~~3.12. Celsius to Fahrenheit~~

Write a program that converts Celsius temperatures to Fahrenheit temperatures. The formula is

F = 9/5C+32

F is the Fahrenheit temperature, and C is the Celsius temperature.

~~3.13. Currency~~

Write a program that will convert U.S. dollar amounts to Japanese yen and to euros, storing the conversion factors in the constants YEN\_PER\_DOLLAR and EUROS\_PER\_DOLLAR. To get the most up-to-date exchange rates, search the Internet using the term “currency exchange rate”. If you cannot find the most recent exchange rates, use the following:

1 Dollar = 98.93 Yen

1 Dollar = 0.74 Euros

Format your currency amounts in fixed-point notation, with two decimal places of precision, and be sure the decimal point is always displayed.

~~4.10. Days in a Month~~

Write a program that asks the user to enter the month (letting the user enter an integer in the range of 1 through 12) and the year. The program should then display the number of days in that month. Use the following criteria to identify leap years:

1. Determine whether the year is divisible by 100. If it is, then it is a leap year if and only if it is divisible by 400. For example, 2000 is a leap year but 2100 is not.

2. If the year is not divisible by 100, then it is a leap year if and if only it is divisible by 4. For example, 2008 is a leap year but 2009 is not.

Here is a sample run of the program:

Enter a month (1-12): 2 [Enter]

Enter a year: 2008 [Enter]

29 days

~~5.11. Population~~

Write a program that will predict the size of a population of organisms. The program should ask the user for the starting number of organisms, their average daily population increase (as a percentage), and the number of days they will multiply. A loop should display the size of the population for each day.   
*Input Validation: Do not accept a number less than 2 for the starting size of the population. Do not accept a negative number for average daily population increase. Do not accept a number less than 1 for the number of days they will multiply*.

Asasddf

~~6.7 Celsius Temperature Table~~

The formula for converting a temperature from Fahrenheit to Celsius is

C=5/9(F-32)

where F is the Fahrenheit temperature and C is the Celsius temperature. Write a function named celsius that accepts a Fahrenheit temperature as an argument. The function should return the temperature, converted to Celsius. Demonstrate the function by calling it in a loop that displays a table of the Fahrenheit temperatures 0 through 20 and their Celsius equivalents

7.6 Rain or Shine

An amateur meteorologist wants to keep track of weather conditions during the past year’s three-month summer season and has designated each day as either rainy (‘R’), cloudy (‘C’), or sunny (‘S’). Write a program that stores this information in a 3 × 30 array of characters, where the row indicates the month (0 = June, 1 = July, 2 = August) and the column indicates the day of the month. Note that data are not being collected for the 31st of any month. The program should begin by reading the weather data in from a file. Then it should create a report that displays, for each month and for the whole three-month period, how many days were rainy, how many were cloudy, and how many were sunny. It should also report which of the three months had the largest number of rainy days. Data for the program can be found in the RainOrShine.txt file.

8.7. Binary String Search

Modify the binarySearch function presented in this chapter so it searches an array of strings instead of an array of ints. Test the function with a driver program. Use Program

8-8 as a skeleton to complete. (The array must be sorted before the binary search will work.)

8.8. Search Benchmarks   
Write a program that has an array of at least 20 integers. It should call a function that uses the linear search algorithm to locate one of the values. The function should keep a count of the number of comparisons it makes until it finds the value. The program then should call a function that uses the binary search algorithm to locate the same value. It should also keep count of the number of comparisons it makes. Display these values on the screen.