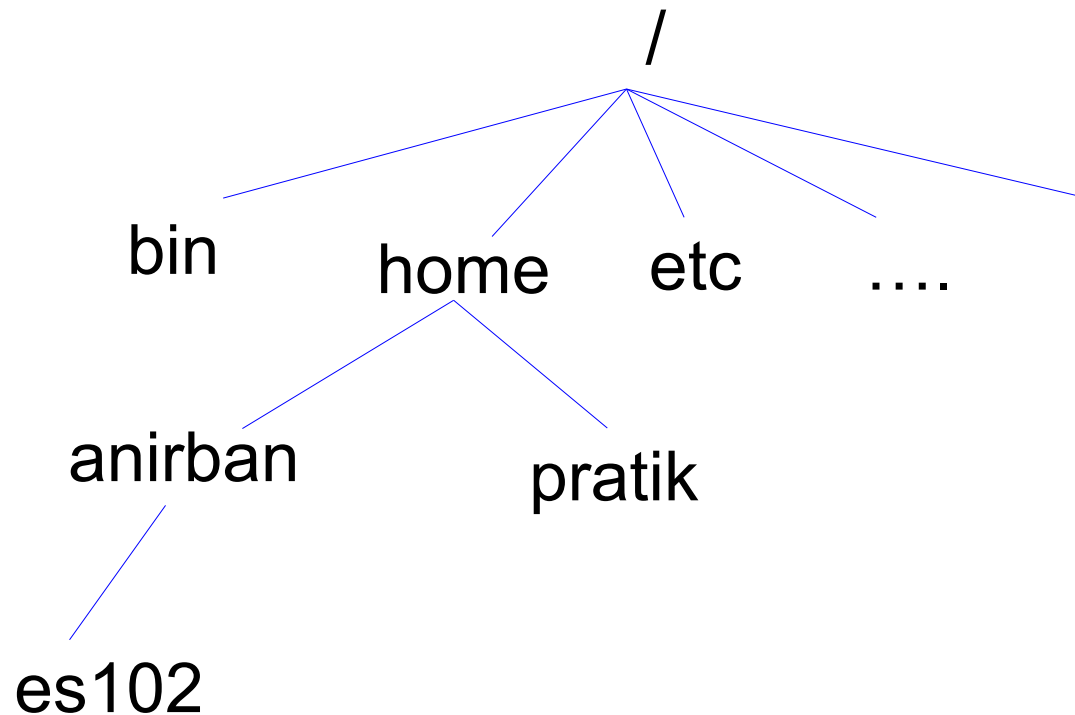# Introduction to Linux

- What is an operating system?

- Will rely more on the command line interface of Linux

- Basics:
  - Directory structure
  - Changing directory, creating a file, deleting a file...

Directory structure in linux

Tree structure of the directory

Navigating directories

- **pwd** gives you which directory you are in

```
anirban@anirban-ThinkPad-X220:~$ pwd
/home/anirban
```

- **cd** to change directory

```
anirban@anirban-ThinkPad-X220:~$ cd /home
anirban@anirban-ThinkPad-X220:/home$ pwd
/home
```

Navigating directories

- Useful shortcuts : "~" and "." and ".."

```
anirban@anirban-ThinkPad-X220:~$ cd ~

anirban@anirban-ThinkPad-X220:~$ pwd
/home/anirban
```

```
anirban@anirban-ThinkPad-X220:~$ cd ..
anirban@anirban-ThinkPad-X220:/home$ pwd
/home
```

Creating directory

- **mkdir** creates a new directory

```
anirban@anirban-ThinkPad-X220:~$ pwd
/home/anirban
anirban@anirban-ThinkPad-X220:~$ mkdir es102
anirban@anirban-ThinkPad-X220:~$ cd es102
anirban@anirban-ThinkPad-X220:~/es102$ pwd
/home/anirban/es102
```

- What do you think will happen is we had not done the "mkdir above?

Listing all files

- **`ls`** lists all files and directories

```
anirban@anirban-ThinkPad-X220:~$ pwd
/home/anirban
anirban@anirban-ThinkPad-X220:~$ ls
```

USEFUL TIP: Commands in linux can behave in different ways depending on parameters you supply

Listing all files, many options

- **ls** has many different options

```
anirban@anirban-ThinkPad-X220:~$ ls -l

anirban@anirban-ThinkPad-X220:~$ ls -a

anirban@anirban-ThinkPad-X220:~$ ls -al
```

- The options can often be combined !!

Copying files to another

- **`cp <source> <destinationpath>`**

- **`cp <source> <destinationfile>`**

```
anirban@anirban-ThinkPad-X220:~$ cp test.py  ~/es102

anirban@anirban-ThinkPad-X220:~$ cp test.py  newfile.py
```

- What happens when the source file does not exist?

- Try **`cp -i`**

Moving files to another

- **`mv <source> <destinationpath>`**

- **`mv <source> <destinationfile>`**

```
anirban@anirban-ThinkPad-X220:~$ cp test.py  ~/es102

anirban@anirban-ThinkPad-X220:~$ cp test.py  newfile.py
```

- What happens when the source file does not exist?

- Try **`mv -i`**

Deleting files

- **`rm <source>`**
- **`rm -i <source>:`** ask again before delete

```
anirban@anirban-ThinkPad-X220:~$ rm test.py

anirban@anirban-ThinkPad-X220:~$ rm -i test.py
```

- What happens when the source file does not exist?
- **`rm -f`** : **use with care**
- **`rm -rf`** : **never ever ever ever ever ever use...**

Manual

- **man <command>** to get details of a command

```
anirban@anirban-ThinkPad-X220:~$ man cp
```

gedit

- **gedit** will be our editor

```
anirban@anirban-ThinkPad-X220:~$ gedit

anirban@anirban-ThinkPad-X220:~$ gedit test
```

Lab today

- Login, open terminal
- Manipulate directories, create and change
- Move files, copy, delete
- List all files, list with different options
- Using man
- Create a file using gedit, save
- Start python on the terminal
  - Simple mathematical expressions