

# File I/O

CSCI 10 - Santa Clara University - Fall 2016  
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# Announcements

- Homework 7 is due Friday
- Midterm grades: Mean = 80% and Median = 86%
- STS Presentation details on webpage today!

# Example 34

- Final version of grading program: now with files
- Requirement: user should not need to modify code
- What should the files look like?

# Streams

- We dump data into (<<) output streams, e.g., `cout`
- We pull data out of (>>) input streams, e.g., `cin`
- Note: streams ignore white space

# Files



- Long-term/permanent storage
- Large amounts of data (more than RAM)
- File reading/writing is sequential, must be read front to back

# File objects

- Need to `#include <fstream>`
- In file stream: `ifstream`
- Out file stream: `ofstream`
- Basic operations: `open`, `<<`, `>>`, `close` and `fail`

## Reading from a file

```
ifstream in_stream;
in_stream.open("input.txt");
if (in_stream.fail()) {
    cout << "Failed to open input.txt" << endl;
    exit(1);
}
int num = 0;
in_stream >> num;
in_stream.close();

cout << "Your file had the number " << num
     << " in it!" << endl;
```

## Writing to a file

```
ofstream out_stream;
out_stream.open("output.txt");
if (out_stream.fail()) {
    cout << "Failed to open output.txt" << endl;
    exit(1);
}
out_stream << "Hello file!" << endl;
out_stream.close();
```