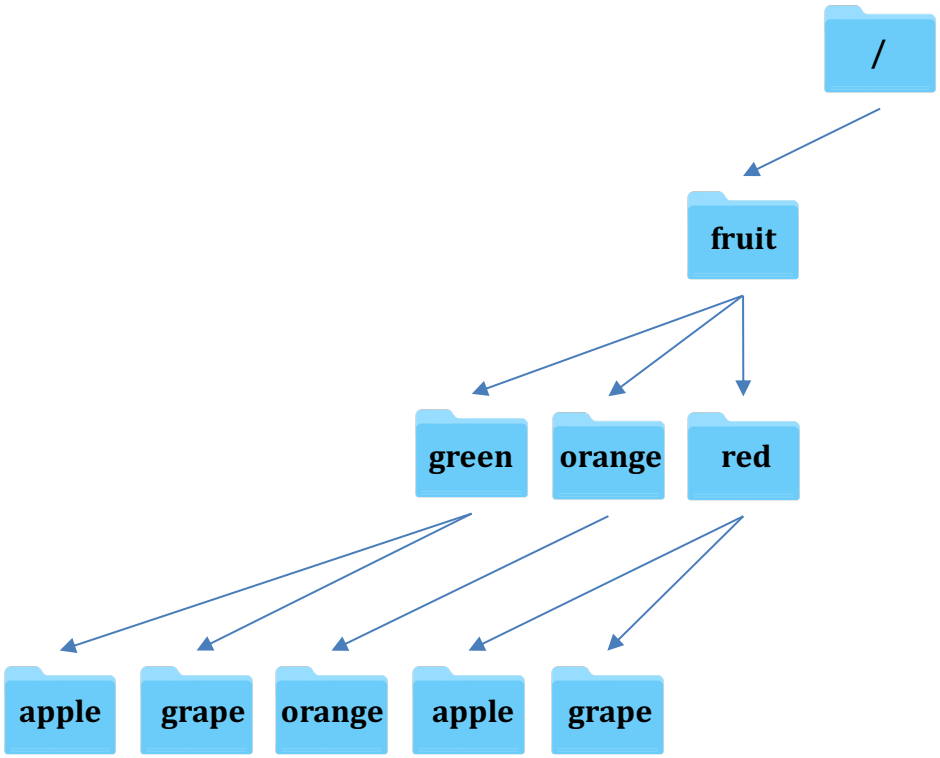
OSU Center for Genome Research and Biocomputing (CGRB), MCB 599: "Introduction to Unix/Linux" (INX_U18)
"Work Sheet": Day 03, **Pages:** 7, **Revision:** 2018-07-25, **Instructor:** Matthew Peterson (matthew@cgrb.oregonstate.edu)

Relative Path Worksheet; Simple "fruit tree" example (file system) diagram




```
# Simple "fruit tree" example (file system) command-line hierarchy
/
/fruit/
/fruit/green/
/fruit/green/apple/
/fruit/green/grape/
/fruit/orange/
/fruit/orange/orange/
/fruit/red/
/fruit/red/apple/
/fruit/red/grape/
```

Questions

1) A relative path never starts with what (special) character?

2) Type the command to change into the 'apple' subdirectory from `/fruit/red/` in a relative (not absolute) fashion.

3) Type the command to change into the (parent) directory `/fruit/` from the directory `/fruit/red/` in a relative (not absolute) fashion.

4) If your `$PWD` is `/fruit/green/grape/` what directory will you be in after executing:
```
cd ../../../../../../../../../
```

5) If your `$PWD` is `/fruit/green/grape/` what directory will you be in after executing:
```
cd ./././././././././
```

6) If your `$PWD` is `/fruit/green/grape/` what directory will you be in after executing:
```
cd ../..
```

7) If your `$PWD` is `/fruit/green/grape/` what directory will you be in after executing:
```
cd ../../green/grape/
```

8) If your `$PWD` is `/fruit/green/grape/` what directory will you be in after executing:
```
cd ../////////////////
```

9) Type the command to change into the directory `/fruit/orange/orange/` given your `$PWD` is `/fruit/green/grape/` in a relative (not absolute) fashion.

10) The directory `/fruit/` contains three subdirectories. Type the three different commands that could be used to change into these three different subdirectories in a relative (not absolute) fashion while your `$PWD` is `/fruit/` (each time before you type the command).

Answer Key

1) A relative path never starts with a slash character: `/`
This character always indicates the start of an absolute, not relative path, i.e., the "top" of the file system tree or "root."

2) `cd apple` (as the 'apple' subdirectory is relative to your `$PWD`, i.e., `/fruit/red/`)

3) `cd ..` (this takes you "up" one directory)

4) `/` (Going "up" several directories you cannot go "higher" than the "root" level directory, i.e., `/`)

5) `/fruit/green/grape/` (You will still be in the same `$PWD` after changing your directory to "here" repeatedly)

6) `/fruit/` (This is after going "up" two directories)

7) `/fruit/green/grape/` (This is after going "up" two directories and then "down" two subdirectories)

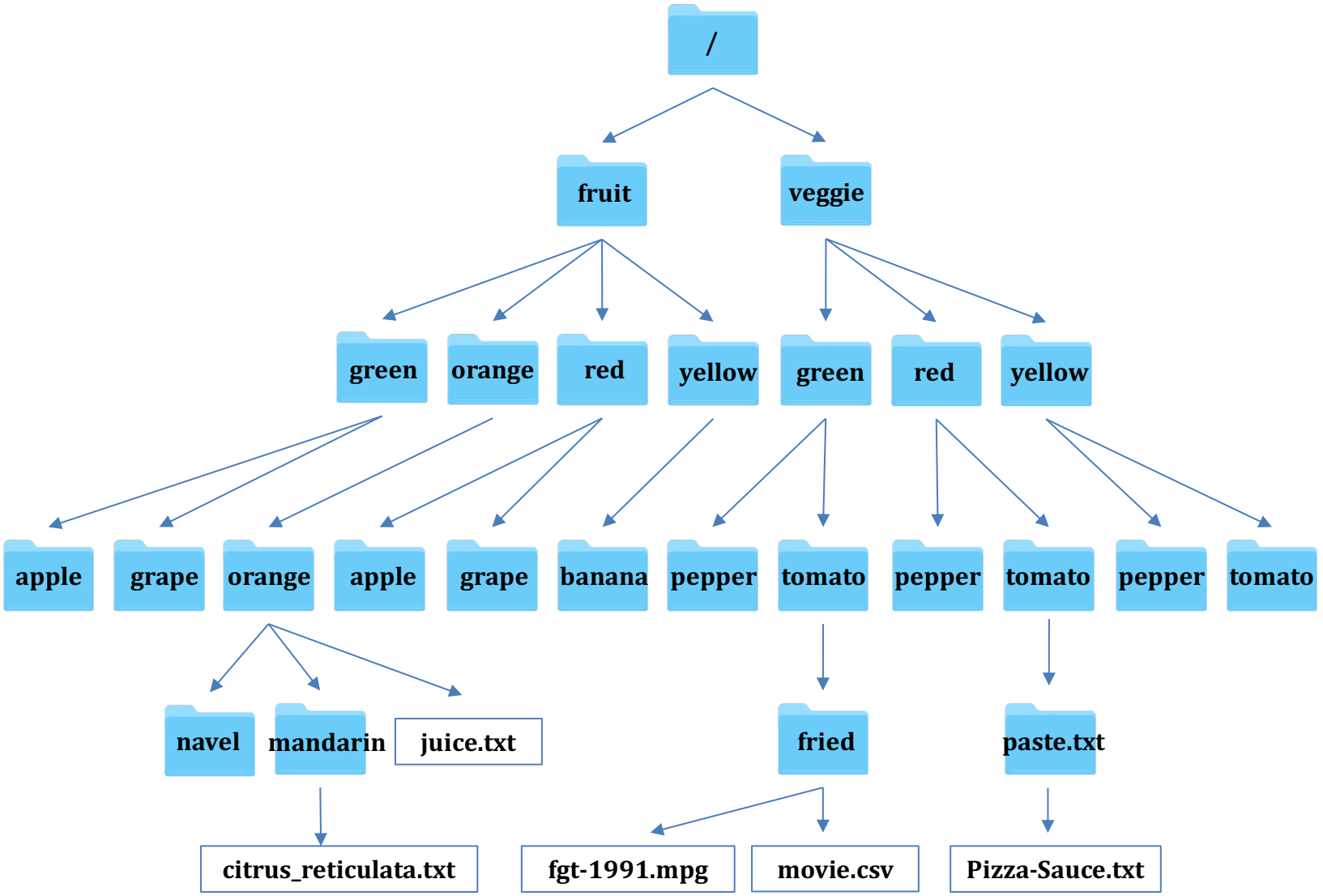
8) `/fruit/green/` (This is after going "up" one directory and repeated `/` essentially "collapse" or translate to `/./`)

9) `cd ../../orange/orange/` (This is going "up" two directories and then "down" two subdirectories)

10) Assuming your `$PWD` was `/fruit/` each time you could change into each of the subdirectories via:

```
cd green
cd orange
cd red
```

Relative Path Worksheet; Complex "fruit/veggie tree" example (file system) diagram



```
# Complex "fruit/veggie tree" example (file system) command-line hierarchy
/
/fruit
/fruit/green
/fruit/green/apple
/fruit/green/grape
/fruit/orange
/fruit/orange/orange
/fruit/orange/orange/juice.txt
/fruit/orange/orange/mandarin
/fruit/orange/orange/mandarin/citrus_reticulata.txt
/fruit/orange/orange/navel
/fruit/red
/fruit/red/apple
/fruit/red/grape
/fruit/yellow
/fruit/yellow/banana
/veggie
/veggie/green
/veggie/green/pepper
/veggie/green/tomato
/veggie/green/tomato/fried
/veggie/green/tomato/fried/fgt-1991.mpg
/veggie/green/tomato/fried/movie.csv
/veggie/red
/veggie/red/pepper
/veggie/red/tomato
/veggie/red/tomato/paste
/veggie/red/tomato/paste/Pizza-Sauce.txt
/veggie/yellow
/veggie/yellow/pepper
/veggie/yellow/tomato
```

Questions

1) List the relative path to the file "`citrus_reticulata.txt`" from the directory `/veggie/green/tomato/fried/`

2) List the command to remove the file "`Pizza_Sauce.txt`" if your `$PWD` is `/fruit/orange/orange/navel/`

3) List the command to copy the file "`juice.txt`" (in a relative, not absolute fashion) into the directory `/fruit/green/grape/` if your `$PWD` is `/fruit/orange/orange/`

4) List the command to copy the file "`juice.txt`" (in a relative, not absolute fashion) into the directory `/fruit/green/grape/` if your `$PWD` is `/fruit/green/grape/`

5) List the command to recursively copy the directory "`paste.txt`" (which includes the file "`Pizza-Sauce.txt`") assuming your `$PWD` is `/veggie/red/tomato/` and you want to copy it to the directory `/veggie/yellow/tomato/`

6) List the command to view the contents of the file "`juice.txt`" (in a relative, not absolute fashion) if your `$PWD` is `/fruit/orange/orange/mandarin/`

7) List the command to move the file "`movie.csv`" "up" one directory assuming your `$PWD` is `/veggie/green/tomato/fried/`

Answer Key

1) `cd ../../../../fruit/orange/orange/mandarin/citrus_reticulata.txt`

2) `rm ../../../../veggie/red/tomato/paste/Pizza-Sauce.txt`
Note: This is a complex example. In reality you would probably cd into the directory and then remove the file, e.g.,
```
cd ../../../../veggie/red/tomato/paste/
rm Pizza-Sauce.txt
```

3) `cp juice.txt ../../green/grape/`

4) `cp ../../orange/orange/juice.txt .`
Go "up" two directories and "down" to directories to the file as the "source" and copy it to the destination `.` or "here", which is your `$PWD` of `/fruit/green/grape/`

5) `cp -r paste.txt /veggie/yellow/tomato/`
Copy recursively the directory as "source" in your `$PWD` to the destination of "up" two directories and then "down" two directories.

6) `less ../juice.txt`
The file is "up" one directory from your `$PWD`

7) `mv movie.csv ..` (This moves the file "up" one directory into `/veggie/green/tomato/`)