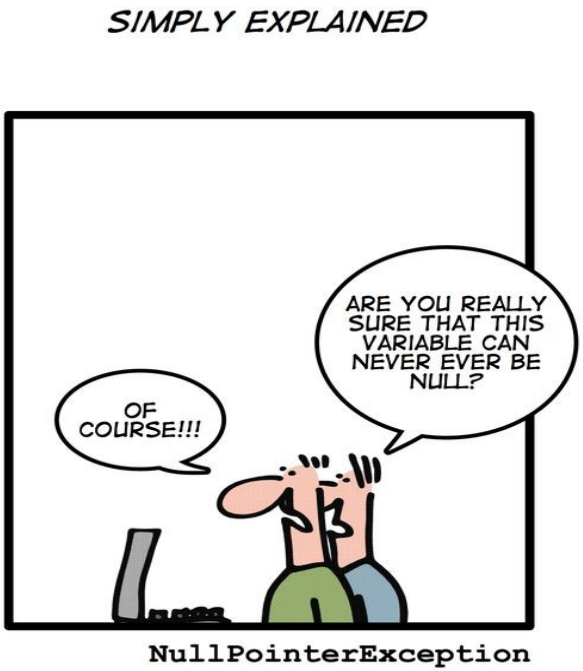
Functors, std::functions



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Functors

- A functor is pretty much just a class or a struct which defines the operator(). That lets you create objects which "look like" a function.
- One is that unlike regular functions, they can contain state.

```
class Multiplier { //functor classs
double y;
   public:
    Multiplier(double y): y{y}{};
    double operator()(double x) { return x * y;}
}
Multiplier doubler{2};  // create an instance of the functor class
double x = doubler(5); // call it
```

Functors (cont...)

Multiplier tripler{3}; // create an instance of the functor class

double x = tripler(5); // call it, multiplies given value by 3

std::vector<int> in{1, 2, 3, 4, 5};

// Pass a functor to std::transform, which calls the functor on every element

// in the input sequence, and stores the result to the output sequence

std::transform(in.begin(), in.end(), in.begin(), Multiplier(5));