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21.11.2016

Today's Agenda

1. Recap
2. 2D-Arrays
3. Scanner
4. Homework

Recap Questions

How is the structure of a function?

Recap

- Given two strings, a and b, create a bigger string made of the first char of a, the first char of b, the second char of a, the second char of b, and so on. Any leftover chars go at the end of the result.

String mixString("abc", "xyz") → "axbycz"
String mixString("Hi", "There") → "HTihere"
String mixString("xxxx", "There") → "xTxhxexre"

Recap

What is an Array?
How do you initialize Arrays?

E.g. Days, Months..

Recap

- Given an array of ints length 3, return a new array with the elements in reverse order, so {1, 2, 3} becomes {3, 2, 1}.

int[] reverse3([1, 2, 3]) → [3, 2, 1]

int[] reverse3([5, 11, 9]) → [9, 11, 5]

int[] reverse3([7, 0, 0]) → [0, 0, 7]

2D-Arrays

- Data is stored in row and column based index (also known as matrix form)

- Syntax to Declare Multidimensional Array in java:
  - dataType[][] arrayRefVar;
  - dataType [][]arrayRefVar;
  - dataType arrayRefVar[][];
  - dataType []arrayRefVar[];

2D-Arrays

- Instantiation of Multidimensional Array
  - int[][] arr=new int[3][3]; //3 row and 3 column

- Declaring and initializing 2D array
  - int arr[][]={{1,2,3},{2,4,5},{4,4,5}};

2D-Arrays

- Initialization of Multidimensional Array
  - arr[0][0]=1;
  - arr[0][1]=2;
  - arr[0][2]=3;
  - arr[1][0]=4;
  - arr[1][1]=5;
  - arr[1][2]=6;
  - arr[2][0]=7;
  - arr[2][1]=8;
  - arr[2][2]=9;

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

2D-Arrays

- Example 1

  ○ Declare, instantiate, initialize and print the 2D array

- Example 2

  ○ Adding 2 matrices