



Code Warriors

Problem Statement

B.Tech 2nd , 3rd year And MCA 1st , 2nd year

Domineering

Domineering is a partisan game between two players where each turn a domino is placed over two adjacent squares. The Left player must place dominoes horizontally while Right must place them vertically. You may not place dominoes on squares already occupied by a domino. Assuming fair play, the player who cannot place a domino loses.

Board Size : 13x13

So this was the description of normal domineering game. But we have a slight modification. We will give each player one superpower which they may or may not use.

What is the SuperPower?

Each player will get one bomb each which will explode the entire grid of 5x5 on the board, by explosion we mean that the 5x5 grid will be again available for placing dominoes. But that 5x5 grid must not contain any domino which is partially inside or partially outside that grid area. Exploding a bomb will be considered a single move.

Round Description:

Teams will compete against each other in a knockout tournament which will be held during Avishkar. Each match in the tournament will have three rounds (This will ensure that every team gets equal opportunity to play as Left as well as Right Player). The one who wins most number of rounds will be the winner of match. Winning team will proceed further in the tournament whereas the losing team will be knocked out of the tournament.

Rules Of Play:

1. First player places dominoes horizontally whereas second player places dominoes vertically.
2. The player which is unable to place a domino loses.
3. Any invalid move will lead to victory of opponent team in that round. Invalid moves include:
 - a. Placing domino on space covered by other domino.
 - b. Placing domino on a coordinate which is non existent (eg. -1,-1)
 - c. Exploding a 5x5 grid containing any domino which is partially outside and partially inside the grid.
4. Bomb explosion move is not mandatory. Exploding the bomb depends on player's will.
5. The move must be generated in the given time limit which is 1 sec for c/cpp and 2 sec for java. Failing to produce a move in the given time limit will again lead to victory of opponent team in that round.
6. The players must come with a single version of their game. They will not be allowed to change their code in between.

Input format:

The bot will be given with following information before every turn:

1. An integer telling the orientation of the domino, 1 for horizontal and 2 for vertical.
2. A 13x13 matrix containing information about the board where 1 means that block is occupied by horizontal domino, 2 means that block is occupied by vertical domino and 0 means that block is empty.
3. An integer telling the number of bombs left (0 if you have already used the bomb).

Sample Input:

```
2
00000000000000
00000000000000
00000000000000
00000000000000
0000011000110
00000000000000
0000000011000
00000000000002
00001100000002
00000000000000
00000020000002
00000020000002
00000000000000
1
```

Output format:

Output will consist of three integers which will tell the following:

1. First integer telling the type of move (1 for normal domino placing move and 2 for bomb explosion move).
2. Second and third integer tells the row and column respectively of the desired move to make (Row and column will be the coordinates of leftmost and topmost coordinate of desired move).

Sample Output:

1 10 10

Instructions For Running Arena:

1. Before running arena please ensure that you have jre (Java Runtime Environment) installed in your system. To test if jre is installed or not run command **java -version**, if jre is available then it will report it's version. In case jre is not installed then refer this link - https://cc-mnnit.github.io/2018-19-Classes/Java/2018_08_12_Java-Class-1/ for setup instructions.
2. Download the arena from:
<https://cc-mnnit.github.io/2018-19-Classes/CodeWarriors/Domineering.zip>
3. Extract the zip file, a directory named Domineering will be created after completion.
4. Open terminal (In case of windows open PowerShell) in newly created directory and run command **java -jar Domineering.jar**