

# CS 246 Fall 2021 — Tutorial 2

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## Summary

1	Output Redirection	1
2	Pipelines	1
3	Example 1	2
4	Example 2	2
5	.snapshot	2

## 1 Output Redirection

- Suppose we have a program (printer - prints even numbers to stdout, odd to stderr) that prints to standard output and standard error. Give the redirection to redirect stdout to print.out and stderr to print.err.
- Suppose we want to redirect the output from standard output to standard error.
- What if we want to redirect standard output and standard error to the same file?
- What would be the purpose of redirecting output to `/dev/null`?
- What is the difference between `./printer 2>&1 > out` and `./printer > out 2>&1`?

## 2 Pipelines

Suppose we want to determine the 10 most commonly occurring words in a collection of words (see `wordCollection` file) and output it to the file `top10`. How might we accomplish this?

Idea: Use some combination of: `sort`, `uniq`, `tail`. But how? Probably need `-c` option with `uniq` and `-n` option with `sort`.

What if we wanted the word counts of the first 10 words alphabetically?

What if we wanted the top 10 words but wanted to break ties based upon reverse alphabetical order?

### 3 Example 1

We would like to create the file `wordCollection` by randomly sampling the system dictionary 10 times with varying sample sizes in the range 0 to 99999. In order to get more variability, `sort` uses the option `-R` to randomly shuffle the data first.

### 4 Example 2

We have a comma-separated file of student id numbers and names for the course CS222 in the file `students.csv` downloaded from Quest. The student Marmoset grades for each of the first two assignments have been downloaded into the files `a1.csv` and `a2.csv`, respectively. We'd like to combine the files into a single file `totals.csv`, suitable for importing into a spreadsheet.

### 5 .snapshot

- Sometimes we accidentally delete files that we wanted to keep.
- In general, deleting a file with `rm` is **unrecoverable**.
- However, on `linux.student.cs` your files are backed up for you.
- The `.snapshot` directory in your home directory contains several sub-directories
- They correspond to hourly, nightly, and weekly backups of all your files on the undergraduate environment
- You can navigate them to get older versions of your files
- Note that you should copy (not move or edit) these files into your working directories
  - Otherwise, you risk deleting or otherwise modifying a backup