

Listing Exercises

- You can also use multiple options simultaneously.
What does **ls** do when used with the **-l** option?
What if you use both the **-l** and **-h** options together?
- By default, **ls** lists directory contents alphabetically by name.
ls -t lists items by time of most recent change.
Which file is displayed first when **-r** and **-t** are used together?

Absolute vs Relative Paths

- Starting from `/Users/amanda/data`, which of the following commands could Amanda use to navigate to her home directory, which is `/Users/amanda`?

1. `cd .`

2. `cd /`

3. `cd /home/amanda`

4. `cd ../..`

5. `cd ~`

6. `cd home`

7. `cd ~/data/..`

8. `cd`

9. `cd ..`

Relative Path Resolution

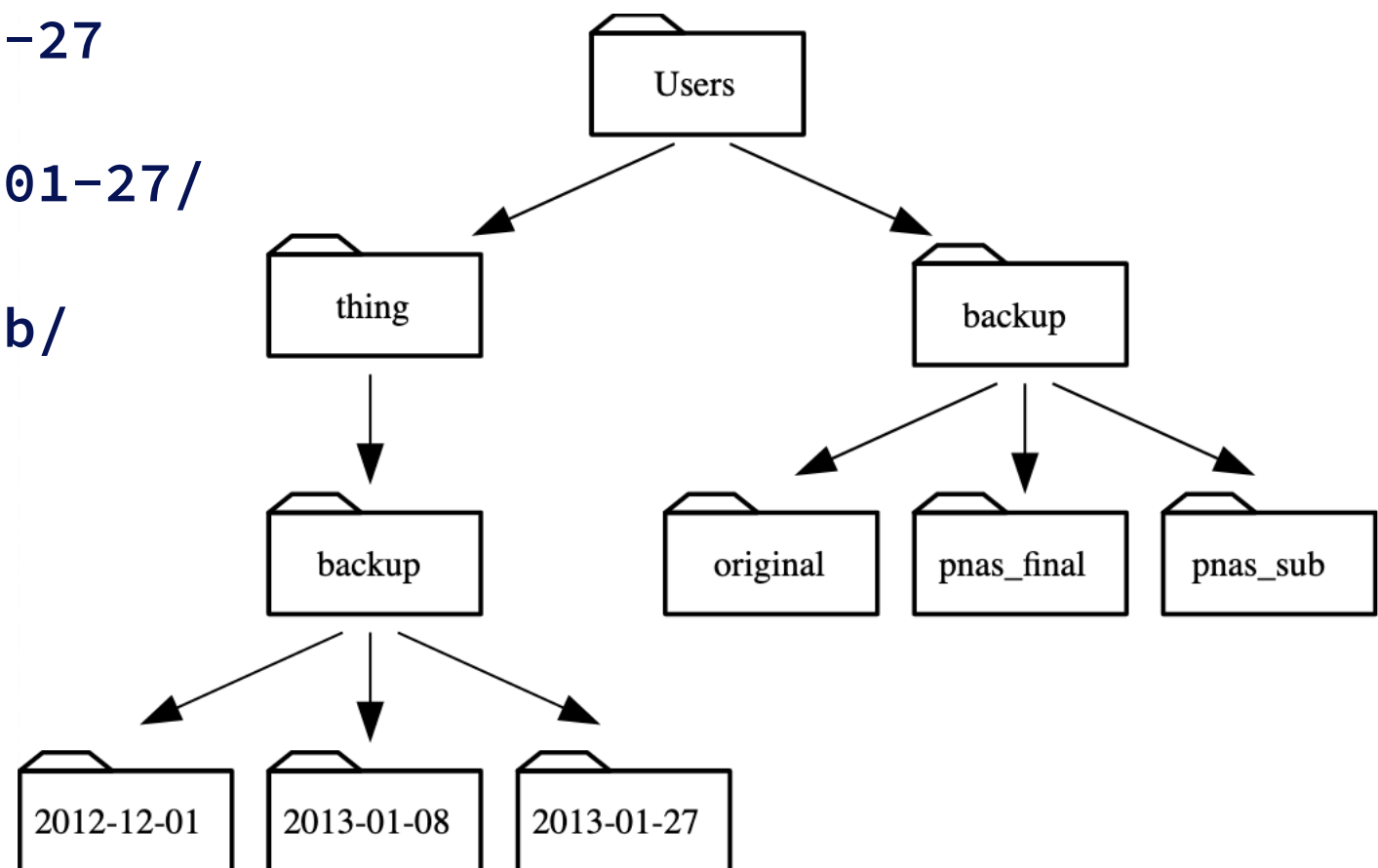
- Using the filesystem diagram below, if `pwd` displays `/Users/thing`, what will `ls -F ../backup` display?

1. `../backup`: No such file or directory

2. `2012-12-01 2013-01-08 2013-01-27`

3. `2012-12-01/ 2013-01-08/ 2013-01-27/`

4. `original/ pnas_final/ pnas_sub/`

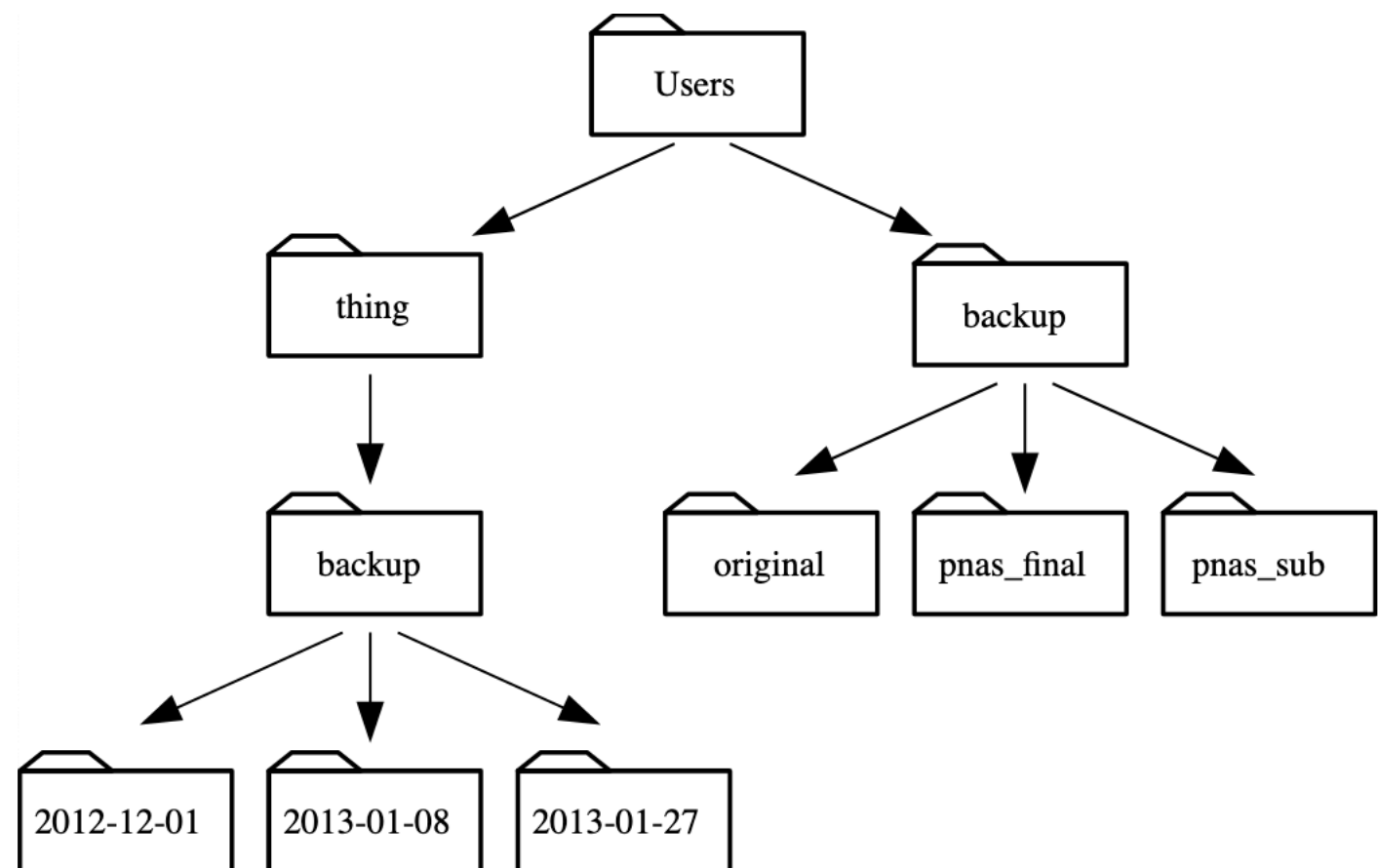


Reading Comprehension

- Using the filesystem diagram below, if `pwd` displays `/Users/backup`, and `-r` tells `ls` to display things in reverse order, what command(s) will result in the following output:

`pnas_sub/ pnas_final/ original/`

- `ls pwd`
- `ls -r -F`
- `ls -r -F /Users/backup`



Moving Files

- After running the following commands, Jamie realises that she put the files `sucrose.dat` and `maltose.dat` into the wrong folder. The files should have been placed in the `raw` folder.

```
$ ls -F  
analyzed/ raw/
```

```
$ ls -F analyzed  
fructose.dat glucose.dat maltose.dat sucrose.dat
```

```
$ cd analyzed
```

- Fill in the blanks to move these files to the `raw/` folder (i.e. the one she forgot to put them in)

```
$ mv sucrose.dat maltose.dat ____/____
```

Renaming Files

- Suppose that you created a plain-text file in your current directory to contain a list of the statistical tests you will need to do to analyse your data, and named it: `statstics.txt`

After creating and saving this file you realise you misspelled the filename! You want to correct the mistake, which of the following commands could you use to do so?

1. `cp statstics.txt statistics.txt`
2. `mv statstics.txt statistics.txt`
3. `mv statstics.txt .`
4. `cp statstics.txt .`

Moving & Copying

- What is the output of the closing `ls` command in the sequence shown below?

```
$ pwd  
/Users/jamie/data
```

```
$ ls  
proteins.dat
```

```
$ mkdir recombine
```

```
$ mv proteins.dat recombine/
```

```
$ cp recombine/proteins.dat ../proteins-saved.dat
```

```
$ ls
```

1. `proteins-saved.dat recombine`

2. `recombine`

3. `proteins.dat recombine`

4. `proteins-saved.dat`

Listing with Wildcards

- When run in the `molecules` directory, which `ls` command(s) will produce this output?

```
ethane.pdb methane.pdb
```

1. `ls *t*ane.pdb`
2. `ls *t?ne.*`
3. `ls *t??ne.pdb`
4. `ls ethane.*`

What does >> do?

- We have seen the use of >, but there is a similar operator >> which works slightly differently.
- Test the commands below to reveal the difference between the two operators.

```
echo hello > testfile01.txt
```

```
echo hello >> testfile02.txt
```

```
echo hello > testfile01.txt
```

```
echo hello >> testfile02.txt
```

Piping Commands Together

- In our current directory, we want to find the three files that have the least number of lines. Which of the commands below could we use to achieve this?

1. `wc -l * > sort -n > head -n 3`

2. `wc -l * | sort -n | head -n1-3`

3. `wc -l * | head -n 3 | sort -n`

4. `wc -l * | sort -n | head -n 3`