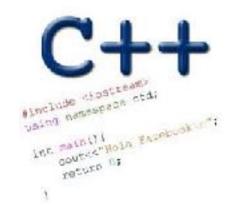# FILES

Problem Solving with Computers-I

# I/O in programs

Different ways of reading data into programs

- cin
- Command line arguments (int main(int argc, char* argv[])
- Read from file

Ways to report results

- Std output: cout
- Std error: cerr
- Write to file

# Where are files stored?

A. In main memory
B. In secondary memory
C. On the processor
D. In C++ programs
E. None of the above

# Reading from files

- **Open a file**
- **If open fails, exit**
- **In a loop**
  - **Read a line and process it**
  - **If you reach the end of file, break**
- **Close the file**

# Reading from files

```
#include <fstream>
ifstream ifs;    // Create a ifstream object
ifs.open("numbers.txt"); //Open a file to read
if(!ifs){ // open failed}
getline(ifs, line); // read a line from the file into a
                    // string line.
                    // If you attempt to read past the end
                    // of file, ifs change to fals


if(!ifs){ // read past the end of file} //Only check this
after a read from the file
ifs.close()
```

# Writing to files

```
#include <fstream>
ofstream ofs;   // Create a ifstream object
ofs.open("animals.txt"); //Open a file to write to
ofs<<"Duck\n"<<"Cat\n"<<"Cow\n";
```

# FILE IO: Which of the following is correct?

**A.**
```
while(1){
        getline(ifs, line);
        if (!ifs)
            break;
        cout<<line<<endl;
}
```

**B.**
```
while(ifs){
        getline(ifs, line);
        cout<<line<<endl;
}
```

**C.** Both A and B are correct

**D.** Neither is correct