Name: (Key) 2-8-24

Code you cannot see creates an int array nums that contains this data:

```
1 2 3 4 5
6 7 8 9 0
```

1. Write one line of code to print the 3 from array nums.

```
System.out.println(nums[0][2]);
```

2. Write one line of code to replace the value 0 with the value 10 in the array nums.

```
nums[1][4] = 10;
```
↑

3. What does "row major" mean when we're talking about 2D arrays?

The row # is the first number

4. In code you cannot see I created a 2D array named "mystery". Write code to print how many elements are in the array:

```
System.out.println(mystery.length*mystery[0].length);
```

5. What is wrong with the following code?

```
String[][] words = //array filled with valid data;
String longest = words[0]; ①
for(String w: words) { ②
    if(w.length()>longest) longest = w;
}  ③
System.out.println("Longest String: "+longest);
```
③ Needs to be longest.length() here

3 Things are wrong:

① This is trying to store an entire row in a regular String variable

② words is a 2D array - if you want to use enhanced loops here you have to do this:
```
for(String[] row: words) {
    for(String w: row) {
```

6. Write code using underlined enhanced for loops to print a 2D double array values with a space after each element, printed in a grid like we've done this whole unit.

```
double[][] values = //properly declared

for(double[] row: values){
    for(double d: row){
        System.out.print(d + " ");
    }
    System.out.println();
}
```

7. Write code using underlined regular for loops to print a 2D int array nums with a space after each element, printed in a grid like we've done this whole unit.

```
int[][] nums = //properly declared

for(int r = 0; r < nums.length; r++){
    for(int c = 0; c < nums[0].length; c++){
        System.out.print(nums[r][c]);
    }
    System.out.println();
}
```

8. Write a method named charCount() that accepts any 2D String array and returns the sum of all of the lengths of all Strings in the array. For example, if the array contained {{"cat","dog"},{"pig","cow"}} this method would return 12.

```
public static int charCount(String[][] x)
{
    int count = 0;
    for(string[] row : x) {          →  N
        for(string w : row) {           for(int r=0; r<x.length; r++){
            count += w.length();            for(int c=0; c<x[0].length; c++){
        }                                        count += x[r][c];
    }                                   ←    }
                                             }
    return count;
}
```

9. Write a method biggestValue() which accepts any 2D double array **nums** and returns the column index that has the largest value.

```
public static int biggestValue(double[][] nums)
{
    int largeR = 0;
    int largeC = 0;
    for(int r=0; r<nums.length; r++) {
        for(int c=0; c<nums[0].length; c++) {
            if(nums[r][c] > nums[largeR][largeC]) {
                largeR = r;
                largeC = c;
            }
        }
    }
    return largeC;
}
```

10. Using an array intializer, create a 2D integer array named **values** that contains the information shown to the right arranged as shown in four rows of two columns.

3	4
5	6
9	8
7	6

```
int[][] values = { {3,4}, {5,6}, {9,8}, {7,6}};
```

11. Write a line that prints the 8 from **values** from the array in the previous problem.

```
System.out.println(values[2][1]);
```