Creeper Notation

This document describes the state and action notation used by Softserve for the game Creeper.

Examples of this notation in use can be found at the UI visualizer and the `/state` API endpoints.

State Notation

The state is encoded as a string of 86 characters, divided into the following sections:

- 49 characters representing the state of the pins
- 36 characters representing the state of the paths
- 1 character representing the next player to move

The grids are encoded top-to-bottom, left-to-right. `x` denotes the first player, `o` denotes the second player, and `.` denotes an empty space. All letters should be lowercase.

The pin grid does not have corners, but treat them as empty for the sake of notation.

Thus, the initial state is encoded as:

```
.oo.xx.o.....xo.....x.......x.....ox.....o.xx.oo.o....x........................x....ox
```

If we break this notation into the above setions and add newlines, we see it forms two grids and a single character:

```
.oo.xx.
o.....x
o.....x
.......
x.....o
x.....o
.xx.oo.

o....x
......
......
......
......
x....o

x
```

Action Notation

Actions are encoded as a string of 4 characters, which form a pair of coordinates on the pin grid.

Columns are given a letter, and rows are given a number:

```
  abcdefg
1 .oo.xx.
2 o.....x
3 o.....x
4 .......
5 x.....o
6 x.....o
7 .xx.oo.
```

All letters should be lowercase.

Actions consist of the starting and ending coordinate of the pin being moved. For example, moving the `x` pin on a5 north one spot would be `a5a4`.

No additional notation in used for captures.

Questions and Suggestions

If you have any questions, ambiguities, issues, or suggestions for this notation, please open a softserve issue or email rschneid@harding.edu.