Practice Problem 1: Struct Practice

Construct a struct called birthday that contains a variable name as a string, the variable month as an int, and the variable day as an int

Once you are done, feel free to create a struct birthdays of type birthday of any size. Initialize the contents of the struct to whatever you like, and then print some of the contents!

Practice Problem 2: Implementing Bubble Sort

Hints:

1. How do you swap 2 numbers?
2. How many iterations in the outer for loop?
3. How many iterations in the inner for loop?
4. How can you check if an array is sorted

Pseudocode:

Repeat n-1 times

For i from 0 to n-2

If i'th and i+1'th elements out of order

Swap them

If no swaps

Quit

Practice Problem 3: Implementing Selection Sort

Hints:

1. How can you find the array index of the smallest number?
2. When do you swap?

Pseudocode:

For i from 0 to n-1

For j from i+1 to n-1

Find the index of the smallest item

Swap smallest item with i'th item

Practice Problem 4: Factorials

Write a recursive function factorial that takes an integer n and computes its factorial.

Example: factorial(4) returns 24

Practice Problem 5: Fibonacci

Write a recursive function fib that computes the nth Fibonacci number. The 0th Fibonacci number is 0, the 1st Fibonacci number is 1, and every subsequent Fibonacci number is the sum of the two preceding Fibonacci numbers.

Example: fib(7) returns 8

Practice Problem 6: Binary Search

Write a recursive function search that takes in four inputs, a value to search for, a sorted array of values, a start index, and an end index. The function should perform binary search, returning true if the number is found between the start and end index, and false otherwise.

Starter code:

bool search(int value, int values[], int start, int end)

{

// TODO

}