Ms Pac-Man Competition

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This document is provided as a guide for our implementation of the agent for Ms Pacman game.
This is in fact a primary version of the agent, implemented as a first step, to later be improved by the Genetic Algorithms.
This agent is pretty much similar to the agent we entered in the last year’s competition. The agent improved by the Learning Algorithms hasn’t been finalized yet and hence, we enter the last version of the agent in this competition.\footnote{In the early version, Miss Nouri has been part of the implementation team, but left the team after last year’s competition and the later versions of the agent are implemented by Pante a Jabbari.}

**The Code:**

The basic structure of this implementation is close to what was uploaded on the HomePage of the event, which was used as our start point and we use the same techniques for Image Processing and Controlling the agent as were used in the mentioned kit.

The program keeps a board including items on the page. The Information extracted from the image processing phase are maintained in this board.

This Board is defined in a separate class. By using this board we consider all the possible moves from the current position of the pacman agent and try to figure out which move is the best, by calling an evaluation function.

The GameState class is one of the most important parts of this implementation it is used to keep track of all the events of the game.

Agent class represents our pacman Agent, this class is the one which determines what move to make by calculating a Value score for the specific state of the game.

The moves are evaluated, based on the distance from the ghosts, from the closest pill, closest power pill, and the game is generally divided into two phases, one’s the one in which our agent avoids the ghosts, the other one is the phase in which it hunts them and score points.
**How to run the software:**

1. Download src.zip (attached along this document) and unzip it in a folder.
2. Run the main() method in MsPacIInterface

   ```java
   java pacman.MsPacInterface
   
   **Note:** It must be Run before the game.
   
3. Run Ms PacMan (Microsoft’s Revenge of Arcade)

   **Note:** The walls of level one should be in Pink, not the dark blue version.

Note: the expected position of the Ms PacMan window is written in the code,

```java
static int left = 528;
static int top = 304;
```

And please note that the delay defined in MsPacInterface.java, completely depends on the speed of the system on which the program is running. My default value is 30, but depending on the speed, change may be needed.
The score:

The highest score is 8620, and the average score is 5500. And we're still looking forward to improving the program.