CSE 121 Lesson 16: Array Patterns

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sli.do #cse121

TAs:

Abby	Afifah	Ailsa	Alice	Aliyan	Arohan
Chloë	Christopher	Dalton	Derek	Elizabeth	Ethan
Hanna	Hannah	Heather	Hibbah	Janvi	Jasmine
Judy	Julia	Kelsey	Lucas	Luke	Mahima
Maitreyi	Maria	Merav	Minh	Neha	Ronald
Ruslana	Sahej	Sam	Samrutha	Sushma	Vivian
Yijia	Zachary				

Today's playlist:
121 24au lecture tunes

Announcements & Reminders

- C3 due **tonight (Wednesday, November 20)** at 11:59pm
- Quiz 2 in section **tomorrow (Thursday, November 21)**
- Final Exam: **Wednesday, December 11, 12:30pm-2:20pm**
  - More details on Friday

(PCM) Your Questions on Arrays!

“Do all array problems follow the similar base pattern as the one's provided in the previous slide?”

“How do you resize an array when you need to add elements?”

“Is there an easy way to combine two arrays that were created previously into a new array in a specific unknown order?”

(PCM) Your Questions on Arrays!

"How are 2D array patterns different from 1D array patterns?"

"Could I declare an array of multiple data types using the Object[] class?"

"Can arrays of arrays have arrays?"

(PCM) Counting Elements that Meet a Condition

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

```
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

```
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"

```
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

```
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

```
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

```
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