Linux

Terminal Basics

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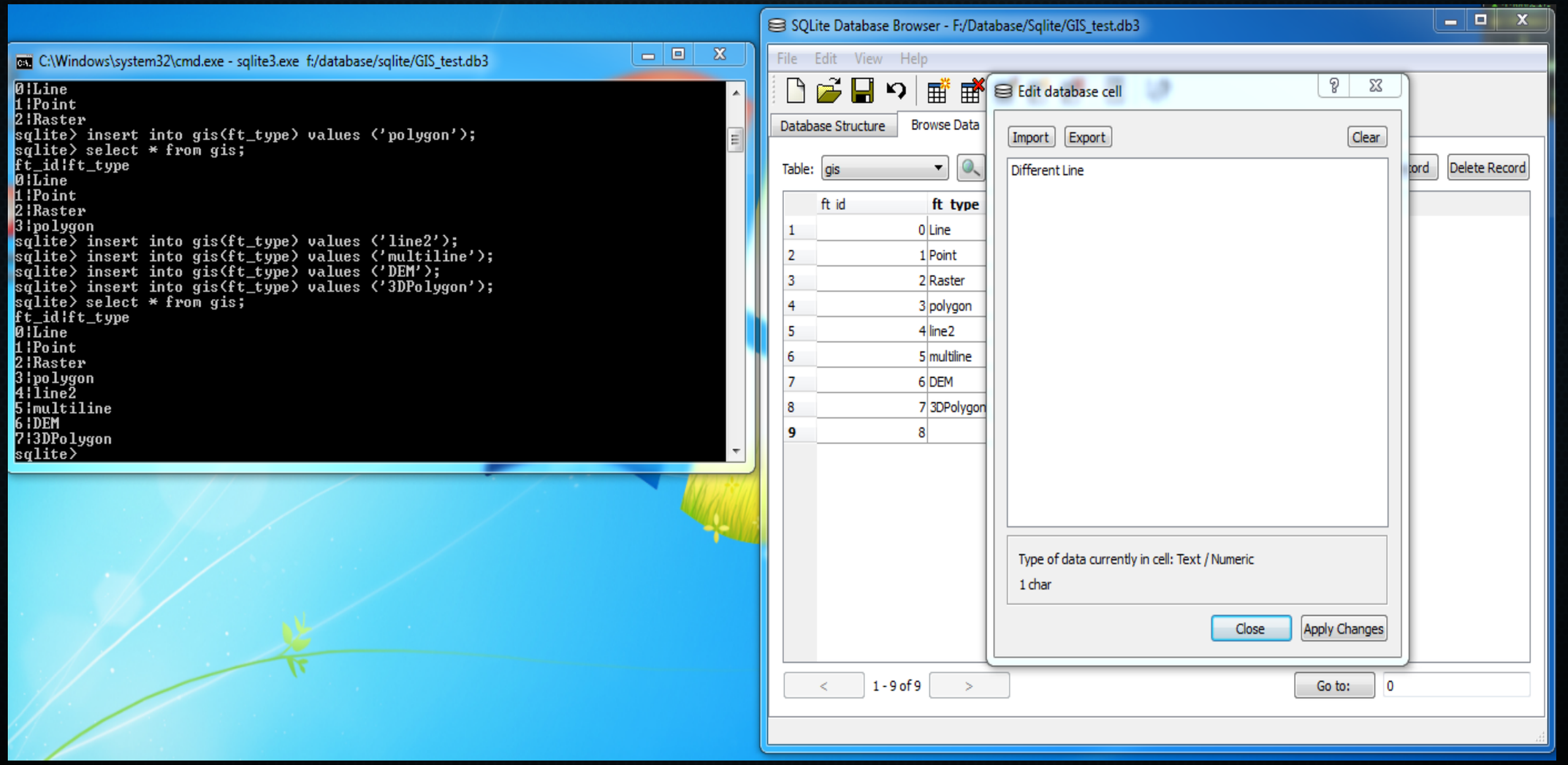
Introduction to Linux

Linux is a free Unix-type operating system Created by Linus Torvalds

Developed under the GNU General Public License

The source code for Linux is freely available to everyone

Graphical Vs Commadline Interfaces



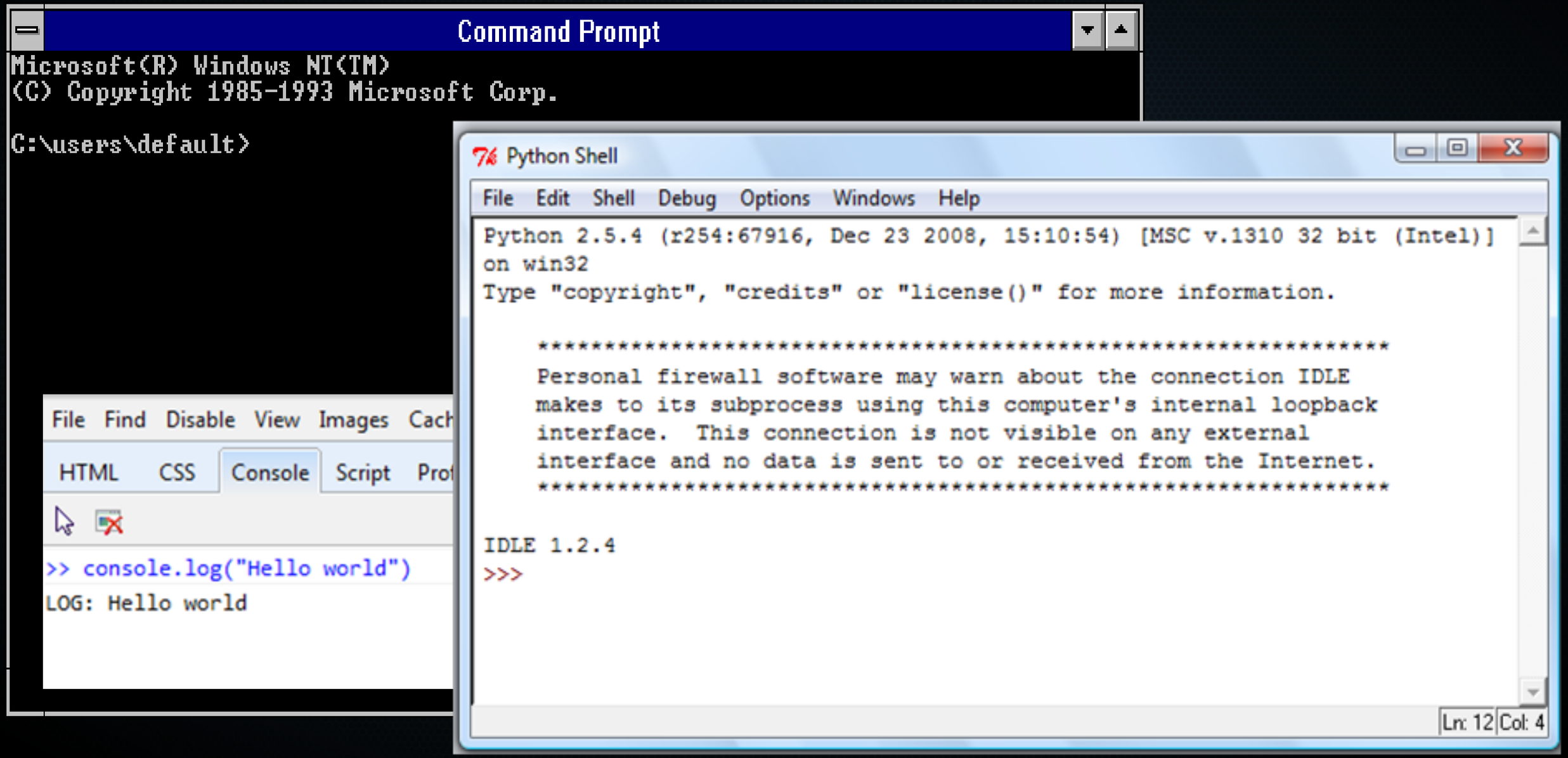
Command Line Interfaces

- These days terminal is a piece of software but it originally meant a physical piece of hardware for interfacing with the computer

Command line Interface is

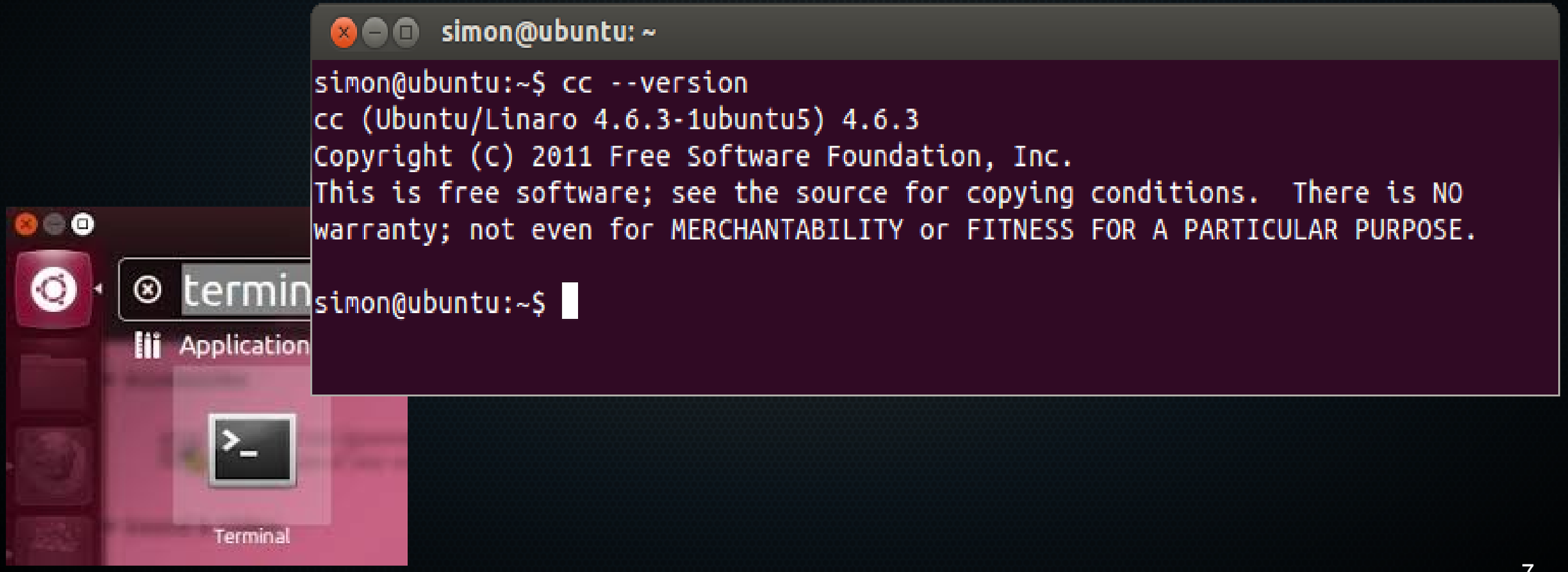
- Programmable
- Efficient in terms of Bandwidth
- You can work remotely

Examples of command line interface



Linux Terminal

- Press Control+Alt+T to launch terminal



Terminal Vs Shell

- Bourne shell
- C shell
- Korn shell
- Bash shell etc..

Unix and Linux programmers over the years have written many different shell programms

Lets get our hands dirty

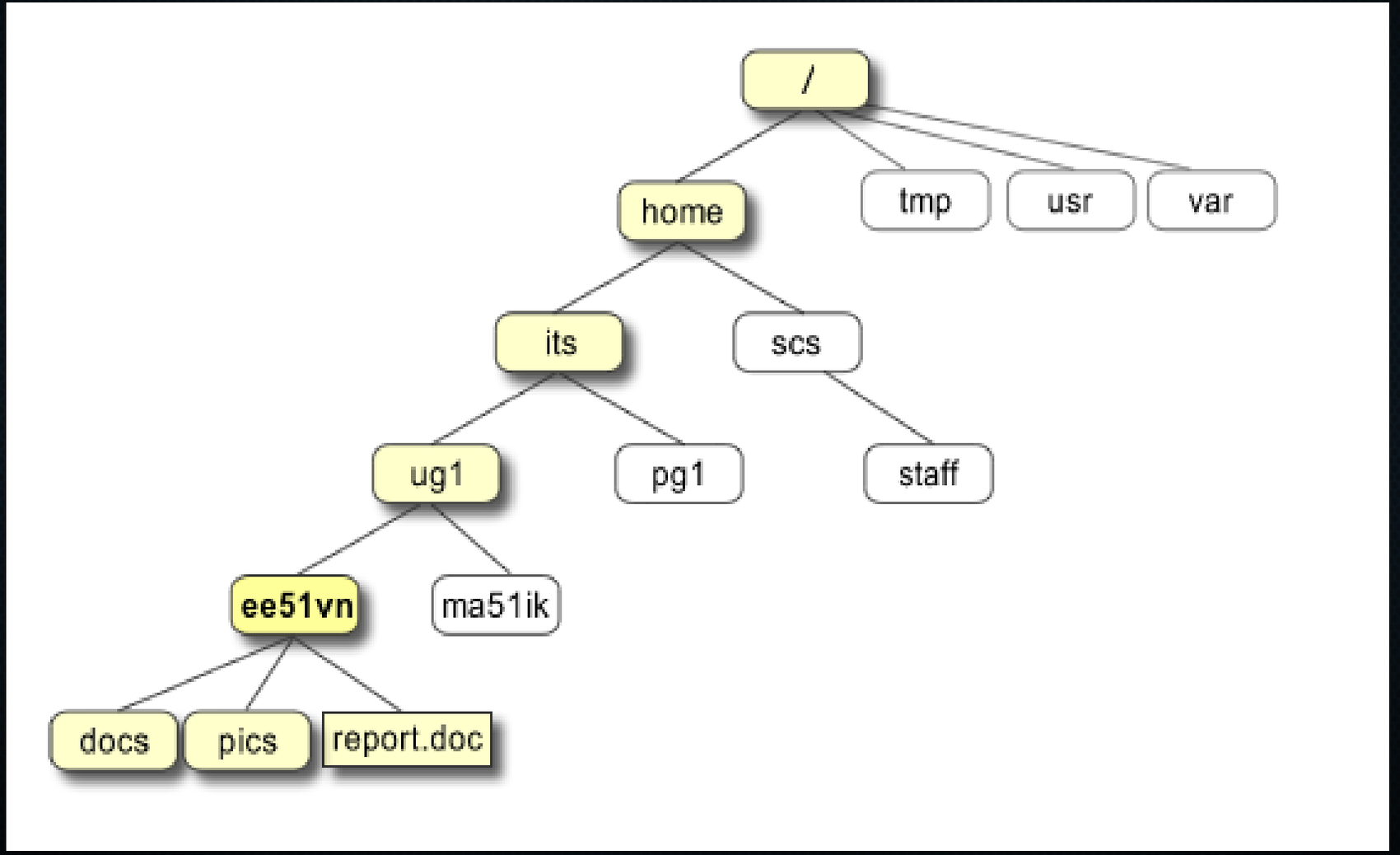
```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ date
Wed Nov 25 17:02:04 IST 2015

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ expr 10 + 21
31

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ echo Namaste
Namaste

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ whoami
```

Linux File Structure



```
sajil@sajil-KY652AA-ACJ-    CQ3050IL:~$pwd
/home/sajil

sajil@sajil-KY652AA-ACJ-    CQ3050IL:~$clear
sajil@sajil-KY652AA-ACJ-    CQ3050IL:~$

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ uname
Linux
```

```
$ls -ltr

$chmod 777 file.txt

$mv  *.txt  ../

$ ls | grep file_or_folder_you are_looking

$ ls | grep .txt
```

```
sajil@sajil-KY652AA-ACJ-   CQ3050IL:~$ls
11.pdf
Activity files
Adder.ipynb
Desktop
Dist3D
```

Tab Completion

- Press Tab for auto completion

```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ sudo apt
apt-add-repository    apt-extracttemplates  apt-sortpkgs
apt-cache             apt-ftparchive        apturl
apt-cdrom             apt-get               apturl-gtk
```

Command History

- *Use up and down arrow keys to navigate via prevoius commands*

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$*history*

Control+R to search via previous commands

Installation

```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ sudo apt-get install cow
cowbell     cowbuilder  cowdancer   cowsay
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ sudo apt-get install cowsay
```

Passing Parameters

```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ cowsay NGS Workshop Rocks!
 _____________________
< NGS Workshop Rocks! >
 ---------------------
        \   ^__^
         \  (oo)\_______
            (__)\       )\/\
                ||----w |
                ||     ||
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$
```

Getting Help

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ man cowsay

Passing Parameters

```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ cowsay -e nn NGS Workshop Rocks!

 ____________________________
< NGS Workshop Rocks! >
 ----------------------
        \   ^__^
         \  (nn)\_________
            (___)\         )\/\
              ||----w |
              ||     ||

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ cowsay -f  tux Hello
```

Identifiying User Input and Output

- user@host~$ cd /tmp/testing

- user@host:testing$ ls
  bears fish mouse

- user@host~$ echo Have a good day
  Have a good day

Files and Directories

- sajil@sajil-KY652AA-ACJ-CQ3050IL:~/Desktop/Linux$ tree

```
├── 1.png
├── 2.png
├── 5.jpg
├── handon.jpg
└── windows.png
```

Files and Directories

- Creating Directories

  sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ mkdir directoryname

- Changing Directories

  sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ cd directoryname

- Removing Directories

  sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ rmdir directoryname

-

- Exiting from current Directory

  sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ cd ..

Files and Directories

```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ tree
├── 1
└── 2
    ├── 3
    ├── 4
    └── 5
        └── 6

6 directories, 0 files
sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$
```

Creation of files

sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ nano abc.txt

sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ tree

sajil@sajil-KY652AA-ACJ-CQ3050IL:~$ rm abc.txt

Creation of files

sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ cd 2/5/6

sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a/2/5/6$ ls

abc.txt

sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a/2/5/6$ wc abc.txt
2 2 8 abc.txt
Lines words bytes

Creation of files

```
sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ nano abc.txt

sajil@sajil-KY652AA-ACJ-CQ3050IL:~/a$ tree
.
├── 1
└── 2
    ├── 3
    ├── 4
    └── 5
        └── 6
            └── abc.txt
```

Saving Output to file

```
$ ls >outputlog.txt
```

Checking Sytem Performance

```
$ top
```

Check Web Connection

```
$ ping google.com
```

Listing specific type of files

```
$  ls *.pdf
```

Compressing files

```
$ gzip file.txt
```

Uncompressing files

```
$ gzip -d file.txt.gz
```

```
$ unzip text.zip
```

Creating Bash Script

$ gedit new.sh

- echo first command
- echo second command
- echo third command

$ chmod a+x new.h

$./new.sh >outputlog.txt

Getting Arguements

```
$  echo a b c d e f |xargs -n 3
```

Finding files

```
$ find . -name “*.txt“
```

Exiting terminal

```
$ exit
```

Thank You