

# CS175: Programming in Java

**Practical**

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# Lab Exercises

## Question One

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- Write a static method `max3()` that takes three `int` arguments and returns the value of the largest one.

## Question Two

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- Write a static method `eq()` that takes two `int` arrays as arguments and returns `true` if the arrays have the same length and all corresponding pairs of elements are equal, and `false` otherwise.

## Question Two - Sln

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```
public class ArrayEquals {  
    // return true if two integer arrays have same length and all  
    // corresponding pairs of integers are equal  
    public static boolean eq(int[] a, int[] b) {  
        // same length?  
        if (a.length != b.length) return false;  
        // check each corresponding pair  
        for (int i = 0; i < a.length; i++) {  
            if (a[i] != b[i]) return false;  
        }  
        // all elements must be equal  
        return true;  
    }  
}
```

## Question Two - Sln

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```
// test client
```

```
public static void main(String[] args) {
```

```
    int[] a = { 3, 1, 4, 1, 5 };
```

```
    int[] b = { 3, 1, 4, 1 };
```

```
    int[] c = { 3, 1, 4, 1, 5 };
```

```
    int[] d = { 2, 7, 1, 8, 2 };
```

```
        StdOut.println(eq(a, a));
```

```
        StdOut.println(eq(a, b));
```

```
        StdOut.println(eq(a, c));
```

```
        StdOut.println(eq(a, d));
```

```
    }
```

## Question Three

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- Write a java program to display the value of **x** on the computer screen where  
$$x = 46/6 + 5 \% 7$$

## Question Four

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- Write a function `reverse()` that takes a string as an argument and returns a string that contains the same sequence of characters as the argument string but in reverse order.



# Question Four - Soln

```
public class ReverseString {  
    public static String reverse(String s) {  
        int n = s.length();  
        char[] a = s.toCharArray();  
        for (int i = 0; i < n/2; i++) {  
            char temp = a[i];  
            a[i] = a[n-i-1];  
            a[n-i-1] = temp;  
        }  
        return new String(a);  
    }  
    public static void main(String[] args) {  
        StdOut.println(reverse(args[0]));  
    }  
}
```

## Question Five

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- Write a program FlipX.java that takes the name of an image file as a command-line argument and flips the image horizontally.

## Question Five - soln

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- ```
import java.awt.Color; public class FlipX {  
    public static void main(String[] args) {  
        Picture pic = new Picture(args[0]); int width  
        = pic.width(); int height = pic.height();  
        pic.show(); for (int y = 0; y < height; y++) {  
            for (int x = 0; x < width / 2; x++) { Color c1 =  
                pic.get(x, y); Color c2 = pic.get(width - x - 1,  
                y); pic.set(x, y, c2); pic.set(width - x - 1, y,  
                c1); } } pic.show(); } }
```

## Question Six

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- Write an Object Oriented (OO)Java program to calculate circumference and area of any given circle radius.

## Question Six

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- Write an Object Oriented (OO)Java program maintain a list of CS175 students.

## Question Six

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- Write an Object Oriented (OO)Java program maintain a list of CS175 students. The system should display the following:
- |      | <b>Sno</b> | <b>Name</b>       | <b>RegNo</b>  |
|------|------------|-------------------|---------------|
| ● 1. |            | John Hashim       | 2020-04-00111 |
| ● 2. |            | Sixmund Sweetbert | 2020-04-00121 |
| ● 3. |            | Ali Juma          | 2020-04-00321 |

```
class Student{  
int id;  
String name;  
String regno;  
void insert(int i, String n,String r) {  
    id=i;  
    name=n;  
    regno=r;  
}  
● void display(){System.out.println(id+" "+name+"  
    "+regno);} }
```

---

```
public class ListStudent {  
    public static void main(String[] args) {  
        Student h=new Student();  
        Student s1=new Student();  
        Student s2=new Student();  
        Student s3=new Student();  
        h.insert('SNo,"Name","RegNo");  
        s1.insert(1,"Al Juma","2020-04-00221");  
    }  
}
```



---

```
h.display();  
s1.display();  
s2.display();
```

```
}
```

```
}
```