

CSCI 135

Introduction

Our First Complete Program!

```
#include <iostream>
using namespace std;

int main() {                                Rule: Main must return int
    string name;
    int fun;
    cout << "What is your name?";
    getline (cin , name);
    do
        cout << "How fun is programming (1-10)?";
        cin >> fun;
    while (fun < 10);
    cout << name << " loves to program!";
    return 0;                               0 for success, non-0 for failure
}
```

But How Do I Start a Program?

Boss (first day on job): Write a program that does blah

- 1 Identify inputs and outputs.
- 2 Understand what blah means. Ask questions.
- 3 Break the program down into steps, writing each step in *pseudocode* English.
- 4 Replace each pseudocode step with C code

Given a radius of a circle, compute its circumference/area

In: rad; Out: circum, area

Recall: $2 * \pi * r$, $\pi * r^2$

- 1) Input radius
- 2) Calculate circum/area
- 3) Output circum/area
- ...

Translating the pseudocode

```
#include <iostream> using namespace std;  
int main() {  
    // Input radius  
    double rad;  
    cin >> rad;  
    // Calculate circum/area  
    double pi = 3.1416;  
    double circum, area;  
    circum = 2*pi*rad;  
    area = pi*rad*rad;  
    // Output circum/area  
    cout << "The circle has circumference "  
        << circum;  
    cout << "and area " << area  
        << endl;  
    return 0;  
}
```

C rule: main always returns int
Pseudocode also makes good comments
Meaningful name; What type?
Variable for repeated value
Can declare vars anywhere (before use)
C ignores whitespace
Don't forget the endl!
Normal (not error) completion

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No error checking (rad > 0)

Don't Forget Style!

Good software doesn't just 'work'. It is readable, maintainable, testable,

⇒ important to follow proper style. [▶ One style guide](#)
(and comment your code *before/while* writing it).

Many styles exist – but be consistent (and you will hate yourself if you aren't).

⚠ Slides may sometimes violate styles for space reasons.