# Week 2 Lab

## 1. Sales Prediction

A company has determined that its annual profit is typically 23 percent of total sales. Write a program that asks the user to enter the projected amount of total sales, then displays the profit that will be made from that amount.

*Hint: Use the value 0.23 to represent 23 percent.*

2. Distance Traveled

Assuming there are no accidents or delays, the distance that a car travels down the interstate can be calculated with the following formula: Distance = Speed × Time

A car is traveling at 70 miles per hour. Write a program that displays the following:

* The distance the car will travel in 6 hours
* The distance the car will travel in 10 hours
* The distance the car will travel in 15 hours

3. Ingredient Adjuster

A cookie recipe calls for the following ingredients:

* 1.5 cups of sugar
* 1 cup of butter
* 2.75 cups of flour

The recipe produces 48 cookies with this amount of the ingredients. Write a program that asks the user how many cookies he or she wants to make, then displays the number of cups of each ingredient needed for the specified number of cookies.

4. Male and Female Percentages

Write a program that asks the user for the number of males and the number of females  
registered in a class. The program should display the percentage of males and females in the  
class.  
*Hint: Suppose there are 8 males and 12 females in a class. There are 20 students in the class. The percentage of males can be calculated as 8 ÷ 20 = 0.4, or 40%. The percentage of females can be calculated as 12 ÷ 20 = 0.6, or 60%.*

Stretch exercise

5. Compound Interest

When a bank account pays compound interest, it pays interest not only on the principal amount that was deposited into the account, but also on the interest that has accumulated over time. Suppose you want to deposit some money into a savings account, and let the account earn compound interest for a certain number of years. The formula for calculating the balance of the account after a specified number of years is:

The terms in the formula are:

A is the amount of money in the account after the specified number of years.  
P is the principal amount that was originally deposited into the account.  
r is the annual interest rate.  
n is the number of times per year that the interest is compounded.  
t is the specified number of years.

Write a program that makes the calculation for you. The program should ask the user to input  
the following:

* The amount of principal originally deposited into the account
* The annual interest rate paid by the account
* The number of times per year that the interest is compounded (For example, if interest is compounded monthly, enter 12. If interest is compounded quarterly, enter 4.)
* The number of years the account will be left to earn interest

*Hint: The user should enter the interest rate as a percentage. For example, 2 percent would be entered as 2, not as .02. The program will then have to divide the input by 100 to move the decimal point to the correct position.*