

HW02 – Ram Hamrani

/**

* 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 x = Integer.parseInt(args[0]);  
        for(int d = 1; d <= x; d++){  
            if(x%d == 0){  
                System.out.println(d);  
            }  
        }  
    }  
}
```

```

/**
 * 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];
        for (int right = s.length() - 1; right >= 0; right--){
            System.out.print(s.charAt(right));

        }
        System.out.println();
        if(s.length()%2 == 0){
            int middleIn = (s.length() / 2) -1;
            System.out.println("The middle character is " + s.charAt(middleIn));
        }
        else{
            int middleIn = (s.length() / 2);
            System.out.println("The middle character is " + s.charAt(middleIn));
        }

    }

}

```

```

/**
 * 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 a = (int)(Math.random() * 10);
        int b = (int)(Math.random() * 10);
        int max;
        System.out.print(a);
        if(b >= a){

            do{

                System.out.print(" " + b);
                max = b;
                b = (int)(Math.random() * 10);

            } while(b > max);

        }
    }
}

```

```

/**
 * Gets a command-line argument (int), and chekcs if the given number is perfect.
 */
public class Perfect {
public static void main (String[] args) {
    int a = Integer.parseInt(args[0]);
    String s = a + " is a perfect number since " + a + " = 1";
    int b = 1;
    for(int c = 2; c < a; c++){
        if((a%c) == 0){
            s = s + " + " + c;
            b = b + c;
        }
    }
    if(b == a && a!= 1){
        System.out.print(s);
    }
    else {
        System.out.print(a + " is not a perfect number");
    }
}
}

```

```

/**
 * 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("* ");
                }
                System.out.println();
            } else{
                for(int j =0; j < n; j++) {
                    System.out.print(" ");
                }
                System.out.println();
            }
        }
    }
}

```

```

/**
 * 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 one command-line argument: an int value
 * that determines how many families to simulate.
 */
public class OneOfEachStats1 {
    public static void main (String[] args) {
        int t = Integer.parseInt(args[0]);
        int twoChildren = 0, threeChildren = 0, fourOrMore = 0, temp = 0;
        double a = Math.random();
        double count = 0;
        for(int i = 0; i < t; i++){
            boolean boy = false;
            boolean girl = false;
            while((boy&&girl) == false){
                if(a < 0.5){
                    boy = true;
                    temp++;
                }
                else{
                    girl = true;
                    temp++;
                }
                a = Math.random();
            }

            if(temp == 2){
                twoChildren++;
            }
            else if(temp == 3){
                threeChildren++;
            }
            else if(temp >= 4){
                fourOrMore++;
            }
            count = count + temp;
            temp = 0;
        }

        double average = count / t;
    }
}

```

```

        System.out.println("Average: " + average + " children to get at least one of each
gender.");
        System.out.println("Number of families with 2 children: " + twoChildren);
        System.out.println("Number of families with 3 children: " + threeChildren);
        System.out.println("Number of families with 4 or more children: " + fourOrMore);
        if(twoChildren >= threeChildren && twoChildren >= fourOrMore){
            System.out.println("The most common number of children is 2");
        } else if(threeChildren > twoChildren && threeChildren >= fourOrMore){
            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");
        }
    }

}
}

```

```

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);
        int twoChildren = 0, threeChildren = 0, fourOrMore = 0, temp = 0;
        double count = 0;
        for(int i = 0; i < T; i++){
            boolean boy = false;
            boolean girl = false;
            while((boy&&girl) == false){
                double a = generator.nextDouble();
                if(a < 0.5){
                    boy = true;
                    temp++;
                }
                else if(a > 0.5){
                    girl = true;
                    temp++;
                }
            }
            if(temp == 2){
                twoChildren++;
            }
            else if(temp == 3){
                threeChildren++;
            }
            else if(temp >= 4){
                fourOrMore++;
            }
            count = count + temp;
        }
    }
}

```



```

        temp = 0;
    }

    double average = count / T;

    System.out.println("Average: " + average + " children to get at least one of each
gender.");
    System.out.println("Number of families with 2 children: " + twoChildren);
    System.out.println("Number of families with 3 children: " + threeChildren);
    System.out.println("Number of families with 4 or more children: " + fourOrMore);
    if(twoChildren >= threeChildren && twoChildren >= fourOrMore){
        System.out.println("The most common number of children is 2.");
    } else if(threeChildren > twoChildren && threeChildren >= fourOrMore){
        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.");
    }
}

}

```