WEEK 3 : ARRAYS

What are the contents of mat after the following code segment has been executed?

```
int [][] mat = new int [4][3];
for (int row = 0; row < mat.length; row++) {
    for (int col = 0; col < mat[0].length; col++) {
        if (row < col)
            mat[row][col] = 1;
        else if (row == col)
            mat[row][col] = 2;
        else
            mat[row][col] = 3; } }
```

- ⦿ a. { {2 1 1}, {3 2 1}, {3 3 2}, {3 3 3}}
- ○ b. { {2 3 3}, {1 2 3}, {1 1 2}, {1 1 1}}
- ○ c. { {2 3 3 3}, {1 2 3 3}, {1 1 2 3}}
- ○ d. { {2 1 1 1}, {3 2 1 1}, {3 3 2 1}}
- ○ e. { {1 1 1 1}, {2 2 2 2}, {3 3 3 3}}

Fill in the blank in the following code fragment so that each element of the array is assigned twice the value of its index.

```
int[] array = new int[10];

// scan the array
for ( int index=0; index < array.length; index++ )
{
    _____
}
```

- ○ a. index = 2*index;
- ○ b. array[2*index] = 2*index;
- ⦿ c. array[index] = 2*array[index];
- ○ d. array[index] = 2*index;

What is the output of the following code fragment:

```
int[] egArray = { 2, 4, 6, 8, 10, 1, 3, 5, 7, 9 };

for ( int index= 0 ; index < egArray.length ; index = index + 2  )

  System.out.print( egArray[ index ] + " " );
```

- ⦿ a.   2 6 10 3 7
- ◯ b.   2 6 10 3 7 0
- ◯ c.   2 4 6 8 10 1 3 5 7 9
- ◯ d.   4 8 1 5 9

What is the output of the following code fragment:

```
int[] z = new int[9];
z[0] = 7;
z[1] = 3;
z[2] = 4;
System.out.println( z[0] + z[1] + " " + z[5] );
```

- ◯ a.   7 3 4
- ◯ b.   7 3 0
- ⦿ c.   10 0
- ◯ d.   The program is defective and will not compile.

The ith element in the array has an index:

- a. None of the mentioned
- b. i+1
- ⦿ c. i
- d. i-1

Which will legally declare, construct, and initialize an array?

- ⦿ a. int [] myList = {5, 8, 2};
- b. int myList[] [] = {5,8,2,0};
- c. int [] myList = {"5", "8", "2"};
- d. int [3] myList = (5, 8, 2);

What is the output of the following code fragment:

int[] y = new int[5];

y[0] = 34;

y[1] = 88;

System.out.println(y[0] + " " + y[1] + " " + y[5]);

- ⦿ a. The program is defective and will not compile
- b. 34 88 88
- c. 34 88 0
- d. 0 34 88

What is the output of the following code fragment:

int[] ar = {2, 4, 6, 8 };

System.out.println(ar[0] + " " + ar[1]);

○ a. 8

○ b. 6 8

○ c. 2 6

⦿ d. 2 4

Given:

int[][] items =

  { {0, 1, 3, 4},

   {4, 3, 99, 0, 7 },

   {3, 2} } ;

Which of the following fragments replaces row 0 of items with an entierly new row?

○ a. int[] temp = { 8, 12, 6 };

     items[0] = temp;

○ b. items[0] = new { 8, 12, 6 };

⦿ c. items[0][0] = 8;

     items[0][1] = 12;

     items[0][2] = 6;

○ d. items[0] = { 8, 12, 6 };

Which of the following statements assigns the letter S to the third row and first column of a two-dimensional array named strGrid (assuming row-major order).

- ⦿ a. strGrid[2][0] = "S";
- ○ b. strGrid[3][1] = "S";
- ○ c. strGrid[1][3] = "S";
- ○ d. strGrid[0][2] = "S";
- ○ e. strGrid[0][0] = "S";

Examine the following:

double[][] values =

{ {1.2, 9.0, 3.2},

{9.2, 0.5, 1.5, -1.2},

{7.3, 7.9, 4.8} } ;

What is in values[[2][[1] ?

- ⦿ a. 7.9
- ○ b. 7.3
- ○ c. There is no such array element
- ○ d. 9.2

What will be the output?

```
public class Test{
    public static void main(String[] args){
        int[] x = new int[3];
        System.out.println("x[0] is " + x[0]);
    }
}
```

- ○ a. The program has a compile error because the size of the array wasn't specified when declaring the array.
- ○ b. The program has a runtime error because the array elements are not initialized.
- ⦿ c. The program runs fine and displays x[0] is 0.
- ○ d. The program has a runtime error because the array element x[0] is not defined.

What is the output of the following code fragment:

```
int[] zip = new int[5];
zip[0] = 7;
zip[1] = 3;
zip[2] = 4;
zip[3] = 1;
zip[4] = 9;
System.out.println( zip[ 2 + 1 ] );
```

a. 1

b. 4 3

c. 4

d. 3 7

Examine the following:

double[][] values =

  { {1.2, 9.0, 3.2},

   {9.2, 0.5, 1.5, -1.2},

   {7.3, 7.9, 4.8} } ;

What is in   values[[3]][[0] ?

○ a.   9.2

○ b.   7.3

○ c.   7.9

◉ d.   There is no such array element

After the declaration:

char[] c = new char[100];

What is the vale of c[50]?

- a. 49
- b. '\u0020'
- c. '\u0000'
- d. 50

Which of the following will declare an array and initialize it?

- a. int array[] = new int [5];
- b. int [5] array;
- c. int a[] = new int(5);
- d. Array a = new Array(5);

What is the output of the following code fragment:

```
int[] egArray = { 2, 4, 6, 8, 10, 1, 3, 5, 7, 9 };
for ( int index= 0 ; index < egArray.length ; index++  )
    System.out.print( egArray[ index ] + " " );
```

a. 2 4 6 8

b. 2 4 6 8 10 1 3 5 7 9

c. 2 4 6 8 10

d. 2 4 6 8 10 1

What will be the output of the following Java code?

```java
class multidimention_array
{
    public static void main(String args[[])
    {
        int arr[][] = new int[3][];
        arr[0] = new int[1];
        arr[1] = new int[2];
        arr[2] = new int[3];
    int sum = 0;
    for (int i = 0; i < 3; ++i)
        for (int j = 0; j < i + 1; ++j)
            arr[i][j] = j + 1;
    for (int i = 0; i < 3; ++i)
        for (int j = 0; j < i + 1; ++j)
            sum + = arr[i][j];
    System.out.print(sum);
    }
```

}

- a. 11
- ○ b. 10
- c. 13
- d. 14

int[][] Marks = new int[5][3]

This creates

- ○ a. 5x3 2D Array
- b. 3x5 2D Array
- c. 4x2 2D Array
- d. 2x4 2D Array

Given the following:

double[][] things =

  { {1.2, 9.0},

    {9.2, 0.5, 0.0},

     {7.3, 7.9, 1.2, 3.9} } ;

What is the value of things.length ?

○ a. 3

○ b. 9

○ c. 2

○ d. 4

Given the following code segment, what is the value of sum after this code executes?

int[][] matrix = { {1,1,2,2},{1,2,2,4},{1,2,3,4},{1,4,1,2}};

int sum = 0;
int col = matrix[0].length - 2;
for (int row = 0; row < 4; row++)
{
  sum = sum + matrix[row][col];
}

○ a. 12

◉ b. 8

○ c. 9

○ d. 10

○ e. 4

Determine output:

```java
public class Test{
    public static void main(String[] args){
        int[] x = {1, 2, 3, 4};
        int[] y = x;

        x = new int[2];

        for(int i = 0; i < x.length; i++)
            System.out.print(y[i] + " ");
    }
}
```

   a. 1 2 3 4

   b. 1 2

   c. 0 0 0 0

   d. 0 0

What are the legal indexes for the array ar, given the following declaration:

int[] ar = {2, 4, 6, 8 }

○ a. 1, 2, 3, 4

◉ b. 0, 1, 2, 3

○ c. 2, 4, 6, 8

○ d. 0, 2, 4, 6

Which of the following is an illegal declaration of array?

○ a. Dog mydogs[7];

○ b. Dog mydogs[];

◉ c. int [] myscore[];

○ d. char [] mychars;

What is the value of a[1] after the following code is executed?

int[] a = {0, 2, 4, 1, 3};

for(int i = 0; i < a.length; i++)

a[[i] = a[[(a[[i] + 3) % a.length];

- a. 3
- b. 1
- c. 4
- d. 0
- e. 2

What is the output of the following code fragment:

int[] ar = {2, 4, 6, 8 };

ar[0] = 23;

ar[3] = ar[1];

System.out.println(ar[0] + " " + ar[3]);

a. 2 8

b. 23 4

c. 21

d. 23 2

Arrays in Java are dynamically allocated using the _____ operator.

a. create

b. new

c. arrayList

d. dynamic

How many columns does a have if it is created as follows int[][] a = { {2, 4, 6, 8}, {1, 2, 3, 4}};?

○ a.

○ b. 8

○ c. 6

○ d. 2

◉ e. 4

What is the output of the following code fragment:

```
int[] egArray = { 2, 4, 6, 8, 10, 1, 3, 5, 7, 9 };
for ( int index= 0 ; index < 5 ; index++ )
   System.out.print( egArray[ index ] + " " );
```

◉ a. 2 4 6 8 10

○ b. 2 4 6 8

○ c. 2 4 6 8 10 1

○ d. 2 4 6 8 10 1 3 5 7 9

What is the output of the following code?

```
public class Test{
    public static void main(String args[]){
        double[] myList = {1, 5, 5, 5, 5, 1};
        double max = myList[0];
        int indexOfMax = 0;
        for(int i = 1; i < myList.length; i++){
            if(myList[i] > max){
                max = myList[i];
                indexOfMax = i;
            }
        }
        System.out.println(indexOfMax);
    }
}
```

- ○ a. 1
- ○ b. 0
- ○ c. 2

○ c.   2

○ d.   3

○ e.   4

Which of the following declares an array of int named img?

○ a.   int img = int[];

○ b.   new int img[];

○ c.   int img;

○ d.

◉ e.   int[] img;

Java array indices start at

○ a.

○ b.

◉ c.   0

○ d.   1

In Java, each array object has a final field named _____ that stores the size of the array.

◉ a.   length

○ b.   width

○ c.   distance

○ d.   size

Examine the following program fragment:

```
int[] array = { 1, 4, 3, 6 };
int what   = 0;

// scan the array
for ( int index=0; index < array.length; index++ )
{
   what = what + array[ index ] ;
}
System.out.println( what );
```

What does the fragment write to the monitor?

○ a. 6

○ b. 1

○ c. 1 4 3 6

◉ d. 14

○ e.

The following code declares a character array with 3 rows and 5 columns:

○ a. int matrix = new char[3][5];

○ b. matrix = new char[3, 5];

○ c. char [] [] matrix = [3,5]

◉ d. char [] [] matrix;

     matrix = new char[3][5];