# CS175: Programming in Java

**Practical**

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# Lab Exercises

# Question One

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

# Question Two

- 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

```
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

```
    // 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

- Write a java program to display the value of **x** on the computer screen where

  x = 46/6 + 5 % 7

# Question Four

- 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

- 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

- 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

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

# Question Six

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

# Question Six

- Write an Object Oriented (OO)Java program maintain a list of CS175 students. The system should display the following:
- **Sno Name RegNo**
- 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();
        }
}
```