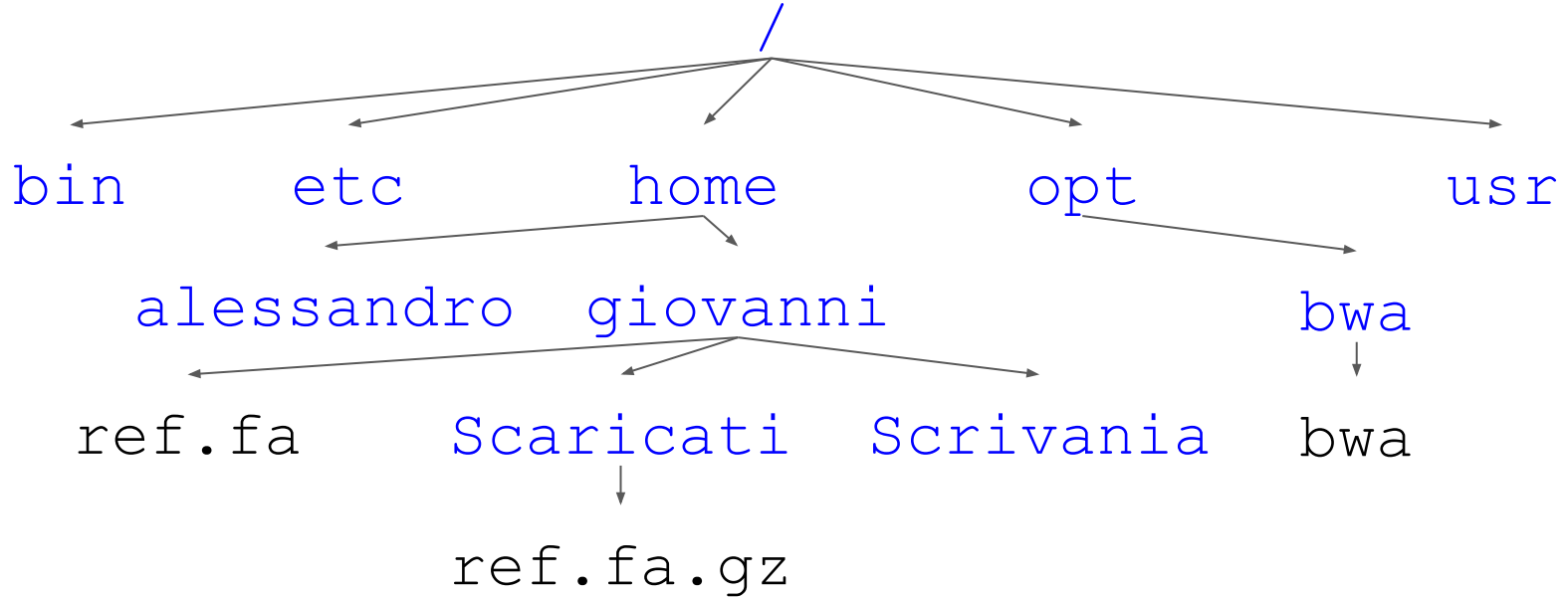


SHELL

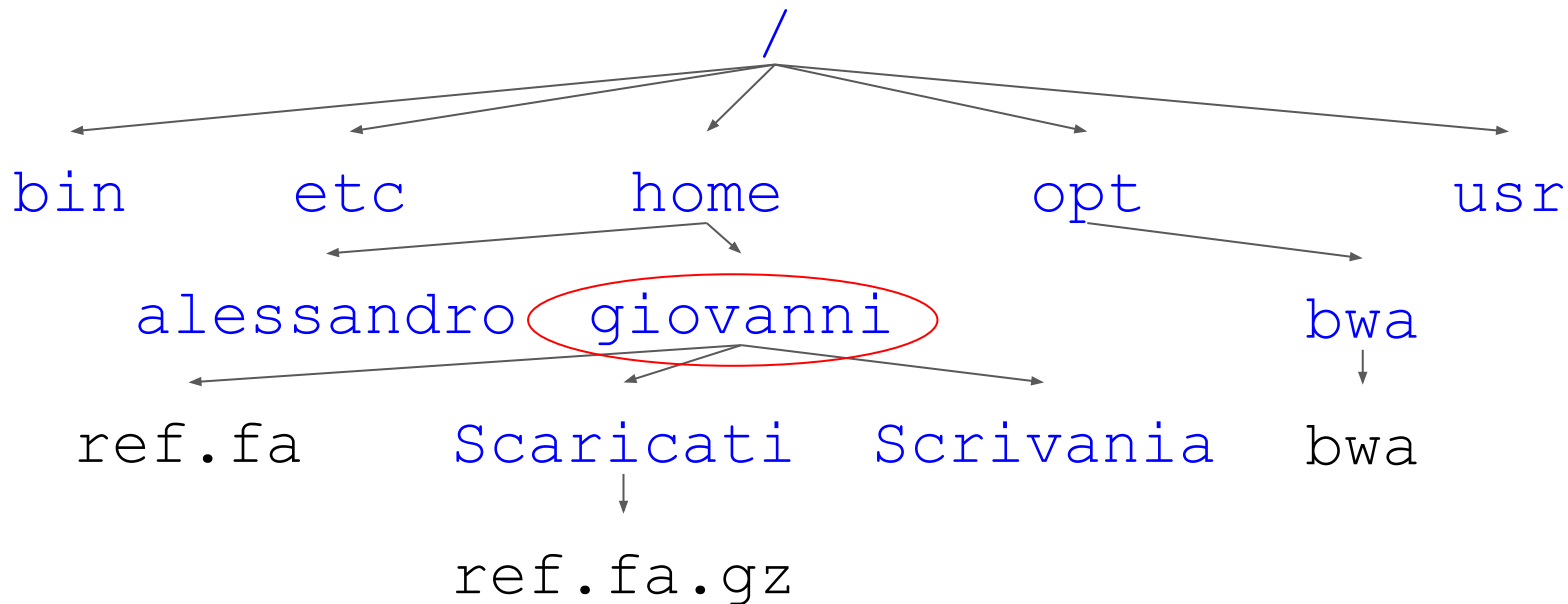
MOVING AROUND

The File system Organization



Files and directories are organized as a tree.

The Home Directory



Each user has one, write permission.

The Current/Working Directory



Print working directory:

\$ pwd

/home/giovanni

List files in current directory:

\$ ls

ref.fa Scaricati Scrivania

Change working directory:

\$ cd Scaricati

\$ pwd

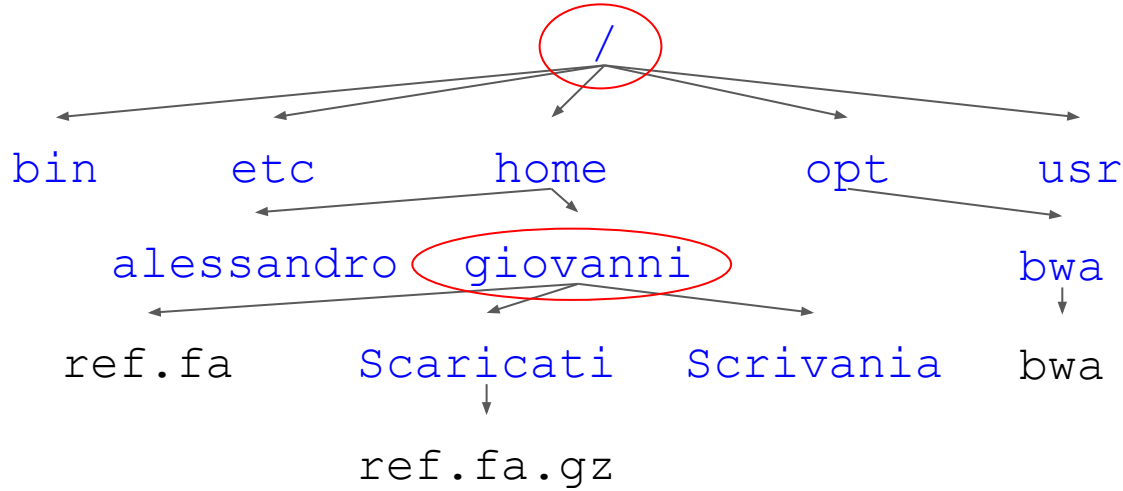
/home/giovanni/Scaricati

\$ ls

ref.fa.gz

The shell always have one current/working directory. Starts from user home.

Absolute and Relative Paths



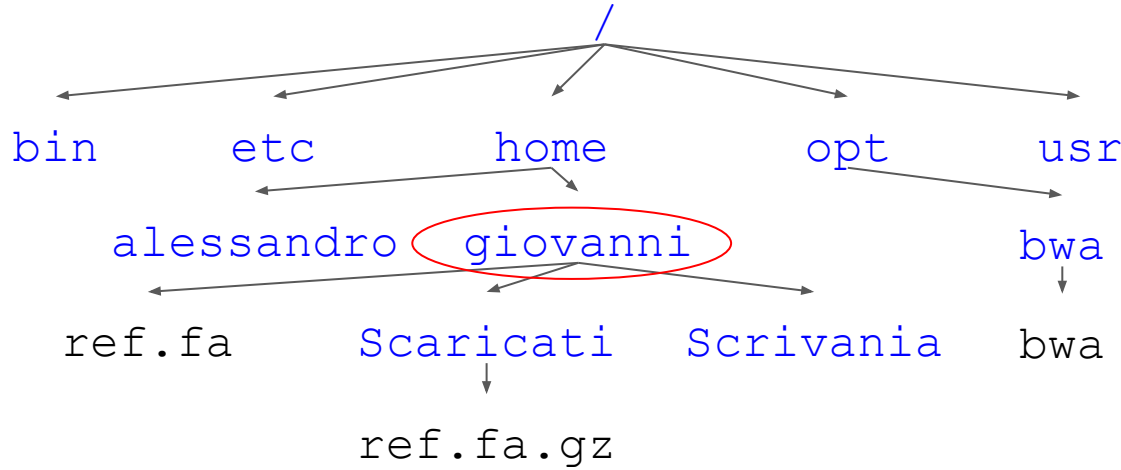
Absolute paths start from /:
/opt/bwa/bwa
/home/giovanni
/home/giovanni/Scaricati/ref.fa.gz

Relative paths start from the current directory:
ref.fa
Scaricati/ref.fa.gz

```
$ ls /home  
alessandro giovanni  
$ ls Scaricati  
ref.fa.gz
```

Relative paths depend on the current directory.

Relative Paths and special directories “.” and “..”



“.” and “..” are always present:

.. is the parent directory

. is the current directory

\$ pwd

/home/giovanni

\$ ls ..

alessandro giovanni

\$ cd ..

\$ pwd

/home/

\$ ls ../opt/bwa/

bwa

To go back home from anywhere:

\$ cd

\$ pwd

/home/giovanni

Commands

pwd print current directory

cd path change current directory to path

ls [path] print files and directories in the current directory or path

PIPES

grep

*With **grep** you can extract only sequence names from a FASTA:*

```
$ grep "^>" fasta
```

```
>seq1
```

```
>seq2
```

```
>seq3
```

```
...
```

*We say that **grep** has two arguments: the pattern and the file name (or path).*

WC

*With **wc** we can count the lines in a file:*

```
$ wc -l fasta
```

```
338
```

*We say that **wc** has an option (-l) and an argument, the file name.*

*If we could use **wc** on the lines extracted from **grep**, we could count the number of sequences in the FASTA file.*

Can we do it?

Pipe |

We can in this way:

```
$ grep “^>” fasta | wc -l
```

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*The special character “|” takes the output of the first command (**grep**) and gives it as input to the second command (**wc**).*

*Note that **wc** has no file argument. Otherwise **wc** reads its input from the file and ignores the output of **grep**, even if we use the pipe.*