:~$ ls
data.txt
ec2-user@ip-172-31-82-203:~$ cat data.txt
ec2-user@ip-172-31-82-203:~$ echo "This is some sample data. Tharun Subramanian C RA2211003011187" >> data.txt
ec2-user@ip-172-31-82-203:~$ cat data.txt
This is some sample data. Tharun Subramanian C RA2211003011187
ec2-user@ip-172-31-82-203:~$ echo "This is some sample data... Tharun Subramanian C RA2211003011187 B2" >> data.txt
ec2-user@ip-172-31-82-203:~$ cat data.txt
This is some sample data.....Tharun Subramanian C RA2211003011187 B2
ec2-user@ip-172-31-82-203:~$ ls > filelist.txt
ec2-user@ip-172-31-82-203:~$ grep "data" data.txt
This is some sample data.....Tharun Subramanian C RA2211003011187 B2
ec2-user@ip-172-31-82-203:~$ grep -v "data" data.txt
ec2-user@ip-172-31-82-203:~$ grep "data" data.txt | grep "sample"
This is some sample data.....Tharun Subramanian C RA2211003011187 B2
ec2-user@ip-172-31-82-203:~$
```

5. Cut Command:

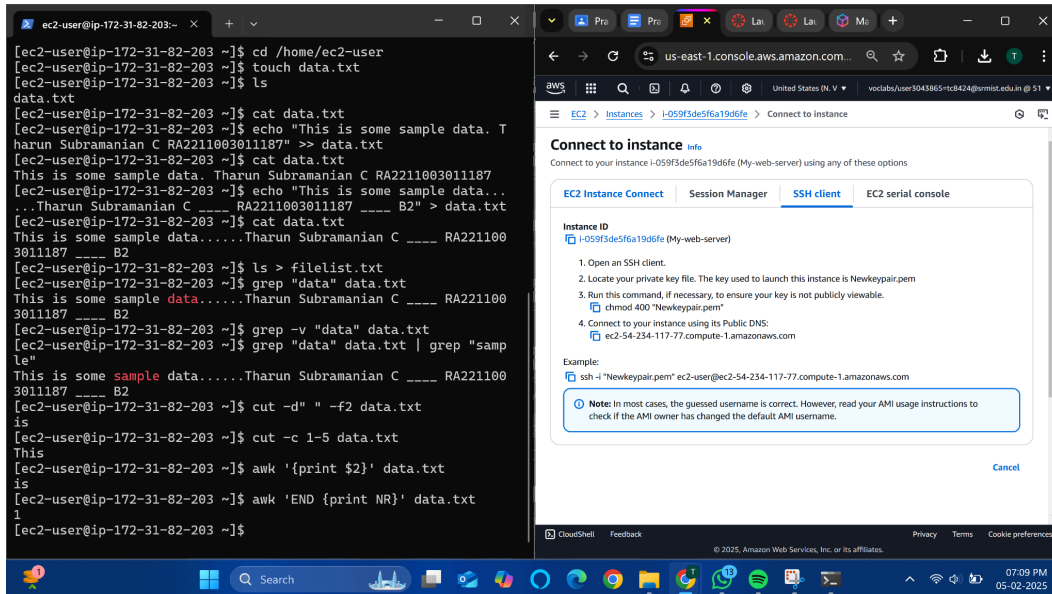
- Use `cut -d" " -f2 on data.txt` to extract the second word (separated by spaces) from each line.
- Modify the command to extract a specific range of characters (e.g., first 5 characters) using `cut -c 1-5 data.txt`.



```
ec2-user@ip-172-31-82-203:~$ ls
ec2-user@ip-172-31-82-203:~$ cd /home/ec2-user
ec2-user@ip-172-31-82-203:~$ touch data.txt
ec2-user@ip-172-31-82-203:~$ ls
data.txt
ec2-user@ip-172-31-82-203:~$ cat data.txt
ec2-user@ip-172-31-82-203:~$ echo "This is some sample data. Tharun Subramanian C RA2211003011187" >> data.txt
ec2-user@ip-172-31-82-203:~$ cat data.txt
This is some sample data. Tharun Subramanian C RA2211003011187
ec2-user@ip-172-31-82-203:~$ echo "This is some sample data... Tharun Subramanian C RA2211003011187 B2" >> data.txt
ec2-user@ip-172-31-82-203:~$ cat data.txt
This is some sample data.....Tharun Subramanian C RA2211003011187 B2
ec2-user@ip-172-31-82-203:~$ ls > filelist.txt
ec2-user@ip-172-31-82-203:~$ grep "data" data.txt
This is some sample data.....Tharun Subramanian C RA2211003011187 B2
ec2-user@ip-172-31-82-203:~$ grep -v "data" data.txt
ec2-user@ip-172-31-82-203:~$ grep "data" data.txt | grep "sample"
This is some sample data.....Tharun Subramanian C RA2211003011187 B2
ec2-user@ip-172-31-82-203:~$ cut -d" " -f2 data.txt
is
ec2-user@ip-172-31-82-203:~$ cut -c 1-5 data.txt
This
ec2-user@ip-172-31-82-203:~$
```

6. Awk Command:

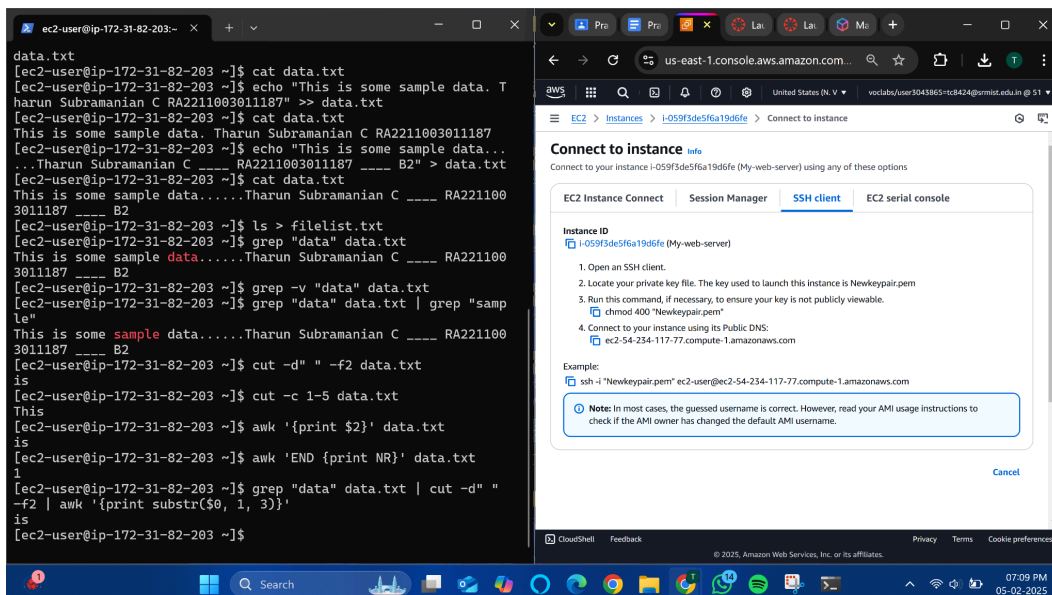
- Print only the second field from data.txt using awk '{print \$2}' data.txt.
- Count the number of lines in data.txt with awk END {print NR}' data.txt (NR refers to the number of records).



```
ec2-user@ip-172-31-82-203:~$ cd /home/ec2-user
ec2-user@ip-172-31-82-203 ~]$ touch data.txt
ec2-user@ip-172-31-82-203 ~]$ ls
data.txt
ec2-user@ip-172-31-82-203 ~]$ cat data.txt
ec2-user@ip-172-31-82-203 ~]$ echo "This is some sample data. T
harun Subramanian C RA2211003011187" >> data.txt
ec2-user@ip-172-31-82-203 ~]$ cat data.txt
This is some sample data. Tharun Subramanian C RA2211003011187
ec2-user@ip-172-31-82-203 ~]$ echo "This is some sample data...
...Tharun Subramanian C ____ RA2211003011187 ____ B2" > data.txt
ec2-user@ip-172-31-82-203 ~]$ cat data.txt
This is some sample data.....Tharun Subramanian C ____ RA221100
3011187 ____ B2
ec2-user@ip-172-31-82-203 ~]$ ls > fileList.txt
ec2-user@ip-172-31-82-203 ~]$ grep "data" data.txt
This is some sample data.....Tharun Subramanian C ____ RA221100
3011187 ____ B2
ec2-user@ip-172-31-82-203 ~]$ grep -v "data" data.txt
ec2-user@ip-172-31-82-203 ~]$ grep "data" data.txt | grep "samp
le"
This is some sample data.....Tharun Subramanian C ____ RA221100
3011187 ____ B2
ec2-user@ip-172-31-82-203 ~]$ cut -d " " -f2 data.txt
is
ec2-user@ip-172-31-82-203 ~]$ cut -c 1-5 data.txt
This
ec2-user@ip-172-31-82-203 ~]$ awk '{print $2}' data.txt
is
ec2-user@ip-172-31-82-203 ~]$ awk 'END {print NR}' data.txt
1
ec2-user@ip-172-31-82-203 ~]$
```

7. Command Chaining:

- Combine grep, cut, and awk to find lines containing "data", extract the second word, and print only the first three characters using a single command with pipes.



```
ec2-user@ip-172-31-82-203:~$ cat data.txt
ec2-user@ip-172-31-82-203 ~]$ ls > fileList.txt
ec2-user@ip-172-31-82-203 ~]$ grep "data" data.txt
This is some sample data.....Tharun Subramanian C ____ RA221100
3011187 ____ B2
ec2-user@ip-172-31-82-203 ~]$ grep -v "data" data.txt
ec2-user@ip-172-31-82-203 ~]$ grep "data" data.txt | grep "samp
le"
This is some sample data.....Tharun Subramanian C ____ RA221100
3011187 ____ B2
ec2-user@ip-172-31-82-203 ~]$ cut -d " " -f2 data.txt
is
ec2-user@ip-172-31-82-203 ~]$ cut -c 1-5 data.txt
This
ec2-user@ip-172-31-82-203 ~]$ awk '{print $2}' data.txt
is
ec2-user@ip-172-31-82-203 ~]$ awk 'END {print NR}' data.txt
1
ec2-user@ip-172-31-82-203 ~]$ grep "data" data.txt | cut -d " "
-f2 | awk '{print substr($0, 1, 3)}'
is
ec2-user@ip-172-31-82-203 ~]$
```

Instance Termination:

