

Documentation of AIML 2017 Pac-Man Project:

HW5 Classification

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Problem 4.

List your features and explain why you add these features briefly:

```
features["contiguous=0"]
features["contiguous=1"]
features["contiguous=2"]
features[('horizontal',x,y)]
features[('vertical',x,y)]
```

Two mainly features I designed:

1. Number of continuous regions:
 - a. 1,2,3,5,7 ... 0
 - b. 0,4,6,9 ... 1
 - c. 8... 2
2. Number of two adjacent pixels (neighbors) which have different colors:
 - a. In horizontal ways
 - b. In vertical ways

I also defined a way to find neighbors.

Problem 6.

List your features and explain why you add these features briefly:

```
features['score'] = state.getScore()
features['win'] = state.isWin()
features['lose'] = state.isLose()
features["capsules"] = len(capsules)
```

The features I used including *score*, *win/lose*, and *capsules*.

Actually I have tried the ghost feature, food feature, however, I found the implementation of Manhattan distance of them all made the accuracy worse (8x% to 6x% and 8x% to 5x% respectively.), therefore I did not use any of them.