CSC 112
Lab 1: Light Bulb
Spring 2015

Due: *3:00pm Friday, 1/30*

1 Program Overview

The Pluf Light Bulb Company is a world leader in manufacturing one watt light bulbs. These fragile light bulbs must be packaged in special containers, where each container must be filled to capacity (reduced breakage). The four different types of containers and their costs are listed in the following table.

Name	**Capacity** (bulbs)	**Cost** ($)
huge	20	5.00
large	15	3.50
medium	7	2.00
small	1	0.75

A program is needed to calculate the **minimum** number of containers required for any size order (you may assume integer input greater than zero) and total cost (bulbs and packaging). Assume bulbs cost $1.55 each.

2 Program Description

You will need to create the subdirectory `Lab1` in your `CSC112` directory to store your program. Once the directory has been created, create a new file called `lab1.cpp` in your `CSC112/Lab1` subdirectory. Your program must solve the problem described in the previous section. Once the program starts, first prompt the user for the number of light bulbs in the order. Below, the user input is 59.

Terminal

```
Enter the number of light bulbs in the order -> 59
```

After reading the number of bulbs in the order, calculate and display the minimum number of containers required, the cost of the bulbs, the cost of the packaging, and the total cost of the order. For 59 bulbs the output would be

Terminal

```
Shipment Schedule for 59 Bulbs.
------------------------------
Number of Containers Required
Huge    2
Large   1
Medium  0
Small   4

Cost of the light bulbs: $ 91.45
Cost of the containers:  $ 16.5
Total cost of order:     $ 107.95
```

2.1 Programming Points

You must turn-in printed and electronic copies of your programs before the assignment due date. Printed copies must be given to Dr. Fulp while electronic copies will be submitted placing your source code in the `Grade/Lab1` directory. You **must** adhere to all of the following points to receive credit for this program.

1. Name your source (C++ program) file `lab1.cpp`
2. The program must have at least four functions:
   - `main`
   - `inputOrder` - Get the order information
   - `calcOrder` - Calculate order shipping schedule and cost.
   - `outputOrder` - Print shipment schedule and cost.
3. **Selection and repetition structures are not allowed.**
4. Program must compile without errors or warnings using the `-Wall` and `-pedantic` options
5. **Global variables are not allowed.** All variables must be declared within a function.
6. All prompts and output must appear as described in the previous section. Please note the example output carefully.
7. All code **must** follow the style guidelines for this course and be documented.

3 Electronically Submitting Your Program

Make certain to place your copy of `lab1.cpp` in your `Grade/Lab1` directory before the due date. Penalty for late work is 10 points/day.