CSE 11
Accelerated Intro to Programming
Discussion Section 5

Shihua Lu, Spring 2021

This discussion is being recorded

Logistics

- PA4 due today at 11:59PM
- PA5 Released *Due next week*
- Exam next week *just like programming assignments*

Make a video

Be prepared
Come to us for help

Arrays

- An ordered sequence of values
    - (int, double, String, YourClass, array, …)
- Syntax of creating an array:

```
int[] nums1 = { 4, 2, 7 };    ⟶   { contents } :
int[] nums2 = {};
int[] nums3 = new int[5];      { 0, 0, 0, 0, 0 }
int[] nums4 = nums1;            // Be careful!!!
String[] strs1 = {"Hello", "CSE11"};
```

- Array length:

```
int nums1Length = nums1.length;
```

strs1.length; // 2

strs1[0].length(); // 5

Arrays cont'd

- Use index to access elements in an array:

```
int[] nums1 = { 4, 2, 7 };      // String [] nums1 = { "a", "b", "c" }
int firstElem  = nums1[0];   // 4
int secondElem = nums1[1];   // 2       index starts with 0 !!!
int thirdElem  = nums1[2];   // 7
int fourthElem = nums1[3];   // Index 3 out of bounds for length 3
```

- Modify elements in an array:

2.

→ equivalent to $nums1[2] = nums1[2] + 1$;

1.
```
nums1[2] += 1;   // nums1 becomes { 4, 2, 8 }
```
→ incrementing $nums1[2]$ by 1

3. $nums1[2]$ ++;

$nums1[2] = 8$;

- Array length is fixed:
  - Can modify elements, but cannot add/delete elements
  - `nums1 = { 4, 2, 7, 8 }` // need to assign a different array

Main

- public static void main(String[] args){...}

(annotations: class → ; execute the body of main method)

- You saw this in PA0.5

- Entry point to a Java program
  - javac DiscussionExamples.java → compiling
  - java DiscussionExamples → running
  - There needs to be a main method in the class DiscussionExamples

- args – an array of Strings (command line arguments)
  - java DiscussionExamples some some arguments

(annotation: args { "some", "some", "arguments" })

Loop Basics

- How to access elements in a very very long array?
- Loops
  - For-loop

```
for (int i = 0; i < arr.length; i++){
    System.out.println(arr[i]);
}
```

init statement

terminating condition

update step

loop body

  - For-each loop

```
for (int element : arr){
    System.out.println(element);
}
```

for each element in arr

  - While loop

```
int i = 0;
while (i < arr.length){
    System.out.println(arr[i]);
    i++;
}
```

condition

PA5

Thanks!