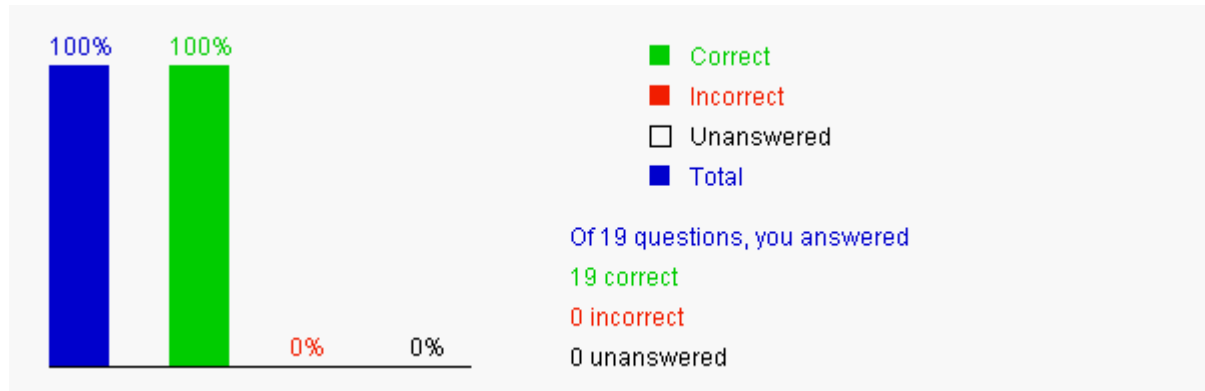


This quiz is for students to practice. A large number of additional quiz is available for instructors using Quiz Generator from the Instructor's Resource Website. Videos for Java, Python, and C++ can be found at <https://yongdanielliang.github.io/revelvideos.html>.

## Chapter 8 Multidimensional Arrays



Please send suggestions and errata to Dr. Liang at [y.daniel.liang@gmail.com](mailto:y.daniel.liang@gmail.com). Indicate which book and edition you are using. Thanks!

### Section 8.2 Two-Dimensional Array Basics

**8.1** Which of the following statements are correct?

- ☐ A. `char[][] charArray = {'a', 'b'};`
- ☐ B. `char[2][2] charArray = {{'a', 'b'}, {'c', 'd'}};`
- ☐ C. `char[2][] charArray = {{'a', 'b'}, {'c', 'd'}};`
- ☒ D. `char[][] charArray = {{'a', 'b'}, {'c', 'd'}};`

Your answer is correct



**8.2** Assume `double[][] x = new double[4][5]`, what are `x.length` and `x[2].length`?

- ☐ A. 4 and 4
- ☒ B. 4 and 5
- ☐ C. 5 and 4
- ☐ D. 5 and 5

Your answer is correct



**8.3** What is the index variable for the element at the first row and first column in array `a`?

- ☒ A. `a[0][0]`
- ☐ B. `a[1][1]`
- ☐ C. `a[0][1]`
- ☐ D. `a[1][0]`

Your answer is correct



**8.4** When you create an array using the following statement, the element values are automatically initialized to 0.

```
int[][] matrix = new int[5][5];
```

- ☒ A. True
- ☐ B. False

Your answer is correct



**8.5** How many elements are in array `matrix` (`int[][] matrix = new int[5][5]`)?

- ☐ A. 14
- ☐ B. 20
- ☒ C. 25
- ☐ D. 30

Your answer is correct



**8.6** Analyze the following code:

```
public class Test {  
    public static void main(String[] args) {  
        boolean[][] x = new boolean[3][];  
    }  
}
```

```

x[0] = new boolean[1]; x[1] = new boolean[2];
x[2] = new boolean[3];

System.out.println("x[2][2] is " + x[2][2]);
}
}

```

- ☐ A. The program has a compile error because new boolean[3][] is wrong.
- ☐ B. The program has a runtime error because x[2][2] is null.
- ☐ C. The program runs and displays x[2][2] is null.
- ☐ D. The program runs and displays x[2][2] is true.
- ☒ E. The program runs and displays x[2][2] is false.

Your answer is correct

Explanation: x is a ragged array. (See the section on Ragged Array) x[2] has three elements with default value false.

**8.7** Assume int[][] x = {{1, 2}, {3, 4}, {5, 6}}, what are x.length and x[0].length?

- ☐ A. 2 and 1
- ☐ B. 2 and 2
- ☒ C. 3 and 2
- ☐ D. 2 and 3
- ☐ E. 3 and 3

Your answer is correct

**8.8** Assume int[][] x = {{1, 2}, {3, 4, 5}, {5, 6, 5, 9}}, what are x[0].length, x[1].length, and x[2].length?

- ☐ A. 2, 3, and 3
- ☒ B. 2, 3, and 4
- ☐ C. 3, 3, and 3
- ☐ D. 3, 3, and 4
- ☐ E. 2, 2, and 2

Your answer is correct

### Section 8.3 Processing Two-Dimensional Arrays

**8.9** What is the output of the following program?

```

public class Test {
    public static void main(String[] args) {
        int[][] values = {{3, 4, 5, 1}, {33, 6, 1, 2}};

        int v = values[0][0];
        for (int row = 0; row < values.length; row++)
            for (int column = 0; column < values[row].length; column++)
                if (v < values[row][column])
                    v = values[row][column];

        System.out.print(v);
    }
}

```

- ☐ A. 1
- ☐ B. 3
- ☐ C. 5
- ☐ D. 6
- ☒ E. 33

Your answer is correct

**8.10** What is the output of the following program?

```

public class Test {
    public static void main(String[] args) {
        int[][] values = {{3, 4, 5, 1}, {33, 6, 1, 2}};

        int v = values[0][0];
        for (int[] list : values)
            for (int element : list)
                if (v > element)
                    v = element;

        System.out.print(v);
    }
}

```

- ☒ A. 1  
☐ B. 3  
☐ C. 5  
☐ D. 6  
☐ E. 33

Your answer is correct



**8.11** What is the output of the following program?

```
public class Test {
    public static void main(String[] args) {
        int[][] values = {{3, 4, 5, 1}, {33, 6, 1, 2}};

        for (int row = 0; row < values.length; row++) {
            java.util.Arrays.sort(values[row]);
            for (int column = 0; column < values[row].length; column++)
                System.out.print(values[row][column] + " ");
            System.out.println();
        }
    }
}
```

- ☐ A. The program prints two rows 3 4 5 1 followed by 33 6 1 2  
☐ B. The program prints on row 3 4 5 1 33 6 1 2  
☐ C. The program prints two rows 3 4 5 1 followed by 2 1 6 33  
☒ D. The program prints two rows 1 3 4 5 followed by 1 2 6 33  
☐ E. The program prints one row 1 3 4 5 1 2 6 33

Your answer is correct



**8.12** What is the output of the following code?

```
public class Test {
    public static void main(String[] args) {
        int[][] matrix =
            {{1, 2, 3, 4},
             {4, 5, 6, 7},
             {8, 9, 10, 11},
             {12, 13, 14, 15}};

        for (int i = 0; i < 4; i++)
            System.out.print(matrix[i][1] + " ");
    }
}
```

- ☐ A. 1 2 3 4  
☐ B. 4 5 6 7  
☐ C. 1 3 8 12  
☒ D. 2 5 9 13  
☐ E. 3 6 10 14

Your answer is correct



**8.13** What is the output of the following code?

```
public class Test5 {
    public static void main(String[] args) {
        int[][] matrix =
            {{1, 2, 3, 4},
             {4, 5, 6, 7},
             {8, 9, 10, 11},
             {12, 13, 14, 15}};

        for (int i = 0; i < 4; i++)
            System.out.print(matrix[1][i] + " ");
    }
}
```

- ☐ A. 1 2 3 4  
☒ B. 4 5 6 7  
☐ C. 1 3 8 12  
☐ D. 2 5 9 13  
☐ E. 3 6 10 14

Your answer is correct 

#### Section 8.4 Passing Two-Dimensional Arrays to Methods

**8.14** Suppose a method p has the following heading:

```
public static int[][] p()
```

What **return** statement may be used in p()?

- ☐ A. return 1;
- ☐ B. return {1, 2, 3};
- ☐ C. return int[]{1, 2, 3};
- ☐ D. return new int[]{1, 2, 3};
- ☒ E. return new int[][]{{1, 2, 3}, {2, 4, 5}};

Your answer is correct 

**8.15** What is the output of the following program?

```
public class Test {  
    public static void main(String[] args) {  
        int[][] values = {{3, 4, 5, 1}, {33, 6, 1, 2}};  
  
        for (int row = 0; row < values.length; row++) {  
            System.out.print(m(values[row]) + " ");  
        }  
    }  
  
    public static int m(int[] list) {  
        int v = list[0];  
        for (int i = 1; i < list.length; i++)  
            if (v < list[i])  
                v = list[i];  
        return v;  
    }  
}
```

- ☐ A. 3 33
- ☐ B. 1 1
- ☐ C. 5 6
- ☒ D. 5 33
- ☐ E. 33 5

Your answer is correct 

#### Section 8.8 Multidimensional Arrays

**8.16** Assume `double[][][] x = new double[4][5][6]`, what are `x.length`, `x[2].length`, and `x[0][0].length`?

- ☒ A. 4, 5, and 6
- ☐ B. 6, 5, and 4
- ☐ C. 5, 5, and 5
- ☐ D. 4, 5, and 4

Your answer is correct 

**8.17** Which of the following statements are correct?

- ☒ A. `char[][][] charArray = new char[2][2][];`
- ☐ B. `char[2][2][] charArray = {'a', 'b'};`
- ☐ C. `char[][][] charArray = {{'a', 'b'}, {'c', 'd'}, {'e', 'f'}};`
- ☒ D. `char[][][] charArray = {{{'a', 'b'}, {'c', 'd'}, {'e', 'f'}}};`

Your answer is correct 

**8.18** What is the output of the following code?

```
public class Test {  
    public static void main(String[] args) {  
        int[][][] data = {{{1, 2}, {3, 4}},  
                           {{5, 6}, {7, 8}}};  
  
        System.out.print(data[1][0][0]);  
    }  
}
```

- ☐ A. 1

- ☐ B. 2
- ☐ C. 4
- ☒ D. 5
- ☐ E. 6

Your answer is correct



**8.19** What is the output of the following code?

```
public class Test {  
    public static void main(String[] args) {  
        int[][][] data = {{{1, 2}, {3, 4}},  
                           {{5, 6}, {7, 8}}};  
  
        System.out.print(ttt(data[0]));  
    }  
  
    public static int ttt(int[][] m) {  
        int v = m[0][0];  
  
        for (int i = 0; i < m.length; i++)  
            for (int j = 0; j < m[i].length; j++)  
                if (v < m[i][j])  
                    v = m[i][j];  
  
        return v;  
    }  
}
```

- ☐ A. 1
- ☐ B. 2
- ☒ C. 4
- ☐ D. 5
- ☐ E. 6

Your answer is correct

