

# CS 150 Lab 06

## if Statements

The purpose of today's lab is to get experience using ifs, nested ifs, if/else, and the output formatting function. Each activity today will consist of a set of input, a small set of computations, and a set of outputs to be displayed to the user.

- Be sure your output looks exactly like the specified output.
- Be sure to place each project in a folder called 06LabPUNetId. When you have completed the required projects, drop your folder in **CS150-01 Lab** when you are done.
- Show the instructor to TA your solution to each problem.

### Lab 6.1

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "06a\_carsXXXXXXXX", replacing the XXXXXXXXX with your PUNetID.

A local car dealership has hired you to write a program to determine how much a car costs based on the options the buyer wants. The options available are different for each type of car sold, so your program will need to offer the buyers *only those options that are available to them*.

Here are the following types of cars and options for each car, along with their cost.

Type of car	Starting Cost
Hatchback	\$7,000
SUV	\$11,000

#### Options:

**All cars** can be an Automatic or Manual transmission, a Manual transmission costs an extra \$1,000. An Automatic transmission does not cost extra.

**All cars that have an automatic transmission** can be a hybrid for an extra cost of \$3,000.

**Hatchbacks** may have a sun roof for an extra \$1,500.

**SUVs** may have a luggage rack for an extra \$2,000.

**Sample Input and Output:**

```
*****  
CAR CALCULATOR  
*****  
  
Hello! What is the buyer's name? Phil  
  
Would Phil like a Hatchback or SUV [H/S]? H  
Would Phil like Automatic or Manual transmission [A/M]? A  
Would Phil like a hybrid [Y/N]? Y  
Would Phil like a sun roof [Y/N]? Y  
  
Phil's hatchback will cost: $11500.00
```

```
*****  
CAR CALCULATOR  
*****  
  
Hello! What is the buyer's name? Sally  
  
Would Sally like a Hatchback or SUV [H/S]? S  
Would Sally like Automatic or Manual transmission [A/M]? M  
Would Sally like a luggage rack [Y/N]? Y  
  
Sally's SUV will cost: $13000.00
```

- ◆ Note that for Sally's purchase, a hybrid is not available because she selected a manual transmission.
- ◆ If the user gives an invalid answer, R for example, when asked whether a Hatchback or SUV is being purchased, the program should immediately exit.
- ◆ Before you start writing your program, answer the following questions. Before the TA or instructor looks at your code they will want to see the answers to these questions.

1) Briefly describe the data and information your program will need to use?

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2) List the variable declarations necessary to store the data and information listed in 1).

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3) What decision statements will you need to use in your program? For each decision statement, specify what logical and/or relational expressions you will need to use for said decision statement.

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## Challenge

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "06b\_numbersXXXXXXXX", replacing the XXXXXXXXX with your PUNetID.

Write a program that will ask the user to input three integers. You need to find the sum and average of these integers. Print out the original three integers, from lowest to highest, along with the sum and average. Be sure to answer the following questions before getting started!

**Sample input and output follow:**

```
*****  
Number-O-glavin-izer  
*****  
Please enter three integers: 99 1000 -1  
  
The numbers are:  
                -1  
                99  
               1000  
The average is:  366.00  
The sum is:     1098
```

```
*****
Number-O-glavin-izer
*****
Please enter three integers: -2 1000 -1

The numbers are:
                -2
                -1
                1000
The average is:
                332.33
The sum is:
                997
```

1) Briefly describe the data and information your program will need to use?

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2) List the variable declarations necessary to store the data and information listed in 1).

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3) What decision statements will you need to use in your program? For each decision statement, specify what logical and/or relational expressions you will need to use for said decision statement.

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