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.");
	}
}
```

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);
		//// In the previous version of this program, you used a statement like:
		//// double rnd = Math.random();
		//// Where "rnd" is the variable that stores the generated random value.
		//// In this version of the program, replace this statement with:
		//// double rnd = generator.nextDouble();
		//// This statement will generate a random value in the range [0,1),
		//// just like you had in the previous version, except that the
		//// randomization will be based on the given seed.
		//// This is the only change that you have to do in the program.


		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 + ".");

        }
}
```