CSE 121 – Lesson 17

Miya Natsuhara
Spring 2023

Music: 121 23sp Lecture Vibes 🌸

TAs: Jasmine  Atharva  Mia  Justin
     Shananda  Julia  Archit  Aishah
     Vidhi  Anju  Grace  Claire
     Larry  Lydia  Kailye  Lydia
     Jacqueline  Jonus  Joshua  Kai
     Afifah  Hugh  James

sli.do #cse121
Announcements, Reminders

• P3 due Wednesday, May 31 11:59pm
• Retake form for 5/30 will be released later today
  • Only Quiz 2 is eligible
  • Last retake opportunity of the quarter
• Gumball (& friends) Visit on Monday, June 5 1:00pm-3:00pm
• Final Exam: Thursday, June 8 2:30pm-4:20pm
  • Left-Handed Seating Request form posted on Ed and closes Mon 5/29 EOD
  • TA-led Final Review Session Tuesday, June 6 4:30pm-7:00pm
• Bob Bandes TA Award Nominations Open!
What would the array `a` store at the end of this `arrayMystery` method if `{ -20, 20, 26, 32, 50, 3 }` was passed in?

A. `{ -20, 20, 26, 32, 50, 3 }`
B. `{ -15, 25, 31, 37, 55, 8 }`
C. `{ -15, 25, 31, 37, 50, 3 }`
D. `{ -15, 20, 26, 37, 50, 3 }`
(PCM) Value Semantics vs. Reference Semantics

- Applies when working with primitive types
- Variables/parameters hold a *copy* of the actual value

- Applies when working with objects
- Variables/parameters hold a *reference* to the object

```
age = 10;
```

```
int[] arr = new int[4];
```

*name: age (int)*

*name: arr (int[])*
(PCM) Value Semantics vs. Reference Semantics

```java
int a = 3;
int b = a;
a = 99;

int[] list1 = {4, 8, 15, 16, 23};
int[] list2 = list1;
list1[1] = 99;
```

```java
age = 10;

name: age (int)

int[] arr = new int[4];

name: arr (int[])
```

0 0 0 0

0 1 2 3
(PCM) Value Semantics vs. Reference Semantics

```java
boolean test = true;
flipValue(test);

public static void flipValue(boolean b) {
    b = !b;
}

boolean[] tests = {
    true, true, false, true, false, false
};
flipValues(tests);

public static void flipValues(boolean[] b) {
    for (int i = 0; i < b.length; i++) {
        b[i] = !b[i];
    }
}
```

Lesson 17 - Spring 2023
public static void main(String[] args) {
    int x = 0;
    int[] a = new int[4];
    x++;

    mystery(x, a);
    System.out.println(x + " " + Arrays.toString(a));
    x++;
    mystery(x, a);
    System.out.println(x + " " + Arrays.toString(a));
}

public static void mystery(int x, int[] a) {
    x++;
    a[x]++;
    System.out.println(x + " " + Arrays.toString(a));
}
public static void main(String[] args) {
    int x = 0;
    int[] a = new int[4];
    x++;

    mystery(x, a);
    System.out.println(x + " " + Arrays.toString(a));

    x++;
    mystery(x, a);
    System.out.println(x + " " + Arrays.toString(a));
}

public static void mystery(int x, int[] a) {
    x++;
    a[x]++;
    System.out.println(x + " " + Arrays.toString(a));
}