# LAB EXERCISE

## Search

**Background:**

You will need to have completed the *Store.java* program from Lesson 26. Your task will be to complete the stubbed-out binary search algorithm. You should use the following testing method in your solution.

```
public void testSearch()
{
  int idToFind;
  int invReturn;
  int index;
  ConsoleIO console = new ConsoleIO();

  System.out.println("Testing search algorithm\n");
  System.out.print("Enter Id value to search for (-1 to quit) ---> ");
  idToFind = console.readInt();
  while (idToFind >= 0)
  {
    index = bsearch(new Item(idToFind, 0));
    // recursive version call
    // index = bsearch (new Item(idToFind, 0), 0, myStore.length-1);
    System.out.print("Id # " + idToFind);
    if (index == -1)
      System.out.println("     No such part in stock");
    else
      System.out.println("     Inventory = " + myStore[index].getInv());
    System.out.print("\nEnter Id value to search for (-1 to quit) ---> ");
    idToFind = console.readInt();
  }
}

/**
 *  Searches the myStore array of Item Objects for the specified
 *  item object using a iterative binary search algorithm
 *
 * @param  idToSearch  Item object containing Id value being search for
 * @return             index of Item if found, -1 if not found
 */
int bsearch(Item idToSearch)
{
  return -1;
}


/**
 *  Searches the specified array of Item Objects for the specified
 *  item object using a recursive binary search algorithm
 *
 * @param  idToSearch  Item object containing Id value being search for
 * @param  first       Starting index of search range
 * @param  last        Ending index of search range
 * @return             index of Item if found, -1 if not found
 */
int bsearch (Item idToSearch, int first, int last)
{
  return -1;
}
```

**Assignment:**

1. Add the above code to your *Store.java* code. Change the name of your program to *Search.java*. Complete the binary search algorithm and test your solution with sample test id values as supplied by your instructor.

2. Depending on the directions of your instructor, test either or both the non-recursive and recursive binary search solution(s).

**Instructions:**

1. Turn in the completed source code for only the binary search function and a printed run output. The run output should consist only of the appropriate answers. An example is given below.

```
Id # 15320     Inventory = 82

Id # 196     Inventory = 60

Id # 19967     Inventory = 45

Id # 2   No such part in stock

Id # 20000   No such part in stock
```