CSC 209 Review 5 Solution

August 21, 2020

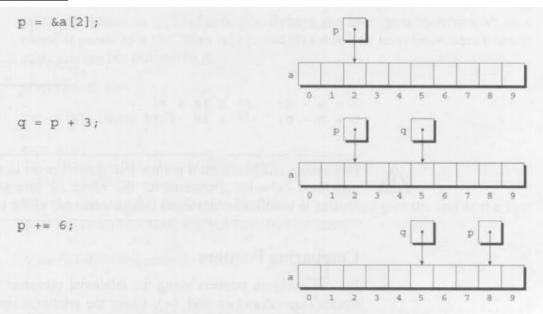
- 1. a) 14
 - b) 34
 - c) 4
 - d) true
 - e) false

Notes

• Pointer Arithematic

- Adding an integer to a pointer

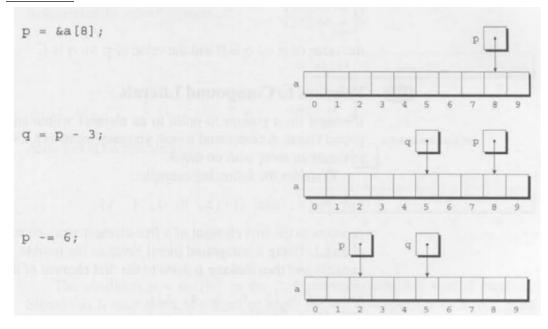
Example



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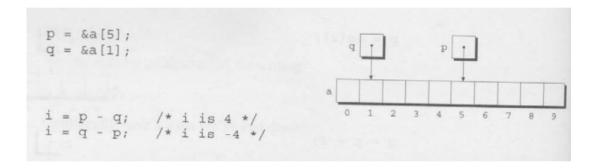
- Subtracting an integer from a pointer

Example



- Subtracting one pointer from another

Example



• Comparing pointers

- Can compare pointers using relational operators (i.e. <,<=,>,>=) and the equality operators (i.e. ==,!=)
- Returns 1 if true and 0 if false

Example

```
p = &a[5];

q = &a[1];

p <= q \text{ is } 0 \text{ and } p >= q \text{ is } 1
```

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2. low and high are memory addresses.

So, low + high is out of bound, and it could potentially point to an undesirable or wrong value.

To fix this, we subtract the from high value to the low value:

$$\mathtt{middle} = \frac{\mathtt{low} \; + \; \mathtt{high}}{2} \tag{1}$$

3. Notes

- Combining the * and ++ Operators
 - -*p++ or $*p++ \rightarrow$ Value of expression is *p before increment; increment p later
 - (*p)++ \rightarrow Value of expression is *p before increment; increment *p later
 - -*++p or $*(++p) \rightarrow$ Increment p first; value of expression is *p after increment
 - $++*p \text{ or } ++(*p) \rightarrow \text{Increment } *p \text{ first; value of expression is } *p \text{ after increment}$

Example

$$a[i++] = j$$

Means assign the value j to a[i] before increment