Week 8

EECS 183

MAXIM ALEKSA

maximal.io

I/O

```
int n;
cout << "Please give me an integer: ";
cin >> n;
cout << "Thanks for the " << n << "!" << endl;
```

Stream States

```
int n;
cout << "Please give me an integer: ";
cin >> n;
if (cin.good()) {
    cout << "Thanks for the " << n << "!" << endl;
} else {
    cout << "Invalid input." << endl;
}
```

Which of the following is not a valid stream state?

A. `good`
B. `bad`
C. `fail`
D. `eof`
E. `clear`

Which of the following is not a valid stream state?

A. `good`
B. `bad`
C. `fail`
D. `eof`
E. `clear`

positive-0.cpp

Ask user for a positive integer and keep asking until the user cooperates.

```
Please give me a positive integer: 0
Try again: -42
Try again: 183
Thanks for the 183!
```

Clearing input

```
if (!cin.good()) {
    // put cin back into good state
    cin.clear();

    // remove the rest of input on the line
    string ignoredInput;
    getline(cin, ignoredInput);
}
```

positive-1.cpp

Ask user for a positive integer and keep asking until the user cooperates. Should not assume that user inputs a number!

```
Please give me a positive integer: 0
Try again: -42
Try again: expelliarmus
Try again: 183
Thanks for the 183!
```

File I/O

File I/O

```
#include <fstream>
// ...
ifstream fileInputStream;
fileInputStream.open("input.txt");
if (fileInputStream.good()) {
    string name;
    fileInputStream >> name;
    ofstream fileOutputStream("output.txt");
    if (fileOutputStream) {
        fileOutputStream << name;
    }
}
```

print.cpp

Ask user for a filename and print the contents of that file.

```
Filename: hello.txt
Hello world!
```

copy.cpp

Ask user for two filenames and copy the contents (each line) of the first file into the second file (new or overwritten).

```
Copy from: hello.txt
Copy to: new.txt
Copied hello.txt to new.txt
```

reverseCopy.cpp

Ask user for two filenames and copy each line of the first file into the second file (new or overwritten), in **reverse order**.

```
Copy from: hello.txt
Copy to: new.txt
(Reverse-)copied hello.txt to new.txt
```

Classes

Color

255 255 255

red green blue

Color

255 0 0

red green blue

Color

```
0   255   0
```

red green blue

Color

0 0 255

red green blue

Color

95 41 95

red green blue

Color

251 183 59

red green blue

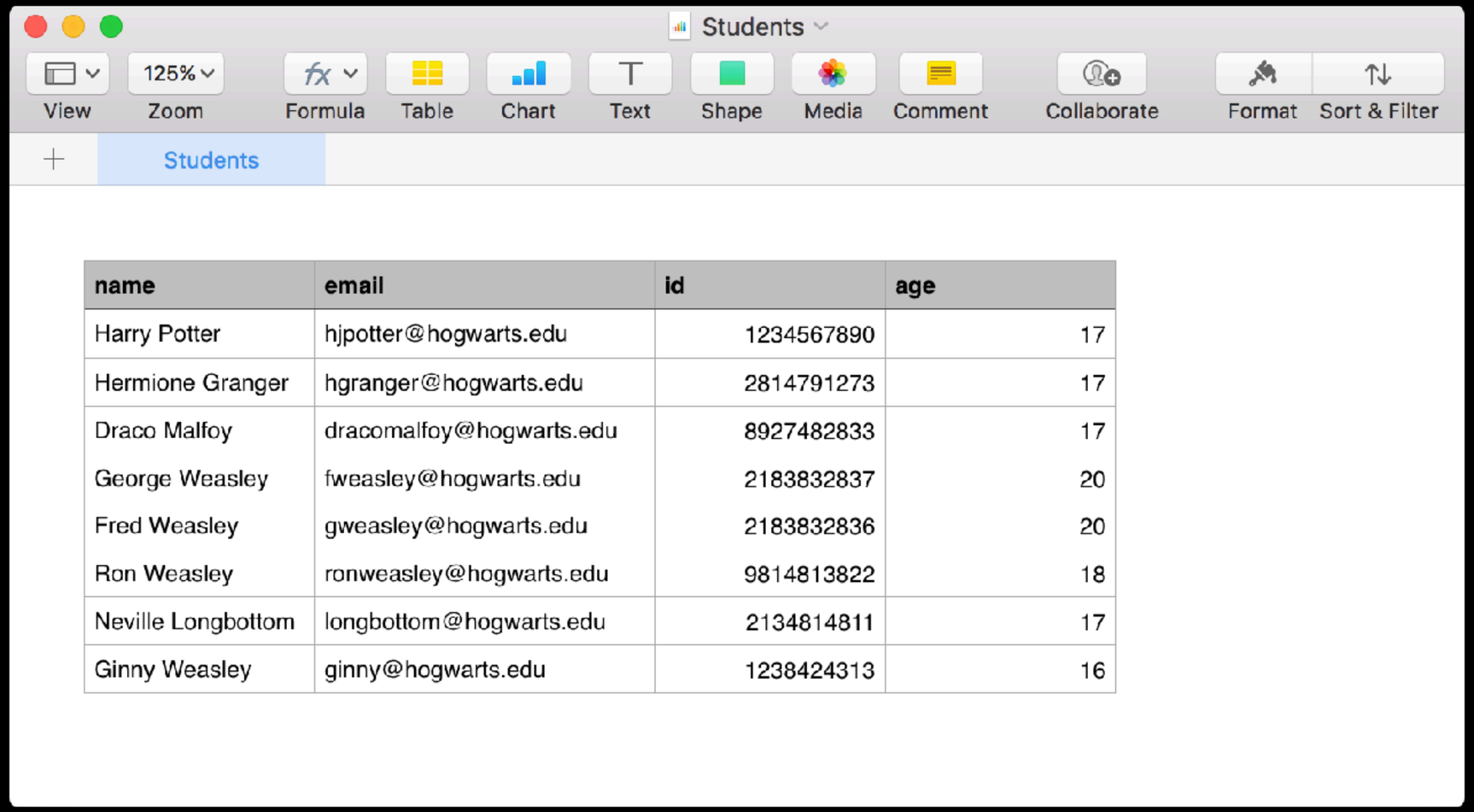
Color class

```
class Color {
    int red;
    int green;
    int blue;
};
```

Color class

```
class Color {
private:
    int red;
    int green;
    int blue;
public:
    int getRed();
    void setRed(int r);
    int getGreen();
    void setGreen(int g);
    int getBlue();
    void setBlue(int b);
};
```

Encapsulating data



name	email	id	age
Harry Potter	hjpotter@hogwarts.edu	1234567890	17
Hermione Granger	hgranger@hogwarts.edu	2814791273	17
Draco Malfoy	dracomalfoy@hogwarts.edu	8927482833	17
George Weasley	fweasley@hogwarts.edu	2183832837	20
Fred Weasley	gweasley@hogwarts.edu	2183832836	20
Ron Weasley	ronweasley@hogwarts.edu	9814813822	18
Neville Longbottom	longbottom@hogwarts.edu	2134814811	17
Ginny Weasley	ginny@hogwarts.edu	1238424313	16