Program 2
100 points

Program 2a: Write a program to score the paper-rock-scissors game. Each of two players enters either `P`, `R`, or `S`. The program then announces the winner as well as the basis for determining the winner: "`Paper covers rock`", "`Rock breaks scissors`", "`Scissors cut paper`", or "`Draw, nobody wins`". The players must be able to enter either upper- or lower-case letters. If an invalid choice is entered, the player should immediately be permitted to re-enter his choice. The program must allow the players to continue playing as long as desired.

Name your source code file `program2a.c`.

Program 2b: The Fibonacci number F_n are defined as follows:

$$F_0 = 1, F_1 = 1,$$

and

$$F_{i+2} = F_i + F_{i+1} \text{ for } i = 0, 1, 2, \ldots$$

In other words, each number is the sum of the two previous numbers in the sequence. Thus, the first several Fibonacci numbers are 1, 1, 2, 3, 5, and 8. Interestingly, certain population growth rates are characterized by the Fibonacci numbers. If a population has no deaths, then the series gives the size of the population after each time period.

Assume that a population of green crud grows at a rate described by the Fibonacci numbers and has a time period of 5 days. Hence, if a green crud population starts out as 10 pounds of crud, then after 5 days, there is still 10 pounds of crud; in 10 days, there is 20 pounds of crud; in 15 days, 30 pounds of crud; in 20 days, 50 pounds of crud, and so on.

Write a program that takes both the initial size of a green crud population (in pounds) and some number of days as input from the keyboard, and computes from that information the size of the population (in pounds) after the specified number of days. Assume that the population size is the same for four days and then increases every fifth day. The program must allow the user to repeat this calculation as long as desired.

Name your source code file `program2b.c`.

Rubric: All programs must have a section of comments at the beginning that give the program number, your name, the date, the time you spent working on the program, and its purpose. A sample comment section is given below.

Be sure to upload your files correctly the first time. If you have any problems, please contact the instructor. **Extensions will not be granted for technology-related issues.** Leave yourself enough time to complete the assignment, submit the assignment via the submit command on the CS cluster using

submit dbadams program2 program2a.c program2b.c

Contact the instructor if you run into problems.

Correctness:	80%
Comments:	10%
Layout, etc.:	10%

A program that does not compile or link will not be graded.

```
/*
  Program:     <name of program>
  Author:      <your name>
  Date:        <date you finished the program>
  Time spent:  <total amount of time spent on the project>
  Purpose:     The purpose of this program is to demonstrate
               an acceptable comment section for my program.
               My code does not actually do anything.
*/

int main(int argc, char* argv[])
{
  // Insert your code here

  return 0;
}
```

Submission: Programs must be submitted electronically via the submit command on the CS cluster. Emailed solutions will not be graded.