CSE 121 Lesson 17:
Array Patterns

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Winter 2024

TAs:	Abby	Aishah	Anju	Annie	Archit	Ayesha	Christian
	Hannah	Heather	Hibbah	Jacob	James	Janvi	Jasmine
	Jonus	Julia	Lucas	Luke	Maria	Nicole	Shananda
	Shayna	Trey	Vidhi	Vivian			

Today's playlist:
CSE 121 24wi lecture beats :D

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Announcements & Reminders

- P3 due **Thursday March 7th** at 11:59pm

- Fun news: for R7, <u>any assignment can be resubmitted</u>

- Gigi (& friends) Visit on Monday, March 11th 1:00pm-3:00pm

- Final Exam: **Tuesday, March 12th 12:30pm-2:20pm**
  - <u>Left-Handed Seating Requests Form</u>, closes end-of-day Monday, March 4th
  - TA-led Final Review Session on Monday, March 11th, 4:30-6:50 at SMI 120
  - Next week: focus on hand-writing!

(PCM) Counting Elements that Meet a Condition

"one"	"two"	"three"	"six"	"seven"	"eight"	"ten"

```java
public static int evenLength(String[] list) {
    int countEven = 0;
    for (int i = 0; i < list.length; i++) {
        if (                                    ) {
            countEven++;
        }
    }

    return countEven;
}
```

(PCM) Modifying Elements of an Array

4	8	15	16	23	42

```java
public static void clamp(int min, int max, int[] list) {
    for (int i = 0; i < list.length; i++) {
        if (                     > max) {
                     = max;

        } else if (                   < min) {
                     = min;

        }
    }
}
```

(PCM) Searching for an Element

"one"	"two"	"three"	"six"	"seven"	"eight"	"ten"

```java
public static int indexOfIgnoreCase(String phrase, String[] list) {
    for (int i = 0; i < list.length; i++) {
        if (                                    ) {
            return          ;
        }
    }

    return          ;
}
```

(PCM) Shifting Elements

9.6	-88.0	4.815	0.009	7.0184	42.9

```java
public static void rotateRight(double[] list) {
    double lastElement = list[list.length - 1];

    for (int i = list.length - 1; i > 0; i--) {
        list[i] = list[i - 1];
    }


}
```

(PCM) Looking at Multiple Elements in an Array

0	1	9	1	0

```java
public static boolean isPalindrome(int[] list) {
    for (int i = 0; i < list.length / 2; i++) {
        if (list[i] != list[list.length - 1 - i]) {
            return          ;
        }
    }

    return          ;
}
```

(PCM) Array of Counters or "Tallying"

```
8 3 0 1 2 2 0 7 2
```

```java
public static int[] numCount(Scanner input) {
    int[] counts =                    ;
    while (input.hasNextInt()) {
        int num = input.nextInt();


    }


    return counts;
}
```

(PCM) Common Ideas in Array Patterns

- Loop bounds

- Direction of traversal

- Indexing into an array

(PCM) Your Questions on Arrays! (1/3)

"When do we use quick initialization and when do we not or does it not matter?"

"What is a simple(r) way of deciding what pattern to utilize to perform certain functions?"

"how would I switch every third element in an array?"

(PCM) Your Questions on Arrays! (2/3)

"How do you interact with an array that has a lot of elements in it quickly?"

"Why do arrays have a completely different syntax (requiring java.util.*) in comparison to other data types? Is it just because they're more simple?"

(PCM) Your Questions on Arrays! (2/3)

"In a real computer science job, how likely is it you would have something like an array of arrays where each array is an array of arrays?"

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