Your assignment is to write a computer program that plays Dots and Boxes, which we will call Dox. The program will use minimax and will be able to use alpha-beta pruning.

The program

For a given input :

```
Dox 3x3 A XXXX..X.XXX. AB.. 3 Y 1
```

Your program should read in seven parameters from the command line, separated by spaces:

1. `3x3` — the number of rows (first) and columns (second) of dots, with an `x` in-between.
2. `A` — the player whose turn it is, `A` or `B`
3. `XXXX..X.XXX.` — a string in which `X` indicates a line that has been drawn, and `.` indicates a space between two dots. The locations are indicated in the following order: horizontal locations, top to bottom, left to right, then vertical locations, left to right, top to bottom. For instance, with a 3 x 3 board, with asterisks indicating dots, the line locations are

```
* 0 * 1 *
6   8   10
* 2 * 3 *
7   9   11
* 4 * 5 *
```

4. `AB..` — a string indicating which boxes belong to which player, A, B, or . meaning the box's walls are not complete. For instance, with a 3 x 3 board, with asterisks indicating dots, the box locations are

```
*   *   *
  0   1
*   *   *
  2   3
*   *   *
```

5. `3` — a number indicating the maximum number of plies the algorithm should look ahead.
6. `Y` — `Y` indicates that alpha-beta pruning should be used, `N` means don't use alpha-beta
7. `1` — indicates which board evaluation heuristic shold be used. 1 is a supplied simpleBoardEval method, and 2 is one that you write.

Using these parameters, your Dox program should select a move and print it on the console (standard output). (Your program doesn't have to play a full game, it need only select a move.)

Your program

The programming assignment is:

1. Implement a minimax-based routine that employs alpha-beta pruning when (and only when) instructed to do so on the command line. Note that your AI should always return the same move with and without alpha-beta pruning. The method should do minimax search to the specified depth (or perhaps less, when a final state is reached).

Starter code, in Java, is provided in Dox.java and DoxBoard.java. If you are not programming in Java, you may still find this code worth utilizing.