Quiz Submissions - Binary Search Reading Quiz

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Retaken Attempt 2

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Submission View

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Question 1 Correct on previous attempt(s) **1 / 1 point**

What does `exist(a, value)` do?

- Returns the index of the last occurrence of `value` in array `a`, and -1 if it isn't found.
- ✓ Returns `true` if value is in array `a`, `false` otherwise.
- Returns the index of the first occurrence of `value` in array `a`, and -1 if it isn't found.

Question 2 Correct on previous attempt(s) **1 / 1 point**

What does `lowerBound(a, value)` do?

- Returns the index of the first element of `a` strictly greater than `value`.
- ✓ Returns the index of the first element of `a` greater than or equal to `value`.
- Returns the index of the first element of `a` equal to `value`, and -1 if it isn't found.

Question 3 Correct on previous attempt(s) **1 / 1 point**

What does `upperBound(a, value)` do?

- Returns the index of the last element of `a` equal to `value`.
- Returns the index of the first element of `a` greater than or equal to `value`.

✓ Returns the index of the first element of **a** strictly greater than **value**.

Question 4 Correct on previous attempt(s) **1 / 1 point**

What does **upperBound(a, value)** return if **value** is greater than every element of **a**?

- -1
- ✓ **a.length**
- 0

Question 5 Correct on previous attempt(s) **1 / 1 point**

What does **lowerBound(a, value)** return if **value** is less than every element of **a**?

- **false**
- -1
- ✓ 0

Question 6 Correct on previous attempt(s) **1 / 1 point**

Which of these lines of code properly computes the midpoint of **lo** and **hi**? (Assume **lo** and **hi** are array indices.)

- ✓ `int mid = lo + (hi - lo) / 2;`
- `int mid = (lo + hi) / 2;`
- `int mid = lo + (hi + lo) / 2;`

→ **Question 7** Retaken **1 / 1 point**

What is a necessary precondition for any binary search algorithm?

- All the array elements are positive.
- The array is non-empty.
- ✓ The array is sorted.

Question 8 Correct on previous attempt(s) **1 / 1 point**

In a binary search implementation, every iteration of the loop eliminates half the remaining array elements from consideration.

- ✓ True
- False

Question 9 Correct on previous attempt(s) **1 / 1 point**

What does this compute?

```
upperBound(a, value) - lowerBound(a, value);
```

- The length of array **a**.
- ✓ The number of times **value** occurs in the array **a**.
- It returns a **boolean** value that is **true** if and only if the array is sorted.

Question 10 Correct on previous attempt(s) **1 / 1 point**

What is a precondition?

- ✓ Something that must be true of a function's arguments.
- Something that must be true of a function's return value.
- Something that must be true at the start of each iteration of a loop.

Question 11 Correct on previous attempt(s) **1 / 1 point**

What is a postcondition?

- Something that must be true at the start of each iteration of a loop.
- ✓ Something that must be true of a function's return value.
- Something that must be true of a function's arguments.

Question 12 Correct on previous attempt(s) **1 / 1 point**

What is a loop invariant?

- Something that must be true of a function's arguments.
- Something that must be true of a function's return value.
- ✓ Something that must be true at the start of each iteration of a loop.

Question 13 Retaken **1 / 1 point**

The caller of a function must ensure that the function's preconditions are satisfied.

- ✓ True
- False

Question 14 Correct on previous attempt(s) **1 / 1 point**

If a function's postcondition is not satisfied, but the preconditions were, then the implementation of the function has a defect.

- ✓ True
- False

Attempt Score: 14 / 14 - 100 %

Overall Grade (highest attempt)**:** 14 / 14 - 100 %

Done