Standard Streams and File Manipulation

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What is happening behind the scenes when we execute a command:

Linux has 3 basics standard streams:

Input

1. stdin (Standard Input) — 0
2. stdout (Standard output) — 1
3. stderr (Standard error) — 2

→ Output

They have only one job is to transfer data (text).

Input / Output can be in any form

Output Example:

1. Terminal Window
2. File
3. Pipes → redirects

} Output

Standard Output:

It's generally given through '>' symbol.

* To redirect your output to somewhere then you simply add

'greater than symbol (>)'.

Example.

⇒ If you want to send the output in a file, but don't want to display it.

```
rizon@rizon:~$ ls
bootcamp  Documents  Music     Public  Templates
Desktop   Downloads  Pictures  snap    Videos
rizon@rizon:~$ ls > output.txt
rizon@rizon:~$
```

The output is no more visible.

⇒ But, if you do 'ls'

output.txt is present in the home directory

```
rizon@rizon:~$ ls
bootcamp   Downloads   Pictures  Templates
Desktop    Music       Public    Videos
Documents  output.txt  snap
rizon@rizon:~$
```

Checking the content of output.txt, Cat output.txt

```
rizon@rizon:~$ cat output.txt
bootcamp
Desktop
Documents
Downloads
Music
output.txt
Pictures
Public
snap
Templates
Videos
rizon@rizon:~$
```

It's display all the directories that were supposed to be in this file along with the output.txt.

⇒ Now, if you go into any folder and do the same thing. (output.txt)

```
rizon@rizon:~$ cd Downloads/
rizon@rizon:~/Downloads$ ls > ~/output.txt
rizon@rizon:~/Downloads$ cd ..
rizon@rizon:~$ cat output.txt
firefox.tmp
```

Now, you see that only few files are present, it didn't retain the other file.

⇒ Now the problem statement is to get all the output in one single file without loosing the output of the previous command.

To Do that we use double greater than symbol '>>'.

```
rizon@rizon:~$ ls >> ~/output.txt
rizon@rizon:~$ cat output.txt
firefox.tmp
bootcamp
Desktop
Documents
Downloads
Music
output.txt
Pictures
Public
snap
Templates
Videos
rizon@rizon:~$
```

Content of download folder is present.

Standard Input:

It's generally given through '<' symbol.

Standard Error :

Instead of ls command, you gave lg command it show error but the command doesn't save in the lg > output.txt, as it's a standard error, as it just cannot add some standard error with simple greater than symbol.

⟶ No content is printed here

To tackle that just add '2' before '>' symbol

lg 2 > output.txt

Now the question is why '2' not some other nos?

The reason is standard error is always denoted by '2'.

⟶ The content is printed now.

Now if you don't want console your error in the display:

like for e.g. lg command will give error message

To avoid that lg 2> /dev/null this will not display any error message. It just become null.

```
rizon@rizon:~$ lg
lg: command not found
rizon@rizon:~$ rm output.txt
rizon@rizon:~$ ls
bootcamp  Documents  Music     Public  Templates
Desktop   Downloads  Pictures  snap    Videos
rizon@rizon:~$ lg
lg: command not found
rizon@rizon:~$ lg 2> /dev/null
rizon@rizon:~$
```