**The Great Computer Challenge, 2018**

***Object-Oriented Business Programming***

***Level IV***

# **Background**

With the stock market fluctuating wildly, while the government remains forever mired in a sea of hot air, a small group of local entrepreneurs has seized the opportunity to combine the best aspects of both situations. As they see it, there is a fortune awaiting those who are willing to invest the necessary capital in **hot air ballooning**. A truly inspirational concept. While their clients’ ascent to the heavens on a cushion of hot air, they remain firmly on earth with their pockets lined with gold. There are only a few details to be worked out. If you chose, you can share in this unlimited wealth by simply creating a simple invoicing program. Don’t miss this chance to grasp the brass (or perhaps gold) ring.

# **Guidelines & Requirements**

**PROCESSING:**

1. Headings should include a company name.

2. Dollar amounts should be printed with two decimal places.

3. The calculations are as follows:

a. The balloon rental rate is $50.00 per hour.

b. The volume of the balloon is determined by the diameter of the balloon.

* radius = ½ diameter
* height = 3/4 diameter
* volume = 2/3π( radius3) + 1/3π( radius2)(height) - 1/12 π(radius2)(height)

c. Propane charge is as follows:

* + set up charge $10.00
	+ propane required = 1/300(volume)(degrees Fahrenheit)(passengers)
	+ propane charge = set up charge + .008 (propane required)

d. The subtotal is the sum of the balloon rental and the propane charge.

e. The tax rate is .12.

f. The total amount due is the sum of the subtotal and the tax.

g. Utilize the data type double for all floating point variables (i.e. all non-integer numbers).

# **Challenge 1 A Lot of Hot Air**

**INPUT:**

Input can be made using either a series of Option Panes, the use of the Scanner class of any other method that allows console input. The following are the data that should be used to test the application.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Customer Name** | **Number in Party** | **Diameter of Balloon** | **Duration of Flight** | **Average Air Temperature** |
| Jim Nauseam | 3 | 15 meters | 2 hours | 82 F° |
| N. A. Phog | 8 | 35 meters | 6 hours | 62 F° |
| O. K. Doughkay | 4 | 20 meters | 8 hours | 70 F° |

# **Judging Criteria**

**OUTPUT:**

1. Prepare a detailed invoice for each customer. Each bill should be prepared with appropriate headings and include the following:

a. customer's name g. cost of balloon rental

b. date of flight h. propane charge

c. number in party i. sub total

d. diameter of balloon (meters) j. tax

e. duration of flight (hrs.) k. total amount due

f. volume of balloon (m3)

(The format of the output is left to **the programmer!!!**)

# **SOL Correlation**

C/T K-2.4

Plan and apply strategies for gathering information, using a variety of tools and

sources, and reflect on alternate strategies that might lead to greater successes in

future projects.

A. Identify information in various formats.

•Recognize that information may be presented as printed text, electronic

text, audio, video, or images.

B. Identify available sources of information.

•Be able to name and use sources of information available at school and

outside the school.

Thinking Skills, Problem Solving, and Decision Making

C/T K-2.5

Practice reasoning skills when gathering and evaluating data.

A. Recognize that technology can be used to solve problems and make informed

decisions.

•Communicate how a decision was made based on assistance from a

technology tool.

B. Use technology tools to assist with problem solving.

•Demonstrate how technology can be used to investigate and solve

problems in various content areas.

Technology Communication Tools

C/T K-2.6

Communicate effectively with others (e.g., peers, teachers, experts) in

collaborative learning situations.

A. Use technology tools for individual and collaborative writing,

communication, and presentation activities.

•Use word processing to practice writing skills.

•Use common graphic and presentation tools when preparing and providing

presentations.

B. Recognize tools useful for communication.

•Identify how different technologies appeal to different senses.

Have fun and thanks for participating in the Great Computer Challenge, 2018