

## 1. Divisors.java

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

## 2. Reverse.java

```
public class Reverse {  
    public static void main (String[] args){  
        String str = args [0];  
        String result = "";  
        char ch;  
        char mid;  
        for (int i = 0; i < str.length(); i++){  
            ch = str.charAt(i);  
            result = ch + result;  
        }  
        System.out.println(result);  
  
        if (str.length() %2 == 0){  
            mid = str.charAt((str.length() / 2) - 1); }  
        else {  
            mid = str.charAt(str.length()/2); }  
  
        System.out.println("The middle character is " + mid);  
    }  
}
```

### 3. InOrder.java

```
public class InOrder {  
    public static void main (String[] args) {  
        int firstNum = (int) (Math.random()*10) ;  
        System.out.print(firstNum + " ");  
        boolean run = true;  
        do {  
            int nextNum = (int) (Math.random()* 10);  
            if (nextNum >= firstNum){  
                System.out.print(nextNum + " ");  
                firstNum = nextNum;}  
            else  
                run = false;  
        } while (run);  
        System.out.println();  
  
    }  
}
```

#### 4. Perfect.java

```
public class Perfect {  
    public static void main(String[] args) {  
        int num = Integer.parseInt(args[0]);  
        int sum = 0;  
        String why = "";  
  
        for (int i = 1; i < num; i++) {  
            if (num % i == 0) {  
                sum = sum + i;  
                if (why.isEmpty()) {  
                    why = why + i;  
                } else {  
                    why = why + " + " + i;  
                }  
            }  
        }  
  
        if (sum == num) {  
            System.out.println(num + " is a perfect number  
since " + num + " = " + why);  
        } else {  
            System.out.println(num + " is not a perfect  
number");  
        }  
    }  
}
```

## 5. DamkaBoard.java

```
public class DamkaBoard {  
    public static void main(String[] args) {  
        int num = Integer.parseInt(args[0]);  
        for (int i = 0 ; i < num ; i++){  
            if (i %2 == 0) {    // if the row is even ->  
starts with "* "  
                for (int j = 0 ; j < num ; j++){  
                    System.out.print("* ");  
                }  
            }  
            else {  
                for (int j = 0; j < num; j++ ) { // if  
the row is odd -> starts with " *"  
                    System.out.print(" *");  
                }  
            }  
            System.out.println();  
        }  
    }  
}
```

## 6. OneOfEach.java

```
public class OneOfEach {  
    public static void main (String[] args) {  
        int count = 0;  
        boolean Boy = false;  
        boolean Girl = false;  
        while (!(Boy && Girl)) {  
            boolean isChildBoy = Math.random() < 0.5;  
            if (isChildBoy){  
                Boy = true;  
                System.out.print("b ");  
            } else {  
                Girl = true;  
                System.out.print("g ");  
            }  
            count = count+1;  
        }  
        System.out.println();  
        System.out.println("You made it... and now you  
have " + count + " children");  
    }  
}
```

## 7. OneOfEachStats1.java

```
public class OneOfEachStats1 {  
    public static void main(String[] args) {  
        int T = Integer.parseInt(args[0]);  
        int totalChildren = 0;  
        int experiments = T;  
  
        for (int i = 0; i < T; i++) {  
            int count = 0;  
            boolean Boy = false;  
            boolean Girl = false;  
  
            while (!(Boy && Girl)) {  
                boolean isChildBoy = Math.random() < 0.5;  
                if (isChildBoy) {  
                    Boy = true;  
                    System.out.print("b ");  
                } else {  
                    Girl = true;  
                    System.out.print("g ");  
                }  
                count = count + 1;  
            }  
            System.out.println();  
            totalChildren += count;  
        }  
  
        double average = (double) totalChildren / (double)  
experiments;  
    }  
}
```

```
double twoChildren = 0;
double threeChildren = 0;
double fourOrMoreChildren = 0;
double mostCommon = 0;

for (int i = 0; i < T; i++) {
    int count = 0;
    boolean Boy = false;
    boolean Girl = false;

    while (!(Boy && Girl)) {
        boolean isChildBoy = Math.random() < 0.5;
        if (isChildBoy) {
            Boy = true;
        } else {
            Girl = true;
        }
        count = count + 1;
    }

    if (count == 2) {
        twoChildren++;
    } else if (count == 3) {
        threeChildren++;
    } else {
        fourOrMoreChildren++;
    }
}
```



```
        if (twoChildren > threeChildren && twoChildren >
fourOrMoreChildren) {
            mostCommon = 2;
        } else if (threeChildren > twoChildren &&
threeChildren > fourOrMoreChildren) {
            mostCommon = 3;
        } else {
            mostCommon = 4;
        }

        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: " + fourOrMoreChildren);

        System.out.println("The most common number of children
is " + mostCommon);
    }
}
```

**8. OneOfEachStats.java**

```
import java.util.Random;

public class OneOfEachStats {
    public static void main(String[] args) {
        int numFam = Integer.parseInt(args[0]);
        int seed = Integer.parseInt(args[1]);
        Random generator = new Random(seed);

        double totChild = 0;
        int[] families = new int[5];

        for (int i = 0; i < numFam; i++) {
            int boy = 0;
            int girl = 0;

            while (boy == 0 || girl == 0) {
                double rnd = generator.nextDouble();
                if (rnd >= 0.5) {
                    girl++;
                } else {
                    boy++;
                }
            }

            int children = boy + girl;
            totChild += children;

            if (children >= 4) {
```

```
        families[4]++;
    } else if (children == 3) {
        families[3]++;
    } else {
        families[2]++;
    }
}

int maxChild = -1;
int maxFam = -1;

for (int j = 2; j < families.length; j++) {
    if (families[j] > maxChild) {
        maxFam = j;
        maxChild = families[j];
    }
}

String printEnding = "";
if (maxFam == 4) {
    printEnding += " or more.";
} else {
    printEnding += ".";
}

System.out.println("Average: " + totChild / numFam + "
children to get at least one of each gender.");

System.out.println("Number of families with 2
children: " + families[2]);

System.out.println("Number of families with 3
children: " + families[3]);
```

```
        System.out.println("Number of families with 4 or more  
children: " + families[4]);  
        System.out.println("The most common number of children  
is " + maxFam + printEnding);  
    }  
}
```