Name: (Key) 2-4-22

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?

Row major means the row # is first, for ex. ~~nums~~ in `int[][] nums = new int[2][5];` the 2 is the # of rows

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;
}
System.out.println("Longest String: "+longest);
```

(1) words[0] is a 1D array. You could not store it in a regular string

(2) If you want to use an enhanced for loop here you have to do this
```
for(String[] row : words){
   for(String w: row){
```

6. Write code using <u>enhanced for loops</u> to print a 2D double array **values** with a space after each element, printed in a grid like we've done this whole unit.	7. Write code using <u>regular for loops</u> to print a 2D int array **nums** with a space after each element, printed in a grid like we've done this whole unit.

6.
```
double[][] values = //properly declared
for( double[] row : values)
{
   for(double n: row) {
      system.out.print(n+ "_");
   }
   system.out.println();
}
```

7.
```
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 chars = 0;
    for (String[] row: x)
    {
        for (String w: row)
        {
            chars += w.length();
        }
    }
    return chars;
}
```

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

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

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]);
```