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L21_L22_Lab1 Exercises

- Develop a C Program to display the list of courses you have registered in this semester using only printf().

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~$ cd Desktop/
pv@pv-Vostro-5402:~/Desktop$ mkdir os_lab_observations
pv@pv-Vostro-5402:~/Desktop$ cd os_lab_observations/
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gedit courses.c
^C
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc courses.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc courses.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ ./a.out
Operating Systems
Operating Systems Lab
Theory of Computation
Qualitative Skills Practice II
Probability and Statistics
Probability and Statistics Lab
Microprocessors and Microcontrollers
Microprocessors and Microcontrollers Lab
Database Systems
Database Systems Lab
Essence of Traditional Knowledge
Differential Equations and Transforms
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

```
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat courses.c
#include<stdio.h>
int main()
{
printf(" Operating Systems\n");
printf(" Operating Systems Lab\n");
printf(" Theory of Computation\n");
printf(" Qualitative Skills Practice II\n");
printf(" Probability and Statistics \n");
printf(" Probability and Statistics Lab\n");
printf(" Microprocessors and Microcontrollers\n");
printf(" Microprocessors and Microcontrollers Lab\n");
printf(" Database Systems\n");
printf(" Database Systems Lab\n");
printf(" Essence of Traditional Knowledge\n");
printf(" Differential Equations and Transforms\n");
return 0;
}
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

- Develop a C program to show the difference between pass by reference and pass by value.

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gedit pointers.c
^C
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc pointers.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ ./a.out
Actual value :5095
Pass by Value :5095
Pass by Reference or Address :509500
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat pointers.c
#include<stdio.h>
void passVal(int n)
{
    n=n*100;
}
void passAddr(int *n)
{
    *n=*n*100;
}
int main()
{
    int n=5095;
    printf("Actual value :%d\n",n);
    passVal(n);
    printf("Pass by Value :%d\n",n);
    passAddr(&n);
    printf("Pass by Reference or Address :%d\n",n);
    return 0;
}
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gedit swap.c
^C
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc swap.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ ./a.out
Actual numbers: 100,200
After swap using pass by value: 100 200
After swap using pass by Reference: 200 100
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat swap.c
#include<stdio.h>
void swapval(int n1,int n2){
int t=n1;
n1=n2;
n2=t;
}
void swapaddr(int *n1,int *n2){
int t=*n1;
*n1=*n2;
*n2=t;
}

int main()
{
int a=100;
int b=200;
printf("Actual numbers: %d,%d\n",a,b);
swapval(a,b);
printf("After swap using pass by value: %d %d\n",a,b);
swapaddr(&a,&b);
printf("After swap using pass by Reference: %d %d\n",a,b);
return 0;
}
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

- Develop a C program to display the following using **system()** library function (through which you can run linux commands from c program)
 - (i) today's date
 - (ii) present working directory

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gedit sydate.c
^C
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat sydate.c
#include<stdlib.h>
int main()
{
system("date");
return 0;
}
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc sydate.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ ./a.out
Thursday 05 January 2023 12:49:01 PM IST
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc currentDir.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gcc currentDir.c
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ ./a.out
/home/pv/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat currentDir.c
#include<stdlib.h>
int main()
{
system("pwd");
return 0;
}
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

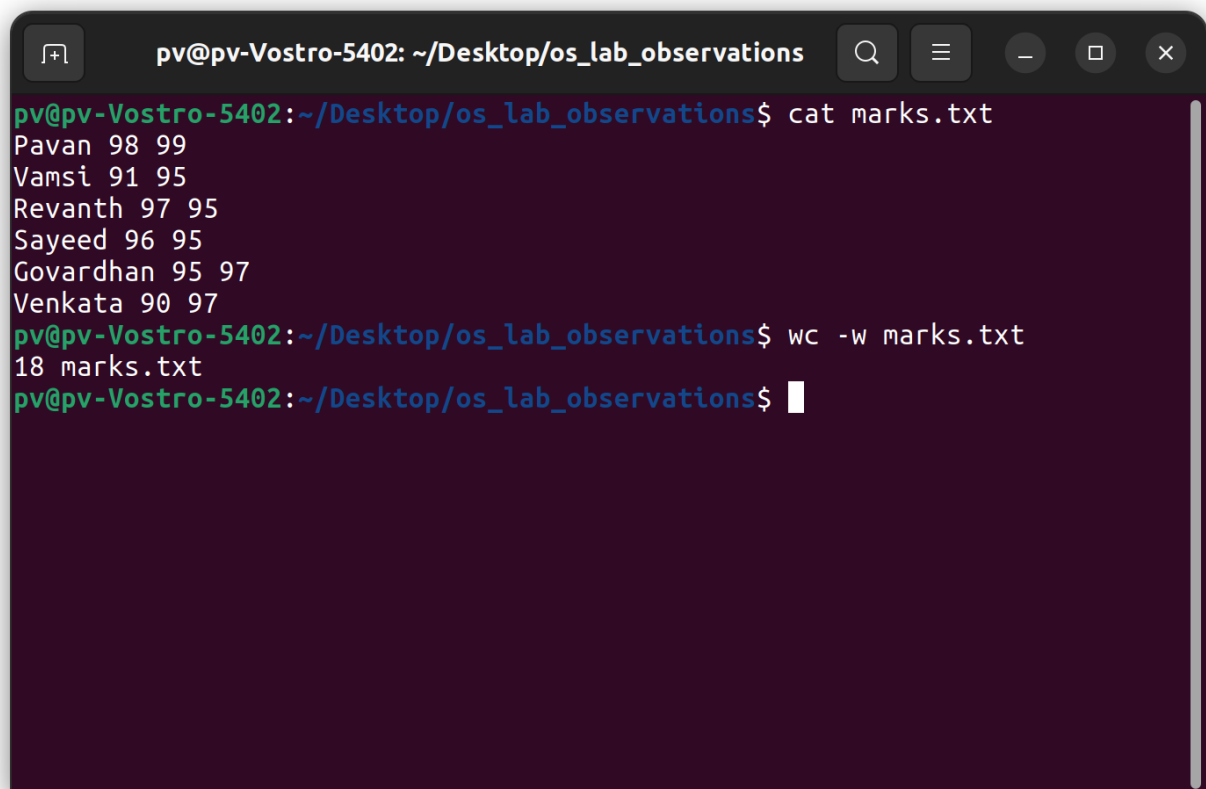
```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ pwd
/home/pv/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ date
Thursday 05 January 2023 01:06:28 PM IST
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

- Show the marks of CAT1 in sorting order from the marks.txt file using appropriate linux command

```
pv@pv-Vostro-5402: ~/Desktop/os_lab_observations
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ gedit marks.txt
^C
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cut -d " " -f2 marks.txt
98
91
97
96
95
90
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cut -d " " -f2 marks.txt|sort
90
91
95
96
97
98
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cut -d " " -f2 marks.txt|sort -r
98
97
96
95
91
90
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat marks.txt
Pavan 98 99
Vamsi 91 95
Revanth 97 95
Sayeed 96 95
Govardhan 95 97
Venkata 90 97
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

```
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat marks.txt
Pavan 98 99
Vamsi 91 95
Revanth 97 95
Sayeed 96 95
Govardhan 95 97
Venkata 90 97
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ sort -k 2n marks.txt
Venkata 90 97
Vamsi 91 95
Govardhan 95 97
Sayeed 96 95
Revanth 97 95
Pavan 98 99
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

- Display the word count of the file using appropriate linux command

A terminal window titled 'pv@pv-Vostro-5402: ~/Desktop/os_lab_observations' with standard window controls. It shows the output of 'cat marks.txt' and 'wc -w marks.txt'.

```
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ cat marks.txt
Pavan 98 99
Vamsi 91 95
Revanth 97 95
Sayeed 96 95
Govardhan 95 97
Venkata 90 97
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$ wc -w marks.txt
18 marks.txt
pv@pv-Vostro-5402:~/Desktop/os_lab_observations$
```

Make a document of Linux commands of your choice of any 4 commands.

Command	Description
1. man	<ul style="list-style-type: none">• It is a command used as help• every time if we dont know how to use any command we can type man <command>
2. ls	<ul style="list-style-type: none">• Inside a folder you can list all the files that the folder contains using the ls command• ls
3. cd	<ul style="list-style-type: none">• Once you are in a folder using the cd command you can change your directory from that location• cd Desktop/
4. pwd	<ul style="list-style-type: none">• It shows the directory where we are working at the moment• pwd
5. mkdir	<ul style="list-style-type: none">• You can create a folder using mkdir command• mkdir <folder name>
6. rmdir	<ul style="list-style-type: none">• You can remove a folder using rmdir command• rmdir <folder name>
7. cat	<ul style="list-style-type: none">• Using this command we can ceate files and add content to that file, append the content to that file• cat > file.txt<ul style="list-style-type: none">○ creates the file and ask to enter the data required• cat >>file.txt<ul style="list-style-type: none">○ to append the content• cat file.txt<ul style="list-style-type: none">○ to view the content
8. wc	<ul style="list-style-type: none">• Word count
9. Cut	<ul style="list-style-type: none">• Cut option according to diffrent methods
10. clear	<ul style="list-style-type: none">• Clears all the working screen
11. history	<ul style="list-style-type: none">• It shows all the commands you used in the terminal from the start