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Arrays and ArrayLists in Java Lab 6  
20160702

#### Part I

1. What is an off-by-one error?  
When you go passed the array length.
2. What benefits does the enhanced for statement provide for array processing? What are its limitations?  
Won't iterate beyond its size. Can't modify elements.
3. Why are command-line arguments passed to the main method as Strings? What problems would arise if command-line arguments were passed using an array of doubles?  
Strings can be cast into nearly any other type. Doubles values can be processed differently depending on the processor type.
4. Describe how two-dimensional arrays represent a table of data.  
One the first dimension is rows and the second is columns.
5. Differentiate between pass-by-value and pass-by-reference.  
PBV makes a copy of the arguments, and PBR uses the memory reference to access the passed in argument.

## Part II

1. What is the output of the following code segment?

```
1  int array[] = { 8, 6, 9, 7, 6, 4, 4, 5, 8, 10 };
2  System.out.println( "Index    Value" );
3
4  for ( int i = 0; i < array.length; i++ )
5      System.out.printf( "%d        %d\n", i, array[ i ] );
```

Index	Value
0	8
1	6
2	9
3	7
4	6
5	4
6	4
7	5
8	8
9	10

2. What is the output of the following code segment?

```
1  char sentence[] = { 'H', 'o', 'w', ' ', 'a', 'r', 'e', ' ', 'y', 'o', 'u' };
2  String output = "The sentence is: ";
3
4  for ( int i = 0; i < sentence.length; i++ )
5      System.out.printf( "%c ", sentence[ i ] );
6
7  System.out.println();
```

The sentence is: H o w a r e y o u

3. What is the output of the following code segment?

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

```
*
**
***
****
*****
*****
*****
*****
*****
*****
*****
```

4. What is the output of the following code segment?

```
1  int array[] = { 3, 2, 5 };
2
3  for ( int i = 0; i < 3; i++ )
4      array[ i ] *= 2;
5
6  for ( int j : array )
7      System.out.print( "%d ", j );
8
9  System.out.println();
```

6 4 10

Given the following declaration of a method:

```
1  public int method1( int... values )
2  {
3      int mystery = 1;
4
5      for ( int i : values )
6          mystery *= i;
7
8      return mystery;
9  }
```

5. What is the output of the following code segment?

```
1  System.out.println( method1( 1, 2, 3, 4, 5 ) );
```

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Given the following declaration of a method:

```
1  public int method1( int values[][] )
2  {
3      int mystery = 1;
4
5      for ( int i[] : values )
6          for ( int j : i )
7              mystery *= j;
8
9      return mystery;
10 }
```

6. What is the output of the following code segment?

```
1  int array[][] = { { 3, 2, 5 }, { 2, 2, 4, 5, 6 }, { 1, 1 } };
2
3  System.out.println( mystery( array ) );
```

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