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1  #include<iostream>
2  #include<iomanip>
3  using namespace std;
4  int m, n;
5  char a[100][100];
6  void ruin(char (&a)[100][100], int i, int j)
7  {
8      //Block the visited space
9      a[i][j] = '#';
10
11     //Go Down
12     if(a[i+1][j]=='-' && i+1<m)
13     {
14         ruin(a,i+1,j);
15     }
16     //Go Right
17     if(a[i][j+1]=='-' && j+1<n)
18     {
19         ruin(a,i,j+1);
20     }
21     //Go Up
22     if(a[i-1][j]=='-' && i-1>0)
23     {
24         ruin(a,i-1,j);
25     }
26     //Go Left
27     if(a[i][j-1]=='-' && j-1>0)
28     {
29         ruin(a,i,j-1);
30     }
31     return;
32 }
33
34 int main()
35 {
36     int t,people, rooms;
37     char temp;
38     cin >> t;
39     while(t--)
40     {
41         cin >> m >> n;
42
43         people = 0;
44         rooms = 0;
45         for(int i=0; i<m; i++)
46         {
47             for(int j=0; j<n; j++)
48             {
49                 cin >> temp;
50                 if(temp=='*')
51                 {
52                     people++;
53                     a[i][j] = '-';
54                 }
55                 else
56                     a[i][j] = temp;
57             }
58         }
59
60         for(int i=1; i<m-1; i++)
61         {

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62         for(int j=1; j<n-1; j++)
63         {
64             if(a[i][j]=='-')
65             {
66                 rooms++;
67                 ruin(a,i,j); //this function blocks visited cells
68             }
69         }
70     }
71     cout << fixed << setprecision(2) << (people/(float)rooms) << "\n";
72 }
73 }
```