

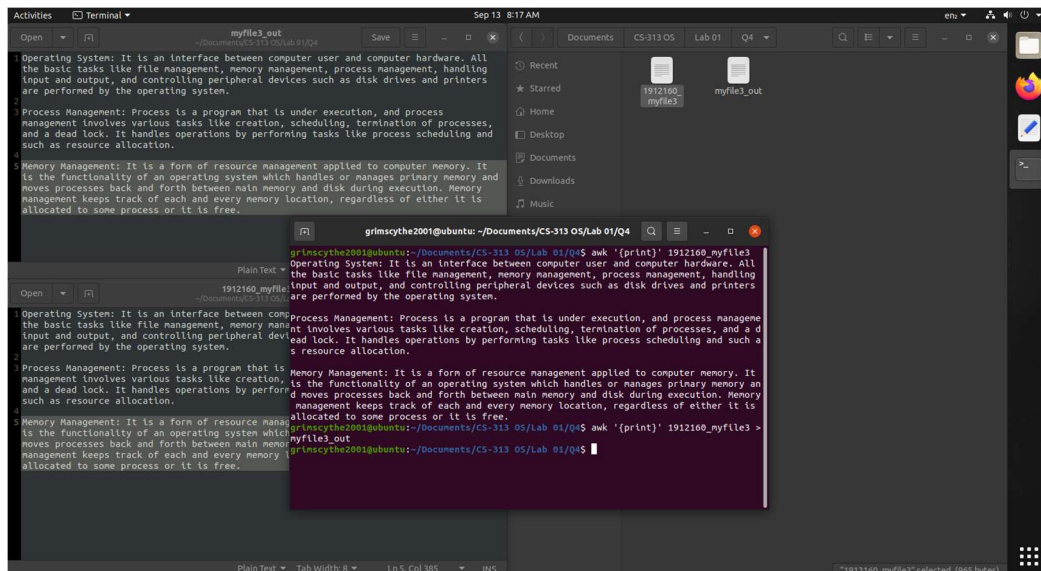
**Q.4.** Generate a text file with name **<rollnumber\_myfile3>**. Define; what is an operating system, what is process and memory management in three paragraphs having almost 150 words in the text file you have created. Then apply these following commands on that file in the terminal and record results in another file named **myfile3\_out**. The commands are: { awk, cat, cut, diff, grep, head, less, split, tail, tr, uniq, wc }.

**ANSWER:**

\$nano 1912160\_myfile3

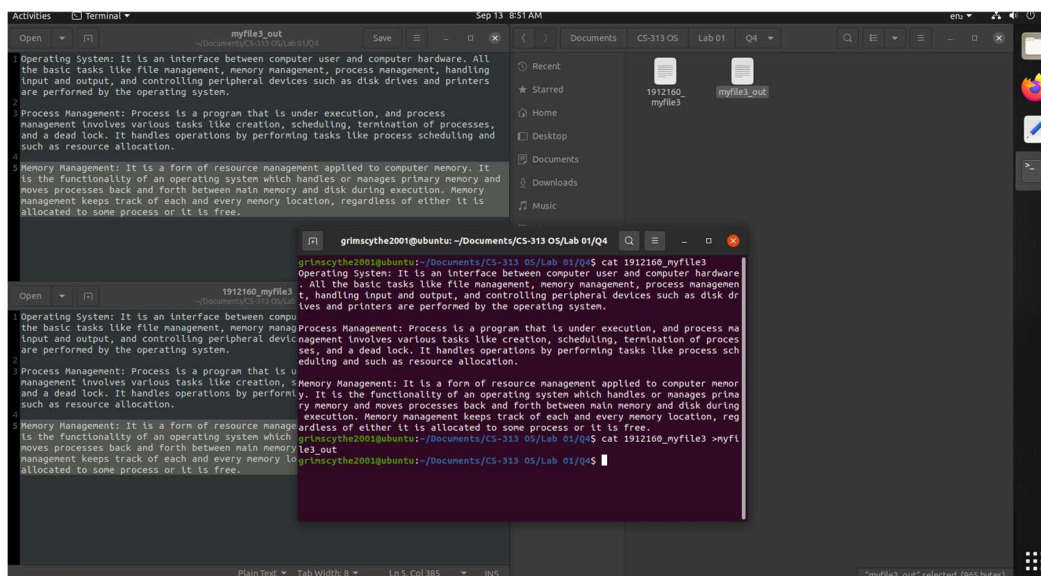
**COMMANDS:**

1. **awk:** \$awk '{print}' 1912160\_myfile3  
\$awk '{print}' 1912160\_myfile3 > myfile3\_out



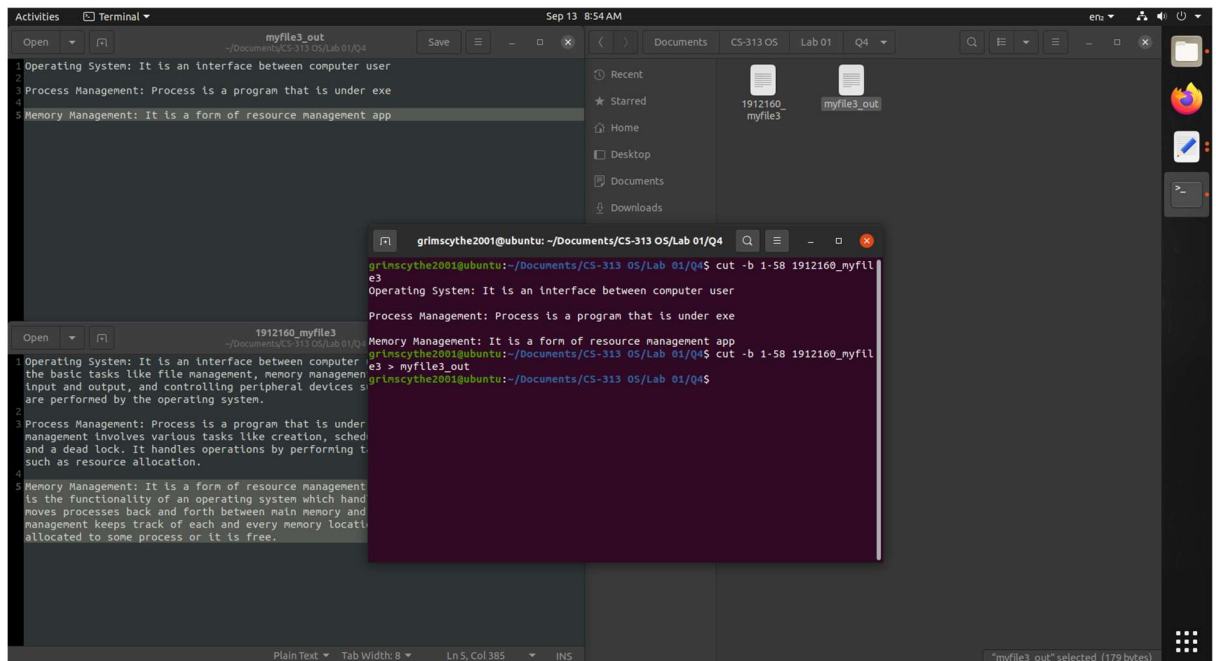
```
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ awk '{print}' 1912160_myfile3
Operating System: It is an interface between computer user and computer hardware. All the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers are performed by the operating system.
Process Management: Process is a program that is under execution, and process management involves various tasks like creation, scheduling, termination of processes, and a dead lock. It handles operations by performing tasks like process scheduling and such as resource allocation.
Memory Management: It is a form of resource management applied to computer memory. It is the functionality of an operating system which handles or manages primary memory and moves processes back and forth between main memory and disk during execution. Memory management keeps track of each and every memory location, regardless of either it is allocated to some process or it is free.
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ awk '{print}' 1912160_myfile3 > myfile3_out
```

2. **cat:** \$cat 1912160\_myfile3  
\$cat 1912160\_myfile > myfile3\_out



```
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ cat 1912160_myfile3
Operating System: It is an interface between computer user and computer hardware. All the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers are performed by the operating system.
Process Management: Process is a program that is under execution, and process management involves various tasks like creation, scheduling, termination of processes, and a dead lock. It handles operations by performing tasks like process scheduling and such as resource allocation.
Memory Management: It is a form of resource management applied to computer memory. It is the functionality of an operating system which handles or manages primary memory and moves processes back and forth between main memory and disk during execution. Memory management keeps track of each and every memory location, regardless of either it is allocated to some process or it is free.
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ cat 1912160_myfile3 > myfile3_out
```

3. **cut:**     \$cut -b 1-58 1912160\_myfile3  
              \$cut -b 1-58 1912160\_myfile3 > myfile3\_out

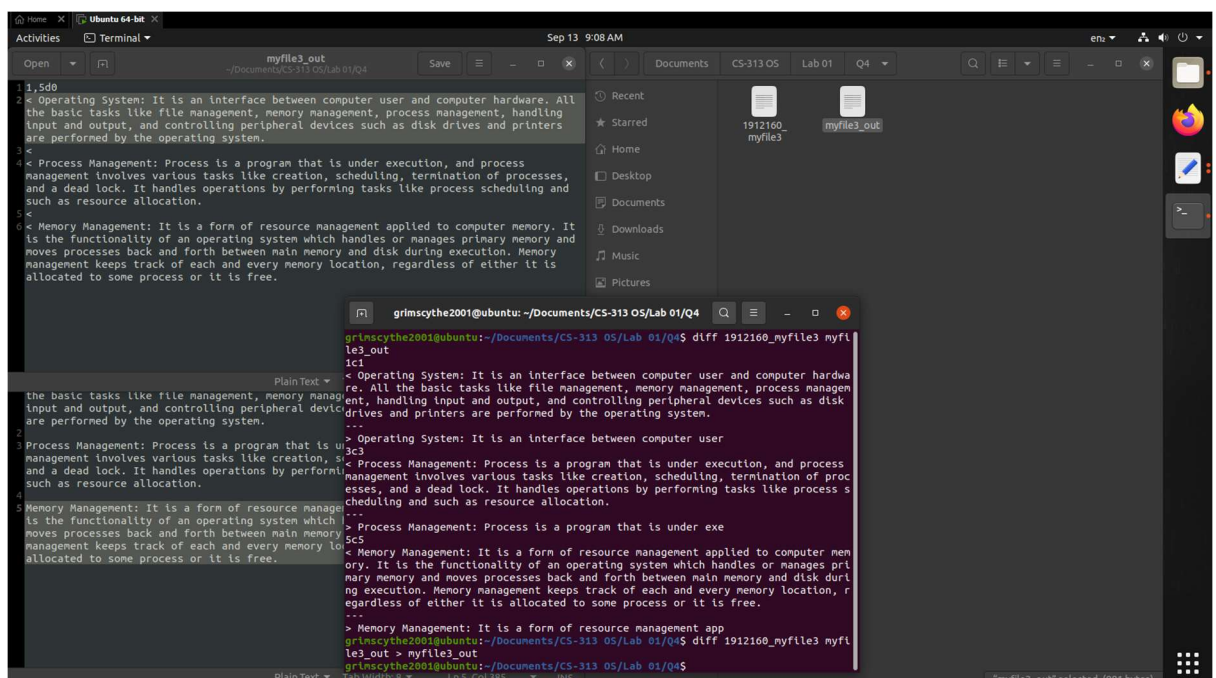


The screenshot shows a terminal window with the following commands and output:

```
grimscythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4
grimscythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ cut -b 1-58 1912160_myfile3
Operating System: It is an interface between computer user
Process Management: Process is a program that is under exe
Memory Management: It is a form of resource management app
```

The output is saved to a file named 'myfile3\_out'.

4. **diff:**     \$diff 1912160\_myfile3 myfile3\_out  
              \$diff 1912160\_myfile3 myfile3\_out > myfile3\_out



The screenshot shows a terminal window with the following commands and output:

```
grimscythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ diff 1912160_myfile3 myfile3_out
1,5d0
< Operating System: It is an interface between computer user and computer hardware. All the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers are performed by the operating system.
3<
< Process Management: Process is a program that is under execution, and process management involves various tasks like creation, scheduling, termination of processes, and a dead lock. It handles operations by performing tasks like process scheduling and such as resource allocation.
5<
< Memory Management: It is a form of resource management applied to computer memory. It is the functionality of an operating system which handles or manages primary memory and moves processes back and forth between main memory and disk during execution. Memory management keeps track of each and every memory location, regardless of either it is allocated to some process or it is free.
```

The output is saved to a file named 'myfile3\_out'.

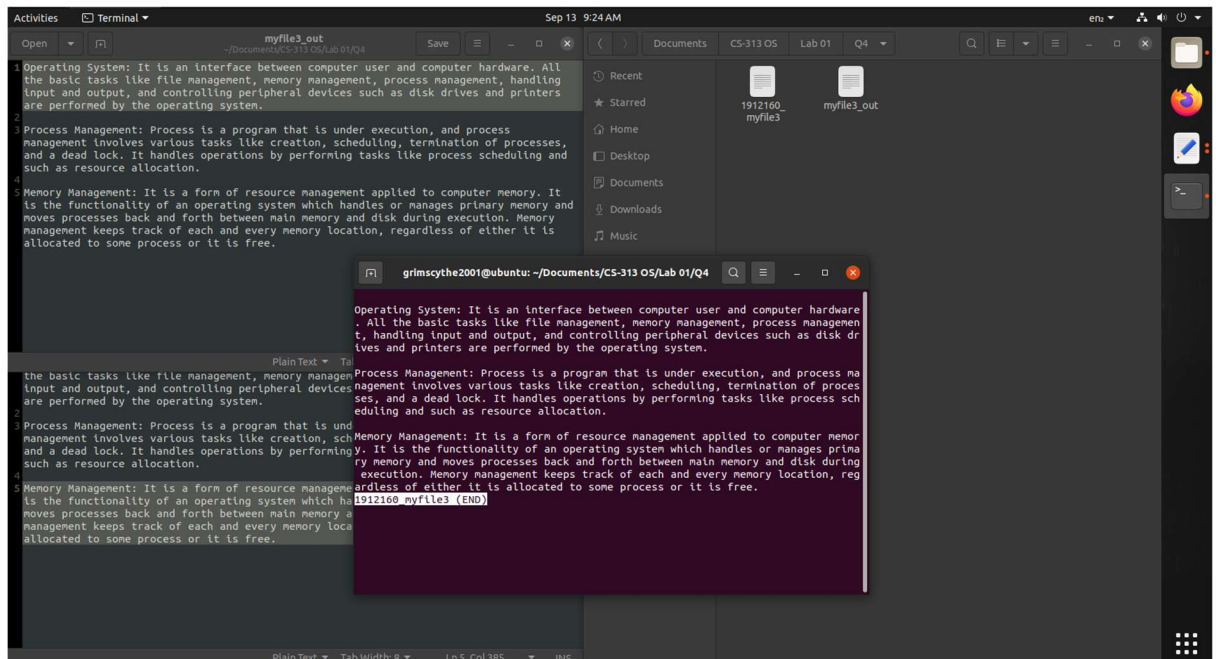
5. **grep:** `$grep -i "it" 1912160_myfile3`  
`$grep -i "it" 1912160_myfile3 > myfile3_out`

```
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$ grep -i "it" 1912160_myfile3
Operating System: it is an interface between computer user and computer hardware
. All the basic tasks like file management, memory management, process management,
handling input and output, and controlling peripheral devices such as disk dr
ives and printers are performed by the operating system.
Process Management: Process is a program that is under execution, and process ma
nagement involves various tasks like creation, scheduling, termination of proces
ses, and a dead lock. it handles operations by performing tasks like process sch
eduling and such as resource allocation.
Memory Management: It is a form of resource management applied to computer memor
y. it is the functionality of an operating system which handles or manages prima
ry memory and moves processes back and forth between main memory and disk during
execution. Memory management keeps track of each and every memory location, reg
ardless of either it is allocated to some process or it is free.
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$ grep -i "it" 1912160_myfile3 > myfile3_out
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$
```

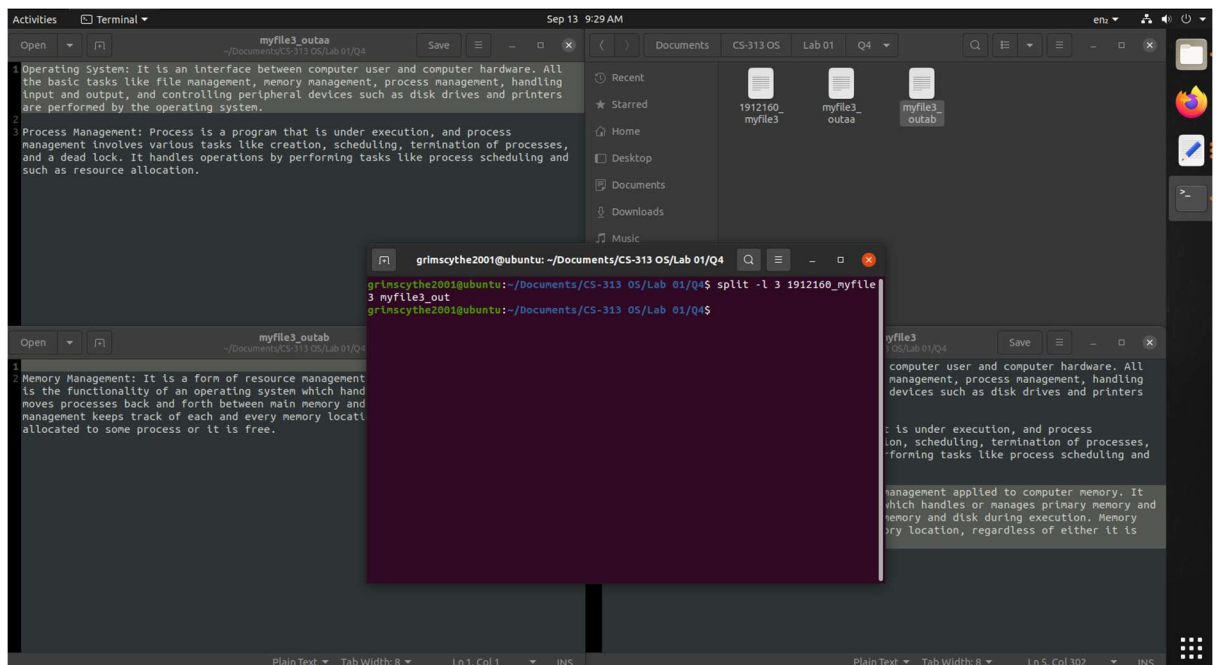
6. **head:** `$head -n 3 1912160_myfile3`  
`$head -n 3 1912160_myfile3 > myfile3_out`

```
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$ head -n 3 1912160_myfile3
Operating System: It is an interface between computer user and computer hardware
. All the basic tasks like file management, memory management, process management,
handling input and output, and controlling peripheral devices such as disk dr
ives and printers are performed by the operating system.
Process Management: Process is a program that is under execution, and process ma
nagement involves various tasks like creation, scheduling, termination of proces
ses, and a dead lock. It handles operations by performing tasks like process sch
eduling and such as resource allocation.
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$ head -n 3 1912160_myfile3 > myfile3_out
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$
```

7. **less:** `$less -n 1912160_myfile3`  
`$less -n 1912160_myfile3 > myfile3_out`



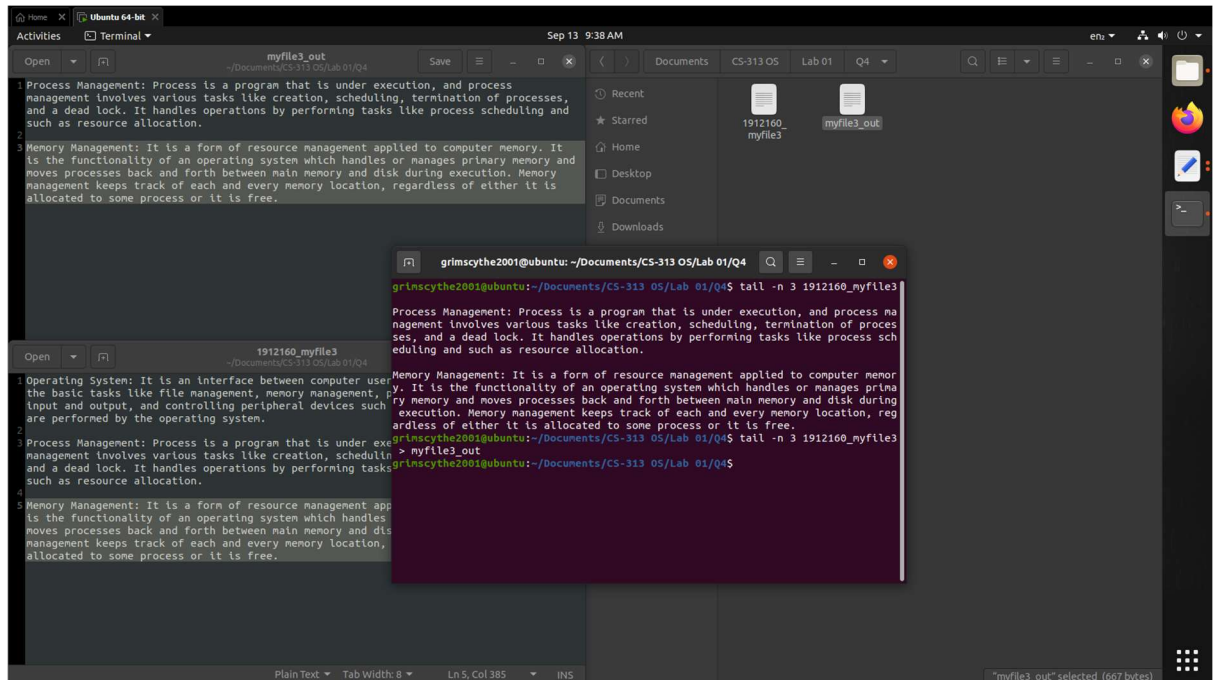
8. **split:** `$split -l 3 1912160_myfile3 myfile3_out`





9. tail: \$tail -n 3 1912160\_myfile3

\$tail -n 3 1912160\_myfile3 > myfile3\_out

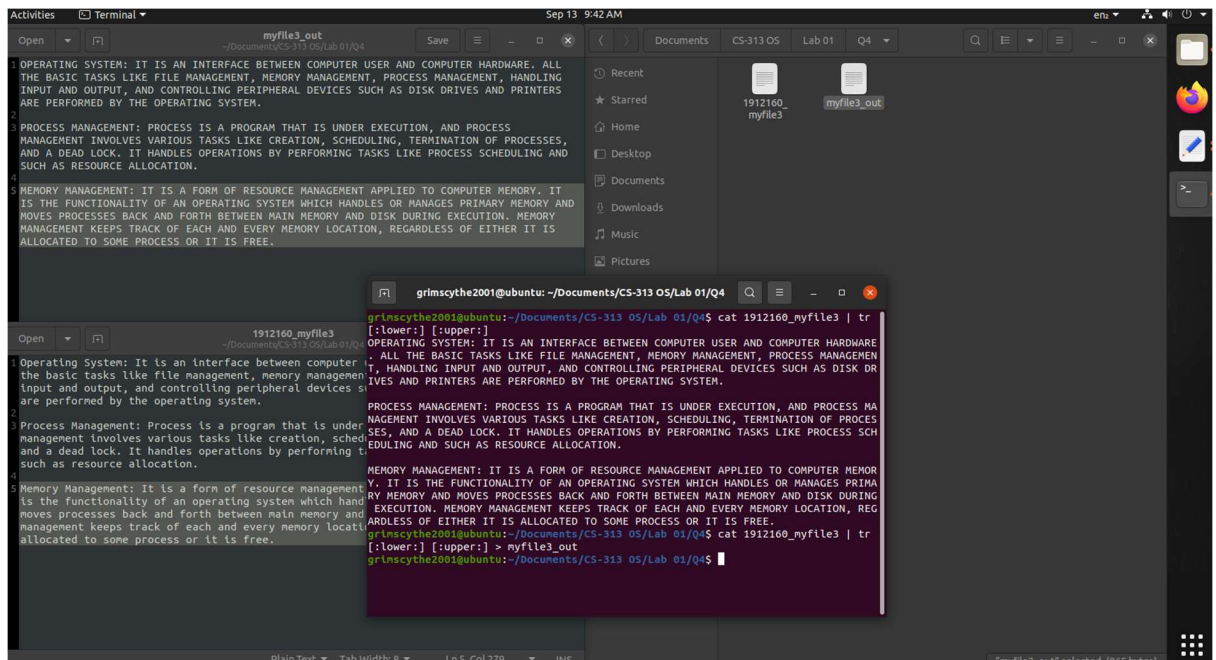


The screenshot shows a terminal window with the following commands and output:

```
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ tail -n 3 1912160_myfile3
Process Management: Process is a program that is under execution, and process management involves various tasks like creation, scheduling, termination of processes, and a dead lock. It handles operations by performing tasks like process scheduling and such as resource allocation.
Memory Management: It is a form of resource management applied to computer memory. It is the functionality of an operating system which handles or manages primary memory and moves processes back and forth between main memory and disk during execution. Memory management keeps track of each and every memory location, regardless of whether it is allocated to some process or it is free.
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ tail -n 3 1912160_myfile3 > myfile3_out
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$
```

10. tr: \$cat 1912160\_myfile3 | tr [:lower:] [:upper:]

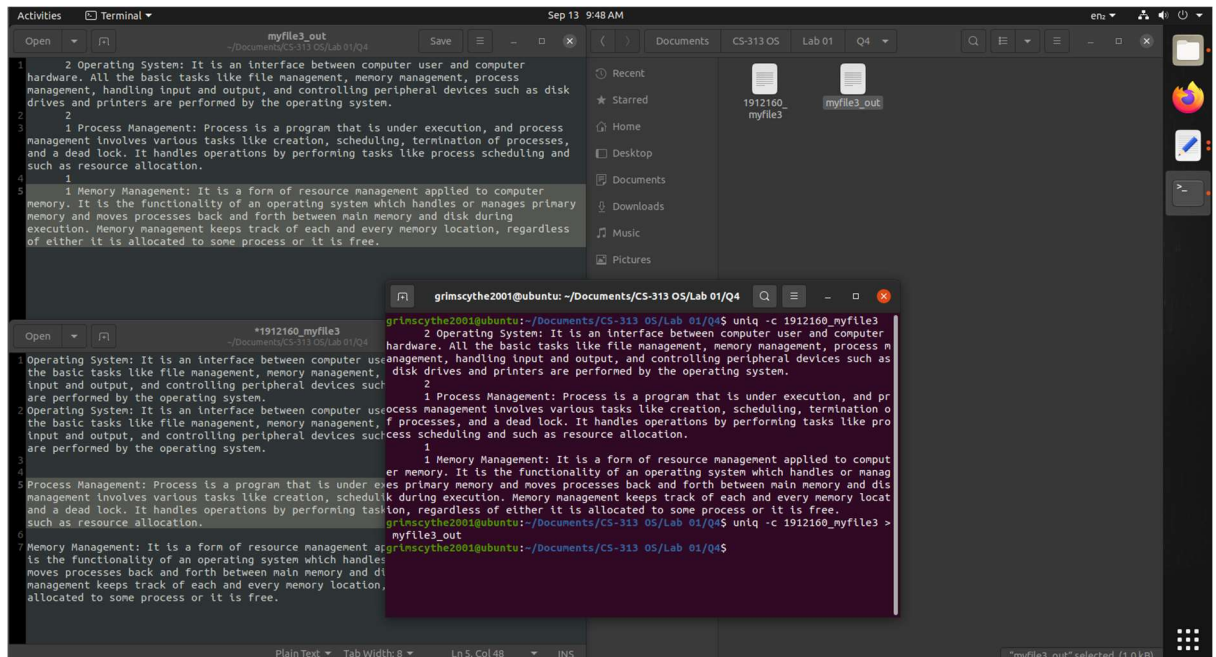
\$cat 1912160\_myfile3 | tr [:lower:] [:upper:] > myfile3\_out



The screenshot shows a terminal window with the following commands and output:

```
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ cat 1912160_myfile3 | tr [:lower:] [:upper:]
OPERATING SYSTEM: IT IS AN INTERFACE BETWEEN COMPUTER USER AND COMPUTER HARDWARE. ALL THE BASIC TASKS LIKE FILE MANAGEMENT, MEMORY MANAGEMENT, PROCESS MANAGEMENT, HANDLING INPUT AND OUTPUT, AND CONTROLLING PERIPHERAL DEVICES SUCH AS DISK DRIVES AND PRINTERS ARE PERFORMED BY THE OPERATING SYSTEM.
PROCESS MANAGEMENT: PROCESS IS A PROGRAM THAT IS UNDER EXECUTION, AND PROCESS MANAGEMENT INVOLVES VARIOUS TASKS LIKE CREATION, SCHEDULING, TERMINATION OF PROCESSES, AND A DEAD LOCK. IT HANDLES OPERATIONS BY PERFORMING TASKS LIKE PROCESS SCHEDULING AND SUCH AS RESOURCE ALLOCATION.
MEMORY MANAGEMENT: IT IS A FORM OF RESOURCE MANAGEMENT APPLIED TO COMPUTER MEMORY. IT IS THE FUNCTIONALITY OF AN OPERATING SYSTEM WHICH HANDLES OR MANAGES PRIMARY MEMORY AND MOVES PROCESSES BACK AND FORTH BETWEEN MAIN MEMORY AND DISK DURING EXECUTION. MEMORY MANAGEMENT KEEPS TRACK OF EACH AND EVERY MEMORY LOCATION, REGARDLESS OF WHETHER IT IS ALLOCATED TO SOME PROCESS OR IT IS FREE.
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$ cat 1912160_myfile3 | tr [:lower:] [:upper:] > myfile3_out
grimsythe2001@ubuntu:~/Documents/CS-313 OS/Lab 01/Q4$
```

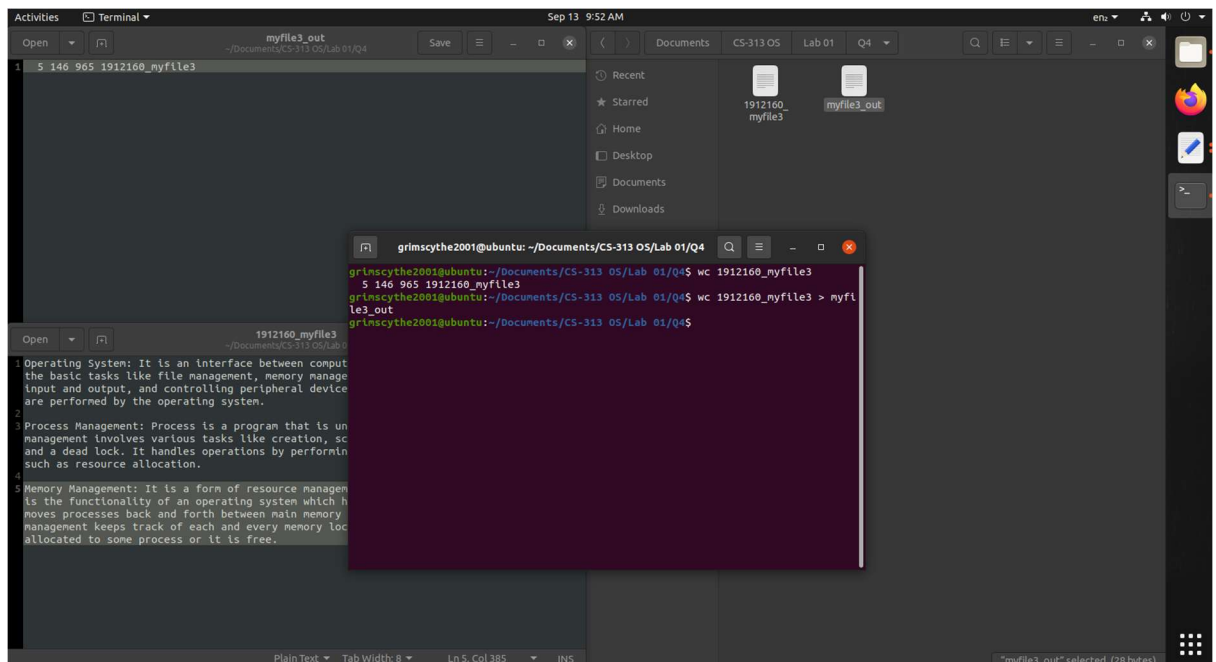
11. **uniq:**   \$uniq -c 1912160\_myfile3  
              \$uniq -c 1912160\_myfile3 > myfile3\_out



The screenshot shows a terminal window with the following commands and output:

```
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4
$ uniq -c 1912160_myfile3
1 Operating System: It is an interface between computer user and computer hardware. All the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers are performed by the operating system.
2
2 1 Process Management: Process is a program that is under execution, and process management involves various tasks like creation, scheduling, termination of processes, and a dead lock. It handles operations by performing tasks like process scheduling and such as resource allocation.
1
2 1 Memory Management: It is a form of resource management applied to computer memory. It is the functionality of an operating system which handles or manages primary memory and moves processes back and forth between main memory and disk during execution. Memory management keeps track of each and every memory location, regardless of whether it is allocated to some process or it is free.
1
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$ uniq -c 1912160_myfile3 > myfile3_out
```

12. **wc:**     \$wc 1912160\_myfile3  
              \$wc 1912160\_myfile3 > myfile3\_out



The screenshot shows a terminal window with the following commands and output:

```
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4
$ wc 1912160_myfile3
 5 146 965 1912160_myfile3
grimsythe2001@ubuntu: ~/Documents/CS-313 OS/Lab 01/Q4$ wc 1912160_myfile3 > myfile3_out
```