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Dashboard > Algorithms > Dynamic Programming > Separate the chocolate

Badge Progress (Details)

Points: 126   Rank: 270332

Separate the chocolate 🔖

Ⓗ by cpcs

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Chinese Version
Russian Version

Tom and Derpina have a rectangular shaped chocolate bar with chocolates labeled T, D and U. They want to split the bar into exactly two pieces such that:

- Tom's piece can not contain any chocolate labeled D and similarly, Derpina's piece can not contain any chocolate labeled T and U can be used by either of the two.

- All chocolates in each piece must be connected (two chocolates are connected if they share an edge), i.e. the chocolates should form one connected component

- The absolute difference between the number of chocolates in pieces should be at most K

- After dividing it into exactly two pieces, in any piece, there should not be 4 adjacent chocolates that form a square, i.e. there should not be a fragment like this:
  XX
  XX

Input Format

The first line of the input contains 3 integers M, N and K separated by a single space.
M lines follow, each of which contains N characters. Each character is 'T','D' or 'U'.

Constraints

$0 \le M, N \le 8$
$0 \le K \le M * N$

Output Format

A single line containing the number of ways to divide the chocolate bar.

Sample Input

```
2 2 4
UU
UU
```

Sample Output

```
12
```

Explanation

Note: In the explanation T and D are used to represent, which parts belong to Tom and Derpina respectively. There are 2^4 = 16 possible separations. The 4 invalid are:

```
TT
TT

DD
DD

DT
TD

TD
DT
```

Some of the valid ones are:

```
TD
TD

TT
DD

DD
TT

DT
DT
```

Current Buffer (saved locally, editable)

Java 7

```java
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

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