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209907633

```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){
                String x = args[0];
                int w = x.length();
                for (int i = 0; i < w; i++) {
                                        //backwards
                        System.out.print(x.charAt((w - i) - 1));
                }

                                        // middle character
                System.out.println("");
                if ((w%2) == 0) {
                        w--;

                }
                System.out.println("The middle character is " + (x.charAt(w / 2)));
                }
        }
```

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

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```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) {
                //// Write your code here
                int randomNum = (int) (Math.random()*(10-0+1)+0);
                int previous = 0;

                while (previous <= randomNum) {
                        System.out.print(randomNum + " ");
                        previous = randomNum;
                        randomNum = (int) (Math.random()*(10-0+1)+0);
                }
        }
}
```

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```java
/**
 *  Gets a command-line argument (int), and chekcs if the given number is perfect.
 */
public class Perfect {
        public static void main (String[] args) {
        //// Put your code here
        int perfectNum = Integer.parseInt(args[0]);
        int store = 1;
        String perfect = perfectNum + " is a perfect number since " + perfectNum + " = 1";
                for (int x = 2; x < perfectNum; x ++) {
                if (perfectNum % x == 0) {
                        store += x;
                        perfect += " + " + x;
        }
}
        if (store == perfectNum){
                System.out.println(perfect);

        }
        else {

        System.out.println(perfectNum + " is not a perfect number");
}
        }
}
```

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```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) {
                //// Put your code here

        int num = Integer.parseInt(args[0]);

        for (int row = 0; row < num; row++) {
                        String space = "";

        if (row % 2 == 1) {
                space = " *";
        }
        else {
                space = "* ";
        }
        for (int l = 0; l < num; l++) {
                System.out.print(space);
        }
                System.out.println("");
        }

}
}
```

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```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) {
                // 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.

```

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```
28              int twoChildrenCount = 0;
29              int threeChildrenCount = 0;
30              int fourAndMoreChildrenCount = 0;
31              int boyCounter = 0;
32              int girlCounter = 0;
33              int childrenCount = 0;
34              double rnd = generator.nextDouble();
35
36              for (int i = 0; i < T; i++){
37                      boolean boyBorn = false;
38                      boolean girlBorn = false;
39                      while (boyBorn == false || girlBorn == false) {
40                              if (rnd < 0.5) {
41                                      boyBorn = true;
42                                      boyCounter++;
43                      } else {
44                              girlBorn = true;
45                              girlCounter++;
46                      }
47                      childrenCount++;
48                      rnd = generator.nextDouble();
49                      }
50                      if (girlCounter + boyCounter == 2) {
51                              twoChildrenCount ++;
52                              }
53                      else if (girlCounter + boyCounter == 3) {
54                              threeChildrenCount ++;
```

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```
55                  }
56                  else {
57                          fourAndMoreChildrenCount ++;
58                  }
59                  boyBorn = false;
60                  girlBorn = false;
61                  boyCounter = 0;
62                  girlCounter = 0;
63
64          }
65                  System.out.println("Average: " + (childrenCount) / ((double) T) + " children to get at least one of each g
66                  System.out.println("Number of families with 2 children: " + (int)twoChildrenCount);
67                  System.out.println("Number of families with 3 children: " + (int)threeChildrenCount);
68                  System.out.println("Number of families with 4 or more children: " + (int)fourAndMoreChildrenCount);
69
70                  if ((twoChildrenCount > threeChildrenCount) && twoChildrenCount > fourAndMoreChildrenCount) {
71                          System.out.println("The most common number of children is 2.");
72                  }
73                  else if (((threeChildrenCount > twoChildrenCount) && threeChildrenCount > fourAndMoreChildrenCount)) {
74                          System.out.println("The most common number of children is 3." );
75                  }
76                  else if (((fourAndMoreChildrenCount > threeChildrenCount) && fourAndMoreChildrenCount > twoChildrenCount))
77                          System.out.println("The most common number of children is 4 or more." );
78                  }
79          }
80  }
```

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