



Lambda Function

Learning Objectives

1. Define what a lambda function is
2. Understand the motivation for a lambda function
3. Implement a lambda function



Definition

A inline function without a name



Motivation

Surplus

= COUNTIF(B2:B13, ">=10")

1	Product	Quantity
2	Oranges	20
3	Lemonade	10
4	Pies	12
5	Biscuits	3
6	Bananas	20
7	Cakes	10
8	Pizza	5
9	Orange Juice	4
10	Croissants	15
11	Grapefruits	4
12	Ice Cream	12
13	Apples	20
14		
15	Surplus	8



CountIf Implementation

```
1  template <typename Iter, typename Cond>
2  int Countif(Iter begin, Iter end, Cond cond) {
3      int count = 0;
4      auto cur = begin;
5
6      while(cur != end) {
7          if(cond(*cur))
8              ++count;
9          ++cur;
10     }
11
12     return count;
13 }
```



```
1 bool isNegative(int num) { return (num < 0); }
2
3 class IsNegative {
4 public:
5     bool operator() (int num) { return (num < 0); }
6 };
7
8 int main() {
9     std::vector<int> numbers = {1, 102, 105, 4, 5, 27};
10
11     auto isnegl = [](int num) { return (num < 0); };
12     auto isnegfp = isNegative;
13     auto isnegfctor = IsNegative();
14
15     std::cout << "There are " <<
        Countif(numbers.begin(), numbers.end(), _____)
        << " negative numbers" << std::endl;
16 }
```

Implementation of Lambda Functions

[](){ }



Example Function

```
1  int big;
2  std::cout << "How big is big? ";
3  std::cin >> big;
4
5  auto isbig = [big](int num) { return (num >= big); };
6
7  std::cout << "There are " <<
    Countif(numbers.begin(), numbers.end(), isbig)
    << " big numbers" << std::endl;
8 }
```