

1. Divisors

```
public class Divisors {  
    public static void main (String[] args) {  
        int x = Integer.parseInt(args[0]); // the given number to find the divisors of  
        for( int i=1; i <= x; i++ ){  
            if( x % i == 0){  
                System.out.println(i);  
            }  
        }  
    }  
}
```

2. Reversing a string

```
public class Reverse {  
    public static void main (String[] args){  
        String str_to_reverse = (args[0]);  
        int str_length = str_to_reverse.length();  
        String reversed_str = "";  
        for( int i = str_length - 1; 0 <= i; i-- ) {  
            reversed_str = reversed_str + str_to_reverse.charAt(i);  
        }  
        System.out.println(reversed_str);  
        System.out.println("The middle character is " +  
            reversed_str.charAt(str_length / 2));  
    }  
}
```

3. Lucky streak

```
public class InOrder {  
    public static void main (String[] args) {  
        int min_random_number = 0;  
        int random_number = (int)(Math.random() * 10);  
        while ( min_random_number <= random_number) {  
            System.out.print(random_number + " ");  
            min_random_number = random_number;  
            random_number = (int)(Math.random() * 10);  
        }  
        System.out.print("\n");  
    }  
}
```

4. Perfect Numbers

```
public class Perfect {
    public static void main (String[] args) {
        int x = Integer.parseInt(args[0]); // the given number to find the divisors of
        int sum_of_divisors = 1;
        String divisors = "1";
        for( int i=2; i <= (x-1); i++ ){
            if( x % i == 0){
                sum_of_divisors = sum_of_divisors + i;
                divisors = divisors + " + " + i;
            }
        }
        if ( x == sum_of_divisors ){
            System.out.println( x + " is a perfect number since " + x + " = " +
divisors) ;
        }
        else {
            System.out.println( x + " is not a perfect number" ) ;
        }
    }
}
```

5. Damka Board

```
public class DamkaBoard {
    public static void main(String[] args) {
        int size = Integer.parseInt(args[0]);
        for( int i = 0 ; i < size; i++ ) {
            for( int j = 0; j < size; j++ ) {
                if (i % 2 != 0 ) {
                    System.out.print(" *");
                }
                else{
                    System.out.print("* ");
                }
            }
            System.out.println("");
        }
    }
}
```

6. One of Each

```
public class OneOfEach {  
    public static void main (String[] args) {  
        boolean boy = false;  
        boolean girl = false;  
        int number_of_children = 0;  
        while (boy == false || girl == false){  
            number_of_children++;  
            if (Math.random() < 0.5){  
                boy = true;  
            }  
            else {  
                girl = true;  
            }  
        }  
        System.out.println("You made it... and you now have " +  
            number_of_children  
            + " children.");  
    }  
}
```

```
public class OneOfEach {
    public static void main (String[] args) {
        boolean boy = false;
        boolean girl = false;
        int number_of_children = 0;
        while (boy == false || girl == false){
            number_of_children++;
            if (Math.random() < 0.5){
                boy = true;
            }
            else {
                girl = true;
            }
        }
        System.out.println("You made it... and you now have " +
number_of_children
+ " children.");
    }
}
```

7. One of Each Stats

```
public class OneOfEachStats1 {
    public static void main (String[] args) {
        int T = Integer.parseInt(args[0]);
        int sum_of_children = 0;
        int num_of_families_with_2_children = 0;
        int num_of_families_with_3_children = 0;
        int num_of_families_with_4_or_more_children = 0;
        for( int i = 1 ; i <= T; i++ ) {
            boolean boy = false;
            boolean girl = false;
            int number_of_children = 0;
            while (boy == false || girl == false){
                number_of_children++;
                if (Math.random() < 0.5){
                    boy = true;
                }
                else {
                    girl = true;
                }
            }
            sum_of_children = sum_of_children + number_of_children;
            switch(number_of_children){
                case 2:
                    num_of_families_with_2_children++;
                    break;
                case 3:
                    num_of_families_with_3_children++;
                    break;
                default:
                    num_of_families_with_4_or_more_children++;
                    break;
            }
        }
        String most_common_number_of_children = "";
        if (num_of_families_with_2_children > num_of_families_with_3_children) {
            if (num_of_families_with_2_children >
num_of_families_with_4_or_more_children) {
                most_common_number_of_children = "2";
            }
            else{
                most_common_number_of_children = "4 or more";
            }
        }
        else if (num_of_families_with_3_children >
num_of_families_with_4_or_more_children) {
```

```

        most_common_number_of_children = "3";
    }
    else{
        most_common_number_of_children = "4 or more";
    }
    System.out.println("Average: " + ((double)sum_of_children / T)
        + " children to get at least one of each
        gender.");
    System.out.println("Number of families with 2 children: "
        + num_of_families_with_2_children);
    System.out.println("Number of families with 3 children: "
        + num_of_families_with_3_children);
    System.out.println("Number of families with 4 or more children: "
        + num_of_families_with_4_or_more_children);
    System.out.println("The most common number of children is "
        + most_common_number_of_children + ".");
}
}

```

8. **One of Each Stats** (final version)

```
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 sum_of_children = 0;
        int num_of_families_with_2_children = 0;
        int num_of_families_with_3_children = 0;
        int num_of_families_with_4_or_more_children = 0;
        for( int i = 1 ; i <= T; i++ ) {
            boolean boy = false;
            boolean girl = false;
            int number_of_children = 0;
            while (boy == false || girl == false){
                double rnd = generator.nextDouble();
                number_of_children++;
                if (rnd < 0.5){
                    boy = true;
                }
                else {
                    girl = true;
                }
            }
            sum_of_children = sum_of_children + number_of_children;
            switch(number_of_children){
                case 2:
                    num_of_families_with_2_children++;
                    break;
                case 3:
                    num_of_families_with_3_children++;
                    break;
                default:
                    num_of_families_with_4_or_more_children++;
                    break;
            }
        }
        String most_common_number_of_children = "";
        if (num_of_families_with_2_children > num_of_families_with_3_children) {
            if (num_of_families_with_2_children >
num_of_families_with_4_or_more_children) {
                most_common_number_of_children = "2";
            }
            else{
```

```

        most_common_number_of_children = "4 or more";
    }
}
else if (num_of_families_with_3_children >
num_of_families_with_4_or_more_children){
    most_common_number_of_children = "3";
}
else{
    most_common_number_of_children = "4 or more";
}
System.out.println("Average: " + ((double)sum_of_children / T) + " children
to get at least one of each gender.");
System.out.println("Number of families with 2 children: "
    + num_of_families_with_2_children);
System.out.println("Number of families with 3 children: "
    + num_of_families_with_3_children);
System.out.println("Number of families with 4 or more children: "
    + num_of_families_with_4_or_more_children);
System.out.println("The most common number of children is "
    + most_common_number_of_children + ".");
}
}

```