

## 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) {
        // get argument from the user as an integer.
        int num = Integer.parseInt(args[0]);
        // For each number lower th num, check if 'i' is a
divisor of the given number
        for(int i = 1;i <= num;i++){
            if(num%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){
        // get argument from the user as an integer.
        String word = (args[0]);
        String Reverse = "";
        //input the reverse version of the given string in an
        empty string
        for (int i = word.length() - 1; i >= 0;i--){
            Reverse = Reverse + word.charAt(i);
        }
        //check the middle character of the string
        int middle = (word.length()-1)/2;
        char m = word.charAt(middle);
        //print resreve string and the middle character.
        System.out.println(Reverse);
        System.out.println("The middle character is " + m);
    }
}
```

## In Order

```
/**
/**
 * 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) {
        // generate an random number in the range [0,10), and
        // define random 2 to be equal to random 1.
        int random1 = (int) (Math.random() * 10);
        int random2 = random1;
        // print the random numbers in form of non-decreasing
        // sequence, by using do while.
        do {
            System.out.print(random2 + " ");
            random1 = random2;
            random2 = (int) (Math.random() * 10);
        } while (random2 >= random1);
    }
}
```

## Perfect:

```
/**
 * Gets a command-line argument (int), and chekcs if the
given number is perfect.
 */
public class Perfect {
    public static void main (String[] args) {
        // get argument from the user as an integer.
        int perfect = Integer.parseInt(args[0]);
        int sum = 1;
        String s = perfect + " is a perfect number since " +
perfect + " = 1";
        //calculate the sum of all given numbers divisors
        for(int i = 2;i < perfect;i++){
            if(perfect % i == 0){
                sum = sum + i;
                s = s + " + " + i;
            }
        }
        // check and prints if the given number is perfect or not
        if(perfect == sum){
            System.out.println(s);
        }
        else{
            System.out.println(perfect + " 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) {
        // get the size of the board as an argument
        int n = Integer.parseInt(args[0]);
        // print the damka board. seperate between 3 cases.
        for(int i = 0; i < n; i++) {
            for(int j = 0; j < n; j++) {
                if(i%2 == 1&&j == 0){
                    System.out.print(" * ");
                }
                else if(i%2 == 1 && j == n-1){
                    System.out.print("*");
                }
                else {
                    System.out.print("* ");
                }
            }
            System.out.println();
        }
    }
}
```

## One of Each Stats

```
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);
        // define variabels for store the results.
        double average;
        int Sum2Children = 0;
        int Sum3Children = 0;
        int Sum4andmoreChildren = 0;
        double all = 0;
        // loop for T families.
        for (int i = 0; i < T; i++)
        {
            int children = 0;
            boolean boy = false;
            boolean girl = false;
            // run while loop until get at least one child of each
            gender
            while(!boy || !girl){
                children = children + 1;
                all = all + 1;
            }
            // run a random number to decide the child gender.
            double random = generator.nextDouble();
            if(random<0.5){
                girl = true;
            }
            else{
```

```

        boy = true;
    }
}
// updating the num of children results.
    if (children == 2){
        Sum2Children = Sum2Children + 1;
    }
    else if (children == 3){
        Sum3Children = Sum3Children + 1;
    }
    else {
        Sum4andmoreChildren = Sum4andmoreChildren+ 1;
    }
}
// calculate the average number of children.
    average = all/T;
// print results.
    System.out.println("Average: " + average + " children
to get at least one of each gender.");
    System.out.println("Number of families with 2
children: " +Sum2Children);
    System.out.println("Number of families with 3
children: " +Sum3Children);
    System.out.println("Number of families with 4 or more
children: " +Sum4andmoreChildren);
// find and print the most common number of children.
    if(Sum2Children >= Sum3Children && Sum2Children >=
Sum4andmoreChildren){
        System.out.println("The most common number of
children is 2.");
    }
    else if (Sum3Children >= Sum2Children && Sum3Children
>= Sum4andmoreChildren){
        System.out.println("The most common number of
children is 3.");
    }
    else{
        System.out.println("The most common number of
children is 4 or more.");
    }
}
}

```