Quiz 8 Multidimensional Arrays

Section 8.2 Two-Dimensional Array Basics

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'}};

Key:d

#

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

Key:b

#

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]

Key:a

#

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

Key:a

#

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

a. 14

b. 20

c. 25

d. 30

Key:c

#

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.

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

#

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

a. 2 and 1

b. 2 and 2

c. 3 and 2

d. 2 and 3

e. 3 and 3

Key:c

#

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

Key:b

#

Section 8.3 Processing Two-Dimensional Arrays

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

Key:e

#

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

Key:a

#

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

Key:d

#

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

Key:d

#

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

Key:b

#

Section 8.4 Passing Two-Dimensional Arrays to Methods

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}};

Key:e

#

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

Key:d

#

Section 8.8 Multidimensional Arrays

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

Key:a

#

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'}}};

Key:ad

#

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

Key:d

#

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

Key:c