

Read through all problems on the quiz before starting. Answer the problems you know how to solve first. There are seven total questions worth 100 points. You have 120 minutes to complete the quiz.

1. (12 points) Declare and initialize variables storing each of the following values:
 - a. The number 32

 - b. The name “Jomo Kenyatta”

 - c. An array of numbers: 12.3, 44.5, 15.8

 - d. The condition $(x > 6)$

2. (13 points) Write the output of the following program in the space provided below.

```
class Quiz {  
    public static void main(String[] args) {  
        int[] A = {0, 1, 2, 2, 0, 0, 3, 1, 1, 0};  
        int[] B = new int[4];  
  
        for (int i = 0; i < A.length; i++)  
            B[A[i]]++;  
  
        for (int j = 0; j < B.length; j++)  
            for (int k = 0; k < B[j]; k++)  
                System.out.print(j + " ");  
  
        System.out.println(".");  
    }  
}
```

Output:

3. (16 points) Briefly explain the errors in each of the following code excerpts:

a.

```
int[] data = {1, 2, 3, 4, 5};
for (int i = data.length; i >= 0; i--)
    System.out.println(data[i]);
```

b.

```
public static int foo(int n) {
    if (n > 0)
        return foo(n) + foo(n-1);
    else
        return 0;
}
```

c.

```
double deuce = 2e2;
int 2bOrNot2b = 2;
String cheese = 'mozzarella';
boolean troof = True;
```

d.

```
int x = 1000;
x *= x;
x *= x;
```

4. (6 points)

```
public static void foo(double[] scores, String name);
```

- What is the name of the above method?
- What is the return type of the above method?
- What are the arguments of the above method?

5. (8 points) Consider Java's model of compiling source code into bytecode that is executed on platform-specific JVMs, versus C/C++'s model of compiling source code directly into native machine code.

- Describe an advantage to Java's model.
- Describe a disadvantage to Java's model.

6. (20 points) Write the output of the following program in the provided spaces. You should keep track of the values of the variables as they change throughout the code:

```
class Quiz {  
    public static void main(String[] args) {  
        int x = 3;  
        int y = 4;  
        System.out.println(y*x/y);  
  
        System.out.println(x/y*y);  
  
        System.out.println(x++ + --y);  
  
        if ((x <= y) || ((x * y) % 8 == 0) && (x != 3))  
            System.out.println(x*y);  
        else if ((x%y >= 3) || !(x == ++y) || (x == y++))  
            System.out.println(y-x);  
        else  
            System.out.println(x+y);  
    }  
}
```

7. (25 points) Write a method named `reverseEvenIndices` that takes an integer array as input and outputs an array such that all the values with odd indices remain in the same position. However, elements with even indices should be output in reverse order. That is, the first element with even index should be swapped with the last element with even index, the second even-indexed element with the second-to-last even-indexed element, and so on. Note that zero is an even index. Example inputs and outputs are as follows:

Input: {9, 4, 8, 7, 5, 1, 3}

Output: {3, 4, 5, 7, 8, 1, 9}

Input: {6, 4, 1, 0, 3, 2}

Output: {3, 4, 1, 0, 6, 2}

Input: {1, 2, 3}

Output: {3, 2, 1}

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