

## Pentominos Part A

### Group

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For representing our pentominos we have decided to use a format that is based off of a matrix representation. It is similar to the layout of the puzzle board which uses . for empty spaces and \* for unfillable spaces but instead of \*, we fill the pentonimo's filled spaces in with the pentonimos label.

For example P is

```
..pp..  
..pp..  
..p...
```

We chose this data representation for our pentonimos because we thought that it would be good for the board and the pieces to follow a similar format and because a matrix representation is flexible enough to be transformed, rotated and flipped which should help in solving the puzzle.

Rotation and Flipping will be done by choosing a pivot point within a pentonimo, generally this will be the top left square. Both the global and relative coordinates of the pentonimos will be stored which will allow us to place each pentonimo square relative to x and y (the boards coordinates). The global coordinates can be used as a reference that will be helpful for sorting out the rotations and mirrors of the pentonimos.

Pentomino Type = 'P'

Global Relative

(0, 2) (0, 0)

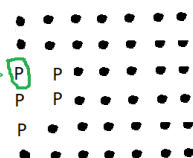
(1, 2) (+1, 0)

(0, 1) (0, -1)

(1, 1) (+1, -1)

(0, 0) (0, -2)

Pivot -->



placePiece(P, x, y)

- (x, y) decides the location of the pivot

- Currently, (x, y) = (0, 3)

- Use P's relative coordinates (i.e. the difference between each global coordinate and the pivot) to place each

pentomino square relative to (x, y)

- Use P's global coordinates as reference

(mostly for rotations/mirrors)

Pivot is currently set to be the "top-left" pentomino square (going top to bottom, left from right), also assuming P is upright  
The pivot can be set to be any pentomino square

Our code currently has a matrix style representation for all of the pentonimo characters and a basic board which we can hardcode the characters onto. We have only been using P for testing, and so the pentonimo class which provides the methods to manipulate the pentonimos only work with P.