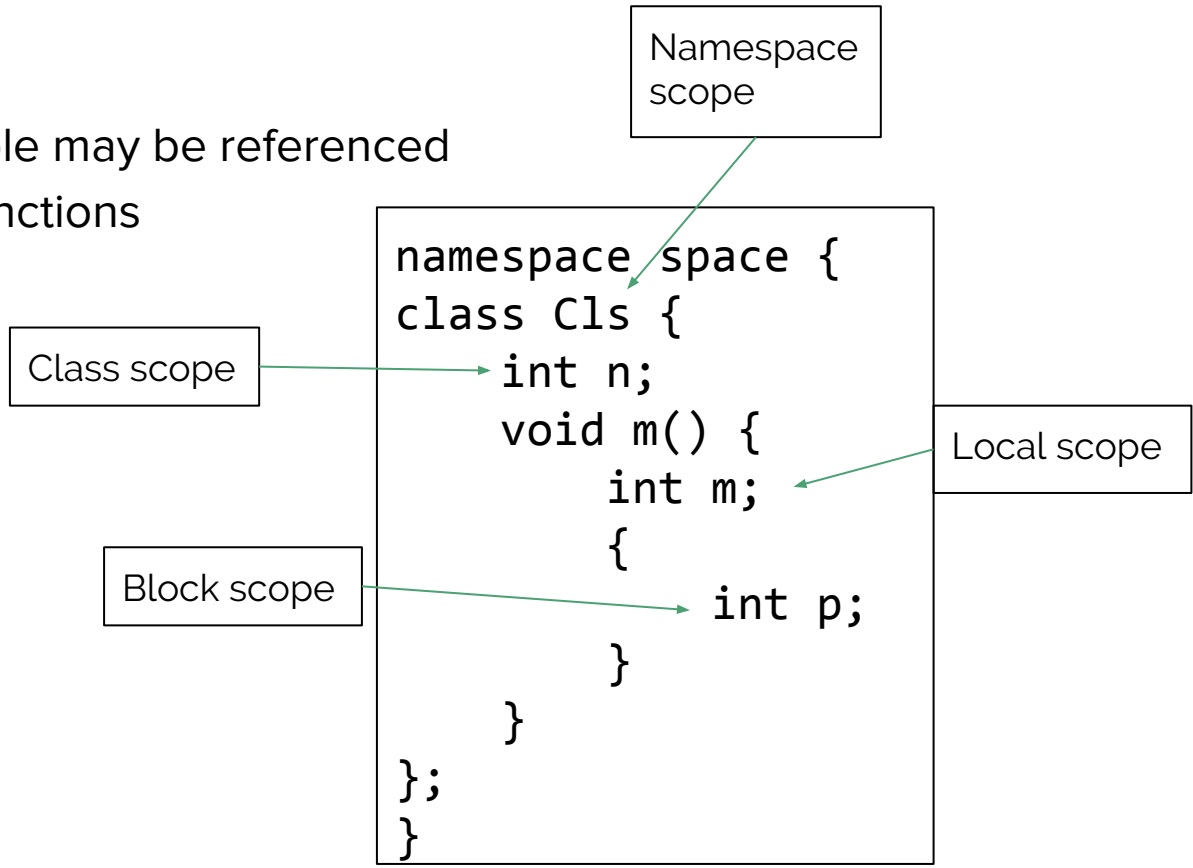
The Scope of Declarations

Chantilly Robotics - 612

What is scope?

- The area in which a variable may be referenced
- Organize variables and functions
- Avoid name clashes
- Typically denoted with braces ({ ... })



Namespaces

- Group of functions, classes, variables, etc. with a name
  - Hence the name `namespace`
- Groups logically related code together
- Prevents name clashes (eg. `std::max` and your own `max`)
- `std` namespace

```
namespace memes {
class Fruit;
void BlurAllFruit();
int fruitIndex;
}
```

Accessing members in scope

- Use scope operator (`::`) for namespace/class member declarations
  - `std::cout`
  - `std::getline`
  - `std::string`
- Local variables cannot be accessed out of scope

```
void Func(int n) {
    if(n > 0) {
        int m = n;
    }
    return m; //scope error
}
```

`using` declarations

- Brings a name into the current scope
- Allows use of unqualified name
- Use for names that are continuously used
- Use in the most limited scope possible
  - Class or function level
  - Namespace level if appropriate (it most likely won't be)

```
using std::cout;

cout << "unqualified!";
```