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CS 280
Programming Language Concepts

Command Line Arguments and Files

Command Line Arguments

- When a program executes, the runtime environment may pass parameters to it
- These parameters are strings specified on the command line when the program is run
- They appear in the program as an array of strings passed to main

Java vs C/C++

- In Java, the argument to main is an array of String. An array in Java is an object that, among other things, knows its size; therefore, given the array you know how many arguments are passed
- In C/C++, arrays are not objects; therefore in addition to needing to know the array of strings, you need to know its size
- One other difference: in Java, the first element ([0]) of the array is the first argument to the program. In C++, the first element of the array is the name of the program

C/C++ command line args

int main(int argc, char *argv[ ])

- argc represents the number of command line arguments
- argc will be 1 if no command line arguments are passed (only one entry in the array: the name of the program)
- argv is an array ([ ]) of pointers (*) to char
- Each entry in the argv array is a pointer to a C-string for a command line argument
- argv[0] is the name of the program

What can I do with a command line arg?

- Use it as a C string
- Convert it to a std::string

```
std::string progname(argv[0]);
```

- Remember that you MUST check argc to make sure that a particular argument has been passed to your program. If argc == 4, then there are values in argv[0], argv[1], argv[2] and argv[3]. Going outside those bounds is a mistake

File I/O

- C++ allows you to create a stream that is associated with a file
- You must open a file before reading from it and close it when done.
- #include <fstream> for access to file streams

Code sample

```
ifstream infile;
infile.open(argv[1]);
          // remember to check argc first!
if( infile.is_open() == false ) {
     cerr << "Couldn't open!" << endl;
     return -1;
}

string word;
infile >> word;

infile.close(); // when done
```

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