PRACTICE   COMPETE   DISCUSS   COMMUNITY   HELP   ABOUT

The Burning City 📑

Problem code: BURNCITY

ALL SUBMISSIONS   MY SUBMISSIONS   SUBMIT

Tweet   Like   Share   Be the first of your friends to like this.

All submissions for this problem are available.

SUCCESSFUL SUBMISSIONS   ⊞

Fires have broken out in the capital of CodeChefWorld! As it is it is a hot summer day, most of the fire brigade have quite naturally taken a day off, and so the noble task of extinguishing all the fires falls to the only officer on duty... Johnny. This enterprising youth remains undaunted by the challenge facing him, and, taking advantage of the absence of his superiors, he decides to use his favorite fire fighting technique. So, he loads the fire station's helicopter with as many dynamite charges as it can carry, and takes off on his errand of mercy.
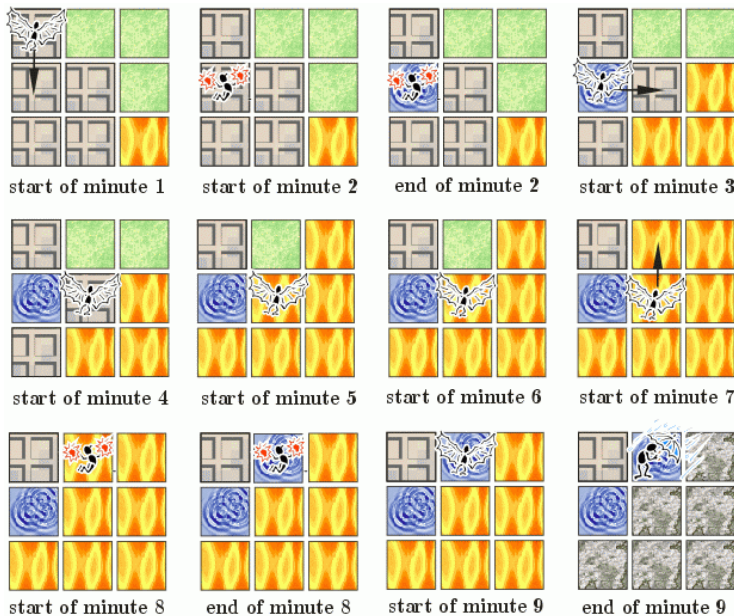
From up there in the sky Johnny can see the city as a square, sliced into smaller, identical squares by a regular grid of streets. Every square contains one of three kinds of terrain - buildings, grassland or water (perhaps most firemen would go into further detail when analyzing terrain, but you really can't expect that from a firefighter whose preferred method of extinguishing fires is dynamite, can you?).

Johnny starts out in the center of the square corresponding to the fire station. In the time from the start of a minute to the end of that minute he can move to the center of one of the four adjacent squares (but he is not allowed to leave the city). While over the center of a square he can choose to drop a single dynamite charge on it. He starts preparing the charge at the beginning of a minute, and it is dropped from the helicopter at the end of the same minute. Everything on the square on which the bomb was dropped is blown apart, and in its place a crater is formed and instantly flooded by subterranean waters.

The fire spreads in a most predictable way: if a square starts burning at the beginning of minute m, then all four adjacent squares will catch fire at the start of minute (m+2). The only exception is a square filled with water (either naturally, or by Johnny's bombs) which never catches fire. If a square starts burning, all property on it is instantly destroyed. Once a square starts burning it will only stop burning if Johnny blows it up, or when the monsoon rain comes and floods the city, at the end of the h-th minute of firefighting.

Johnny's main objective is to save as many squares with buildings as possible (from fire and dynamite).

An example of the fire fighting process is presented below.

start of minute 1   start of minute 2   end of minute 2   start of minute 3

start of minute 4   start of minute 5   start of minute 6   start of minute 7

start of minute 8   end of minute 8   start of minute 9   end of minute 9

Input

The first line of input contains a single integer t<=500, the number of test cases.

The first line of every test case contains five integers n c h s_x s_y, respectively denoting: n - the length of one side of the city (measured in squares), c - the number of dynamite charges Johnny can use, h - the number of minutes after which the rain falls, s_x, s_y - the x and y coordinates of the square containing the fire-station from which Johnny starts, measured relative to the North-West corner of the city (1<=s_x, s_y<=n<=50, 0<=c<=h<=5*n; there are about 10 test cases for all possible values of n). Finally, the map of the city is given in the form of n lines of n characters each, each corresponding to the state of a square at the start of the fire fighting ('b' - building, 'g' - grassland, 'w' - water, 'f' - fire).

Output

For the *i*-th test case output a line containing the text 'city *i* Y' if you want to solve the test case or 'city *i* N' if you wish to leave it out.

If you chose to the solve the test case, in the next line output a sequence of exactly *h* characters 'N', 'S', 'W', 'E', '+' or '-', corresponding to Johnny's actions in successive minutes (moving North, South, West and East on the map, dropping dynamite, not doing anything, respectively).

Score

The total score is the total number of rescued squares with buildings taken over all test cases.

Example

Input:
```
5
3 2 9 1 1
bgg
bbg
bbf
4 2 8 3 1
bbbb
bgwg
fwgg
gbbb
4 3 15 2 1
bbbb
bbbb
bbbb
fbbb
4 3 15 2 1
bbbf
bbbb
bbbb
fbbb
4 3 15 2 1
bbbf
bbbb
bbbb
fbbb
```

Output:
```
city 1 Y
S+E---N+-
city 2 Y
W+SSS+--
city 3 Y
ESE+SW+S+------
city 4 Y
+EES+W+--------
city 5 Y
+ES+-E+--------
```

Score:
```
9
```

(The first test case is illustrated in the figure and Johnny can save one building. In testcases 2, 3, 4, 5 Johnny saves 4, 2, 2 and 0 buildings, respectively).

Bonus info: The three digit number after the decimal point of your score denotes the number of test cases you have solved correctly, rescuing at least one building.

Warning: large Input/Output data, be careful with certain languages

Author:	admin
Tags:	admin
Date Added:	1-12-2008
Time Limit:	17 sec
Source Limit:	50000 Bytes
Languages:	ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 4.9.2, CPP14, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PHP, PIKE, PRLG, PYTH, PYTH 3.1.2, RUBY, SCALA, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

[SUBMIT]

Comments ›

The time now is: 04:06:20 PM
Your IP: 172.22.224.201, 144.49.50.1

CodeChef - A Platform for Aspiring Programmers

CodeChef was created as a platform to help programmers make it big in the world of algorithms, **computer programming** and **programming contests**. At CodeChef we work hard to revive the geek in you by hosting a **programming contest** at the start of the month and another smaller programming challenge in the middle of the month. We also aim to have training sessions and discussions related to **algorithms, binary search**, technicalities like **array size** and the likes. Apart from providing a platform for **programming competitions**, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of **computer programming**.

Practice Section - A Place to hone your 'Computer Programming Skills'

Try your hand at one of our many practice problems and submit your solution in a language of your choice. Our **programming contest** judge accepts solutions in over 35+ programming languages. Preparing for coding contests were never this much fun! Receive points, and move up through the CodeChef ranks. Use our practice section to better prepare yourself for the multiple **programming challenges** that take place through-out the month on CodeChef.

Compete - Monthly Programming Contests and Cook-offs

Here is where you can show off your **computer programming** skills. Take part in our 10 day long monthly **coding contest** and the shorter format Cook-off **coding contest**. Put yourself up for recognition and win great prizes. Our **programming contests** have prizes worth up to INR 20,000 (for Indian Community), $700 (for Global Community) and lots more CodeChef goodies up for grabs.

Programming Tools	**Practice Problems**	**Initiatives**
Online IDE	Easy	Go for Gold
Upcoming Coding Contests	Medium	CodeChef for Schools
Contest Hosting	Hard	Campus Chapters
Problem Setting	Challenge	
CodeChef Tutorials	Peer	
CodeChef Wiki	School	
	FAQ's	