CS 113 – Computer Science I

Lecture 14 – Loops & Arrays

Thursday 10/26/2023
Announcements

• HW 05 – Due Monday 10/30
  • Implement Blackjack!
  • Paired assignment – can work with a partner

• Midterm 1:
  • Grades returned
Agenda

• Announcements
• Loops
• Arrays of Arrays
Iterating through an array

Write a method called printArray that takes in an array of integers and prints out the values in each array:

```
printArray({1,2,3,4}) -> "1 2 3 4"
```
Exercise: Nested loops

```java
$ java Square
Enter a size: 5
*****
*****
*****
*****
*****

$ java Square
Enter a size: 1
*

$ java Square
Enter a size: 0
```
While vs For loop

Use a for loop when we know the number of iterations we want

Use a while loop when we don’t know the number of iterations before hand
Agenda

- Announcements
- While Loops
- For Loops
- Arrays of Arrays
Arrays of Arrays

int[] array1 is an array of ints

String[] array2 is an array of Strings

What is int[]([]) array3?
   An array of integer arrays

What is String[]([]) array4?
   An array of String arrays
2D array example

What does int[][] array = new int[4][3] look like?
2D array example

What does int[][] array = new int[4][3] look like?

Figure 15.3: Storing rows and columns with a 2D array.
2D Array

Useful for representing a:

• Grid
• Boardgame
• Matrix
• Table
• …
Traversing through a 2D array

What type of loop should we use?
if we know the length, then a for loop

Pseudocode/algorithm:
for array in 2D array:
   for item in array:
Array Example

Given a square array, compute the sum of the diagonal

<table>
<thead>
<tr>
<th>1</th>
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Array Example

Given a square 2-D array, compute the sum of the diagonal

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# Array Example

Given a 2-D array, compute the sum of the perimeter

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