Work on project. Stage 3/5: Look around you

Project: <u>Minesweeper</u>

📶 Medium 🕐 14 minutes ❓

Description

The player needs hints to be able to win, and we want them to have a chance to win! Let's show the number of mines around the empty cells so that our players have something to work with.

Objectives

As in the previous step, you need to initialize the field with mines. Then, calculate how many mines there are around each empty cell. Check 8 cells if the current cell is in the middle of the field, 5 cells if it's on the side, and 3 cells if it's in the corner.

If there are mines around the cell, display the number of mines (from 1 to 8) instead of the symbol representing an empty cell. The symbols for empty cells and mines stay the same.

Check all the possibilities carefully.

Examples

The greater-than symbol followed by a space (`>`) represents the user input. Note that it's not part of the input.

Example 1:

```
How many mines do you want on the field? > 10
.........
.111111..
.1X22X211
.112X33X1
...12X211
....1221.
..1111X1.
123X1222.
1XX211X1.
```

Example 2:

```
How many mines do you want on the field? > 15
1221.....
2XX21....
X34X2..11
112X2..2X
11211..3X
1X1....2X
12321..11
12XX11232
X22211XXX
```

Example 3:

```
How many mines do you want on the field? > 20
.2X3X23XX
13X43X3X3
1X3X32211
2232X1...
2X2221...
X32X1..11
X32331.1X
X21XX2.22
1113X2.1X
```

⚡ See hint

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17 / 17 Prerequisites

✓ <u>Immutability</u> `3` ⛏ ⌄

`In project`

✓ <u>Arrays as parameters</u> `5` ⛏ ⌄

✓ <u>Computer algorithms</u> `3` ⛏ ⌄

✓ <u>The big O notation</u> `3` ⛏ ⌄

✓ <u>Data structures</u> `3` ⛏ ⌄

Show all

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Code Editor   IDE

Java

```java
1  package minesweeper;
2  import java.util.*;
3
4  public class Main {
5
6      public static void initialize(char[][] array){
7          for(int i = 0; i < 9; i++){
8              for(int j = 0; j < 9; j++){
9                  array[i][j] = '.';
10             }
11         }
12     }
13
14     public static void main(String[] args) {
15         Scanner sc = new Scanner(System.in);
16         char[][] array = new char[9][9];
17         initialize(array);
18         System.out.print("How many mines do you want on the field? ");
19         int n = sc.nextInt();
20         mines(array,n);
21         clue(array);
22         printArray(array);
23         sc.close();
24     }
25
26
27     public static void clue(char[][] array){
28         for(int i = 0; i < 9; i++){
29             for(int j = 0; j < 9; j++){
30                 if(array[i][j] == 'X'){
31                     continue;
32                 }
33                 setClue(array, i, j);
34             }
35         }
36     }
37
38     public static int getStartI(int i){
39         if(i == 0){
40             return(i);
41         }
42         return(i - 1);
43     }
44
45     public static int getStartJ(int j){
46         if(j == 0){
47             return(j);
48         }
49         return(j - 1);
50     }
51
52     public static int getEndI(int i){
53         if(i == 8){
54             return(i);
55         }
56         return(i + 1);
57     }
58
59     public static int getEndJ(int j){
60         if(j == 8){
61             return(j);
62         }
63         return(j + 1);
64     }
65
66     public static void setClue(char[][] array, int i, int j){
67         int startI = getStartI(i);
68         int startJ = getStartJ(j);
69         int endI = getEndI(i);
70         int endJ = getEndJ(j);
71         int count = 0;
72         for(int m = startI; m <= endI; m++){
73             for(int n = startJ; n <= endJ; n++){
74                 if(array[m][n] == 'X'){
75                     count++;
76                 }
77             }
78         }
79         if(count != 0){
```

```
80              array[i][j] = (char)(count + 48);
81          }
82      }
83
84      public static void mines(char[][] array, int n){
85          int i,j;
86          Random rand = new Random();
87          while(n != 0){
88              i = rand.nextInt(9);
89              j = rand.nextInt(9);
90              if(array[i][j] == '.'){
91                  n--;
92                  array[i][j] = 'X';
93              }
94          }
95      }
96
97      public static void printArray(char[][] array){
98          for(int i = 0; i < 9; i++){
99              for(int j = 0; j < 9; j++){
100                 System.out.print(array[i][j]);
101             }
102             System.out.println();
103         }
104     }
105 }
```

✓ **Correct.**

Your practice is really paying off. Well done!

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😍 🙂 😐 🙁 😡

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