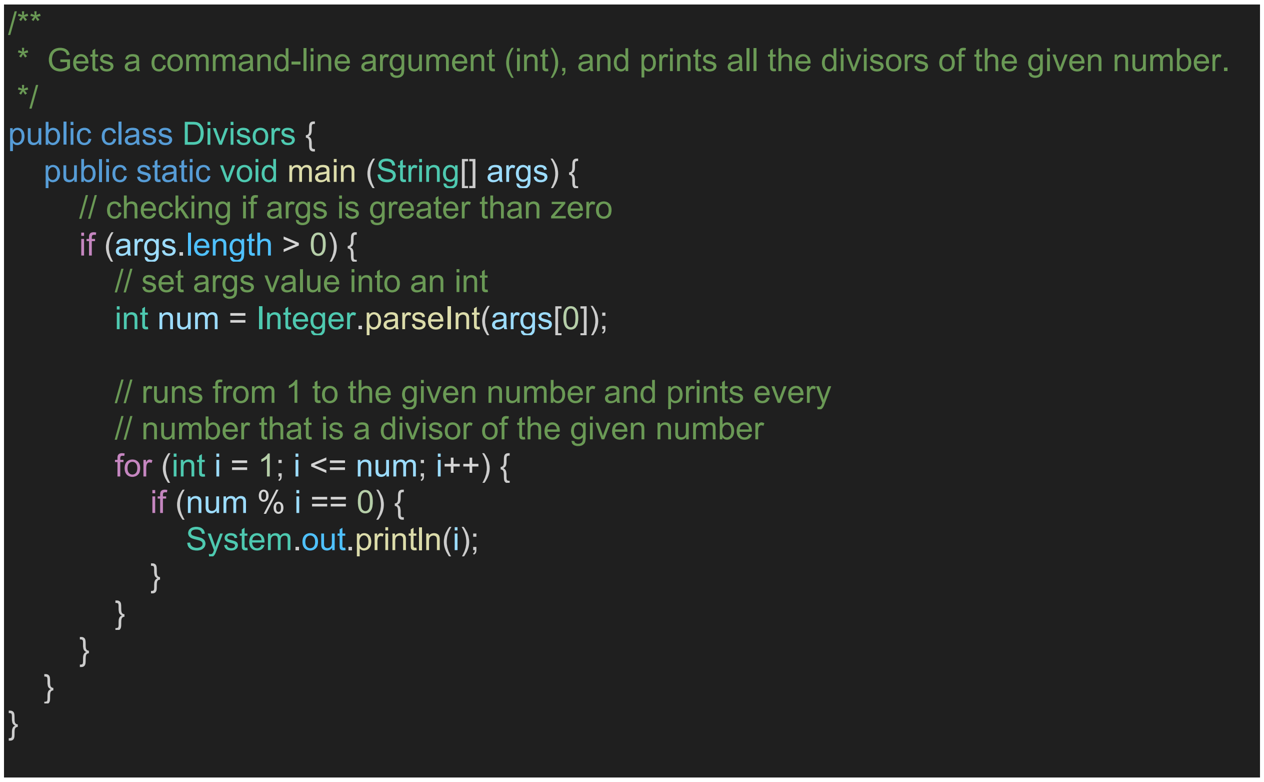
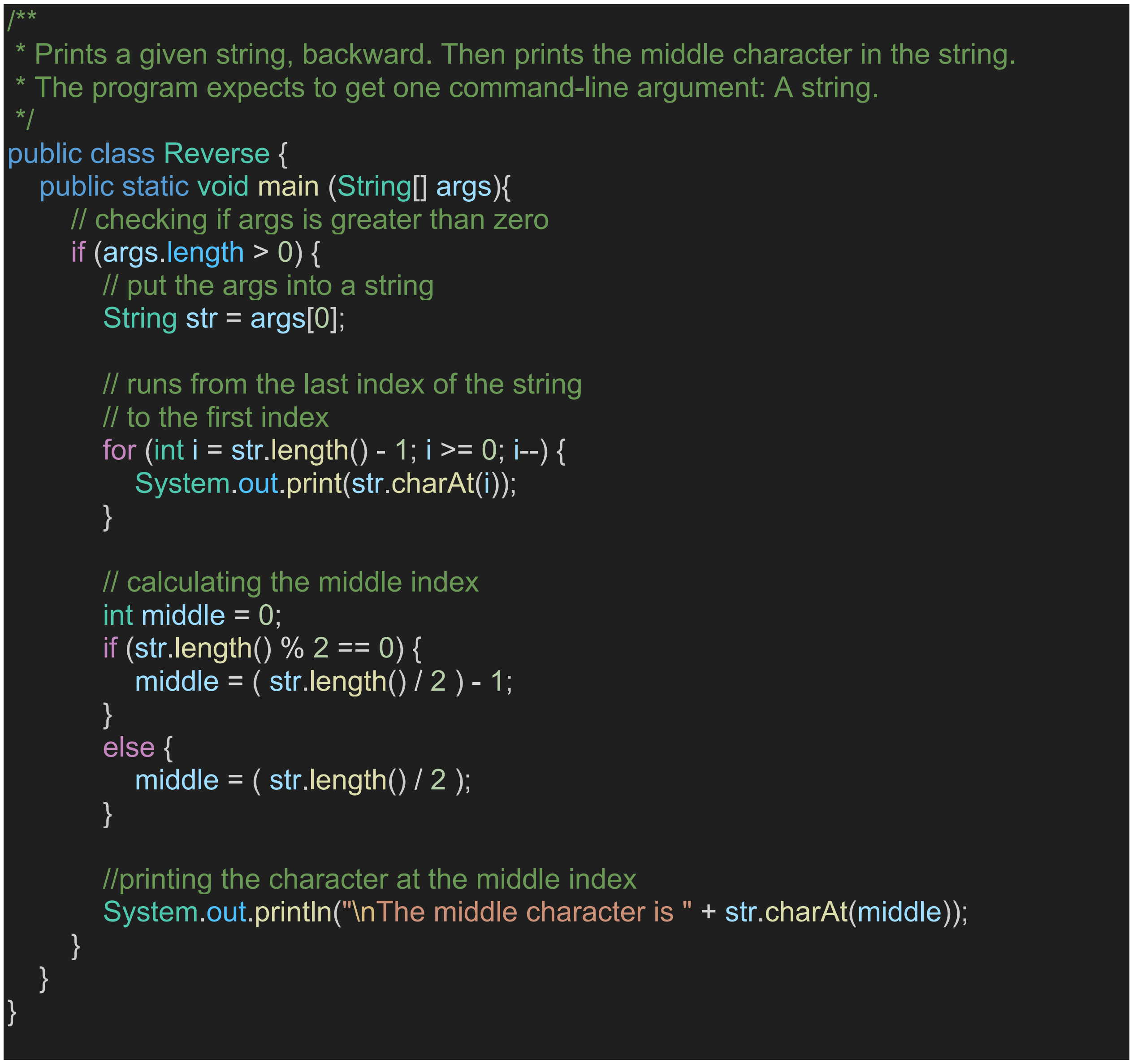


```java
/**
 *  Gets a command-line argument (int), and prints all the divisors of the given number.
 */
public class Divisors {
    public static void main (String[] args) {
        // checking if args is greater than zero
        if (args.length > 0) {
            // set args value into an int
            int num = Integer.parseInt(args[0]);

            // runs from 1 to the given number and prints every
            // number that is a divisor of the given number
            for (int i = 1; i <= num; i++) {
                if (num % i == 0) {
                    System.out.println(i);
                }
            }
        }
    }
}
```

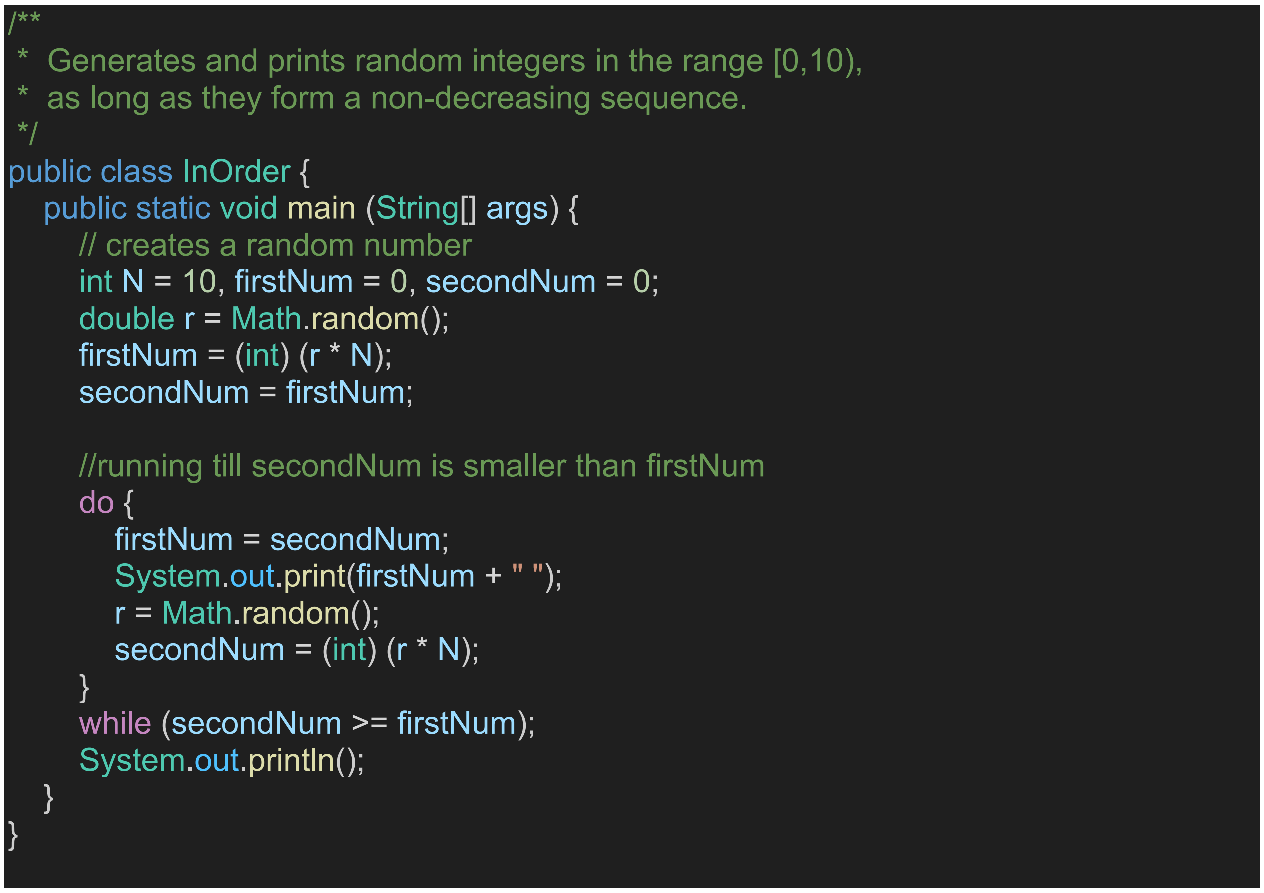


```java
/**
 * Prints a given string, backward. Then prints the middle character in the string.
 * The program expects to get one command-line argument: A string.
 */
public class Reverse {
    public static void main (String[] args){
        // checking if args is greater than zero
        if (args.length > 0) {
            // put the args into a string
            String str = args[0];

            // runs from the last index of the string
            // to the first index
            for (int i = str.length() - 1; i >= 0; i--) {
                System.out.print(str.charAt(i));
            }

            // calculating the middle index
            int middle = 0;
            if (str.length() % 2 == 0) {
                middle = ( str.length() / 2 ) - 1;
            }
            else {
                middle = ( str.length() / 2 );
            }

            //printing the character at the middle index
            System.out.println("\nThe middle character is " + str.charAt(middle));
        }
    }
}
```



```java
/**
 *  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) {
        // creates a random number
        int N = 10, firstNum = 0, secondNum = 0;
        double r = Math.random();
        firstNum = (int) (r * N);
        secondNum = firstNum;

        //running till secondNum is smaller than firstNum
        do {
            firstNum = secondNum;
            System.out.print(firstNum + " ");
            r = Math.random();
            secondNum = (int) (r * N);
        }
        while (secondNum >= firstNum);
        System.out.println();
    }
}
```

```
/**
 *  Gets a command-line argument (int), and chekcs if the given number is perfect.
 */
public class Perfect {
    public static void main (String[] args) {
        // checking if args is greater than zero
        if (args.length > 0)
        {
            // putting the given number in an
            // integer N and a sun
            int N = Integer.parseInt(args[0]);
            int sum = 0;

            //creating a String that holds
            //all the divisors
            String divisors = "";

            //running through all the numbers form
            //1 to N - 1
            for (int i = 1; i < N - 1; i++) {
                //checking if N % i == 0
                if (N % i == 0) {
                    //adding i to sum and adding to the
                    //divisors String
                    sum += i;
                    divisors += i + " + ";
                }
            }

            //checks if N is equal to sum
            //and print accordingly
            if (N == sum) {
                System.out.println(N + " is a perfect number since " + N +
                " = " + divisors.substring(0, divisors.length() - 3));
            }
            else {
                System.out.println(N + " is not a perfect number");
            }
        }
    }
}
```

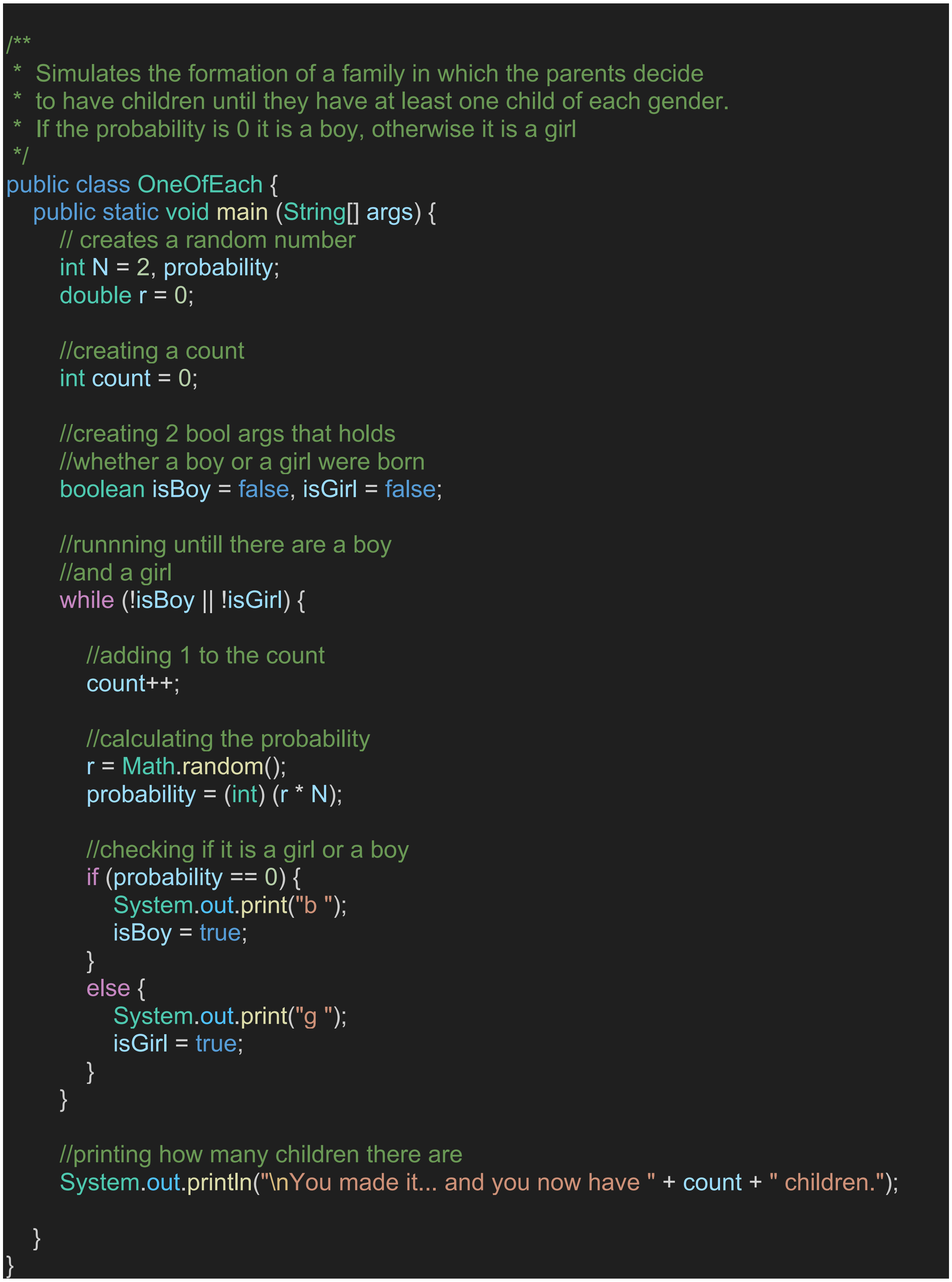
```java
/**
 *  Gets a command-line argument n (int), and prints an n-by-n damka board.
 */
public class DamkaBoard {
    public static void main(String[] args) {
        // checking if args is greater than zero
        if (args.length > 0)
        {
            // putting the given number n
            int n = Integer.parseInt(args[0]);

            //creating a bool arg that holds
            //if the first char is asterisk
            //or not
            boolean isAsterisk = true;

            //running n times on n times
            for (int i = 0; i < n; i++) {
                //line start with an asterisk if
                //the line is even
                isAsterisk = i % 2 == 0;

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

                //after we finish the line we
                //need to get down to a new line
                System.out.println();
            }
        }
    }
}
```



```java
/**
 *  Simulates the formation of a family in which the parents decide
 *  to have children until they have at least one child of each gender.
 *  If the probability is 0 it is a boy, otherwise it is a girl
 */
public class OneOfEach {
    public static void main (String[] args) {
        // creates a random number
        int N = 2, probability;
        double r = 0;

        //creating a count
        int count = 0;

        //creating 2 bool args that holds
        //whether a boy or a girl were born
        boolean isBoy = false, isGirl = false;

        //runnning untill there are a boy
        //and a girl
        while (!isBoy || !isGirl) {

            //adding 1 to the count
            count++;

            //calculating the probability
            r = Math.random();
            probability = (int) (r * N);

            //checking if it is a girl or a boy
            if (probability == 0) {
                System.out.print("b ");
                isBoy = true;
            }
            else {
                System.out.print("g ");
                isGirl = true;
            }
        }

        //printing how many children there are
        System.out.println("\nYou made it... and you now have " + count + " children.");

    }
}
```

```java
/**
 *  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) {
      // checking if args is greater than zero
      if (args.length > 0) {
         // set args value into an int
         int T = Integer.parseInt(args[0]);

         // creates a random number
         int N = 2, probability;
         double r = 0;

         //creating a count and a avg
         int count = 0;
         double avg = 0.0;

         //creating args of number of families with
         //2, 3, 4 or more children and mode
         int twoChildrenCount = 0, threeChildrenCount = 0, fourOrMoreChildrenCount =
0;
         int max = 0;
         String mode = "";

         //creating 2 bool args that holds
         //whether a boy or a girl were born
         boolean isBoy = false, isGirl = false;

         for (int i = 0; i < T; i++) {
            //setting values in all the args
            isBoy = false;
            isGirl = false;
            count = 0;

            //runnning untill there are a boy
            //and a girl
            while (!isBoy || !isGirl) {

               //adding 1 to the count
               count++;
```

```java
                //calculating the probability
                r = Math.random();
                probability = (int) (r * N);

                //checking if it is a girl or a boy
                if (probability == 0) {
                    isBoy = true;
                }
                else {
                    isGirl = true;
                }
            }

            //checking how many children are in the familiy
            switch (count) {
                case 2:
                    twoChildrenCount++;
                    break;
                case 3:
                    threeChildrenCount++;
                    break;
                default:
                    fourOrMoreChildrenCount++;
                    break;
            }

            //adding the count to avg
            avg += (double) count;
        }

        //calculating the max number of families
        max = Math.max(twoChildrenCount, threeChildrenCount);
        max = Math.max(max, fourOrMoreChildrenCount);

        //setting the correct string of mode
        if (max == twoChildrenCount) {
            mode = "2.";
        }
        else if (max == threeChildrenCount) {
            mode = "3.";
        }
        else {
            mode = "4 or more.";
        }

        //calculating the avg
```

```java
            avg /= (double) T;

            //printing evertything
            System.out.println("Average: " + avg + " children to get at least one of each
gender.");
            System.out.println("Number of families with 2 children: " + twoChildrenCount);
            System.out.println("Number of families with 3 children: " + threeChildrenCount);
            System.out.println("Number of families with 4 or more children: " +
fourOrMoreChildrenCount);
            System.out.println("The most common number of children is " + mode);
        }
    }
}
```

```java
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) {

        // checking if args is greater than zero
        if (args.length > 0) {

            // 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);

            // creates a random number
            int N = 2, probability;
            double r = 0;

            //creating a count and a avg
            int count = 0;
            double avg = 0.0;

            //creating args of number of families with
            //2, 3, 4 or more children and mode
            int twoChildrenCount = 0, threeChildrenCount = 0, fourOrMoreChildrenCount =
0;
            int max = 0;
            String mode = "";

            //creating 2 bool args that holds
            //whether a boy or a girl were born
            boolean isBoy = false, isGirl = false;

            for (int i = 0; i < T; i++) {
                //setting values in all the args
                isBoy = false;
                isGirl = false;
                count = 0;
            //runnning untill there are a boy
            //and a girl
            while (!isBoy || !isGirl) {

                //adding 1 to the count
                count++;

                //calculating the probability
                r = generator.nextDouble();
                probability = (int) (r * N);

                //checking if it is a girl or a boy
                if (probability == 0) {
                    isBoy = true;
                }
                else {
                    isGirl = true;
                }
            }

            //checking how many children are in the familiy
            switch (count) {
                case 2:
                    twoChildrenCount++;
                    break;
                case 3:
                    threeChildrenCount++;
                    break;
                default:
                    fourOrMoreChildrenCount++;
                    break;
            }

            //adding the count to avg
            avg += (double) count;
        }

        //calculating the max number of families
        max = Math.max(twoChildrenCount, threeChildrenCount);
        max = Math.max(max, fourOrMoreChildrenCount);

        //setting the correct string of mode
        if (max == twoChildrenCount) {
            mode = "2.";
        }
```

```java
            else if (max == threeChildrenCount) {
                mode = "3.";
            }
            else {
                mode = "4 or more.";
            }

            //calculating the avg
            avg /= (double) T;

            //printing evertything
            System.out.println("Average: " + avg + " children to get at least one of each
gender.");
            System.out.println("Number of families with 2 children: " + twoChildrenCount);
            System.out.println("Number of families with 3 children: " + threeChildrenCount);
            System.out.println("Number of families with 4 or more children: " +
fourOrMoreChildrenCount);
            System.out.println("The most common number of children is " + mode);
        }
    }
}
```