Intro2cs HW2:

Divisors:

```
/**
 *  Gets a command-line argument (int), and prints all the divisors of the given number.
 */
public class Divisors {
	public static void main (String[] args) {
		int number = Integer.parseInt(args[0]);

		for (int i = 1; i <= number; i++) {
			if (number % i == 0) {
				System.out.println(i);
			}
		}
	}
}
```

Reverse:

```
/**
 * Prints a given string, backward. Then prints the middle character in the string.
 * The program expects to get one command-line argument: A string.
 */
public class Reverse {
	public static void main (String[] args){
		String s = args[0];
		String reverse = "";
		int n = s.length();
		int mid = n / 2;

		for (int i = n-1; i >= 0; i--) {
			reverse += s.charAt(i);
			}

		System.out.println(reverse);
		System.out.println("The middle character is " + reverse.charAt(mid));

	}
}
```

InOrder:

```
/**
 *  Generates and prints random integers in the range [0,10),
 *  as long as they form a non-decreasing sequence.
 */
public class InOrder {
	public static void main (String[] args) {
		int rand1 = (int)( Math.random() * 10);
		int rand2 = (int)( Math.random() * 10);
		System.out.print(rand1);
		while (rand1 <= rand2) {
			System.out.print(" " + rand2);
			rand1 = rand2;
			rand2 = (int)( Math.random() * 10);
		}


	}
}
```

Perfect:

```
/**
 *  Gets a command-line argument (int), and chekcs if the given number is perfect.
 */
public class Perfect {
	public static void main (String[] args) {
		int N = Integer.parseInt(args[0]);
		int sum = 1;
		String print = N + " is a perfect number since " + N + " = 1";

		for (int i = 2; i <= N / 2; i++) {
			if (N % i == 0) {
				sum += i;
				print += " + " + i;
			}
		}

		if (N == sum)
			System.out.println(print);
		else
			System.out.println(N + " is not a perfect number");
	}
}
```

DamkaBoard:

```
/**
 *  Gets a command-line argument n (int), and prints an n-by-n damka board.
 */
public class DamkaBoard {
	public static void main(String[] args) {
		int n = Integer.parseInt(args[0]);

		for (int i = 0; i < n; i++) {
			if (i % 2 == 0) {
				for (int j = 0; j < n; j++) {
					System.out.print("* ");
				}
			}
			else {
				for (int j = 0; j < n; j++) {
					System.out.print(" *");
				}
			}
			System.out.println();
		}
	}
}
```

OneOfEachStats:

```
import java.util.Random;
/**
 *  Computes some statistics about families in which the parents decide
 *  to have children until they have at least one child of each gender.
 *  The program expects to get two command-line arguments: an int value
 *       that determines how many families to simulate, and an int value
 *  that serves as the seed of the random numbers generated by the program.
 *  Example usage: % java OneOfEachStats 1000 1
 */
public class OneOfEachStats {
        public static void main (String[] args) {
                // Gets the two command-line arguments
                int T = Integer.parseInt(args[0]);
                int seed = Integer.parseInt(args[1]);
                // Initailizes a random numbers generator with the given seed value
                Random generator = new Random(seed);
                double sum = 0;
                int num2 = 0;
                int num3 = 0;
                int num4Plus = 0;
                boolean isBoy, isGirl;
                double rand;

                for (int i = 0; i < T; i++) {
                        isBoy = false;
                        isGirl = false;
                        rand = generator.nextDouble();
                        if (rand < 0.5) {
                                isGirl = true;
                                //System.out.print("g ");
                        }
                        else {
                                isBoy = true;
                                //System.out.print("b ");
                        }
                        int count = 1;
                        while ((isBoy == true && isGirl == false) || (isBoy == false && isGirl ==
true)) {
                                rand = generator.nextDouble();
                                count++;
                                if (rand < 0.5) {
                                        isGirl = true;
                                        //System.out.print("g ");
                                }
                                else {
                                        isBoy = true;
                                        //System.out.print("b ");
                                }
                        }
                        System.out.println();
                        sum += count;
```

```
                        if (count == 2)
                                num2++;
                        else {
                                if (count == 3)
                                        num3++;
                                else
                                        if (count >= 4)
                                                num4Plus++;
                        }
                }

                System.out.println("Average: " + sum / T + " children to get at least one of
each gender.");
                System.out.println("Number of families with 2 children: " + num2);
                System.out.println("Number of families with 3 children: " + num3);
                System.out.println("Number of families with 4 or more children: " +
num4Plus);

                if ((num4Plus > num2) && (num4Plus > num3)) {
                        System.out.println("The most common number of children is 4 or
more." );
                }
                else {
                        if ((num3 > num4Plus) && (num3 > num2)) {
                                System.out.println("The most common number of children is
3.");
                        }
                        else
                                System.out.println("The most common number of children is
2.");
                }




        }
}
```