

QLearning Agent Report

Course code and name:	F29AI
Type of assessment:	Individual
Coursework Title:	Coursework 2 ,Tic-Tac-Toe Game
Student Name:	Midhun Saminathan
Student ID Number:	H00383233

Declaration of authorship. By signing this form:

- **I declare** that the work I have submitted for individual assessment OR the work I have contributed to a group assessment, is entirely my own. I have NOT taken the ideas, writings or inventions of another person and used these as if they were my own. My submission or my contribution to a group submission is expressed in my own words. Any uses made within this work of the ideas, writings or inventions of others, or of any existing sources of information (books, journals, websites, etc.) are properly acknowledged and listed in the references and/or acknowledgements section.
- I confirm that I have read, understood and followed the University's Regulations on plagiarism as published on the [University's website](#), and that I am aware of the penalties that I will face should I not adhere to the University Regulations.
- I confirm that I have read, understood and avoided the different types of plagiarism explained in the University guidance on [Academic Integrity and Plagiarism](#)

Student Signature: MIDHUN SAMINATHAN

Date: 27/11/2023

Copy this page and insert it into your coursework file in front of your title page.
For group assessment each group member must sign a separate form and all forms must be included with the group submission.

Your work will not be marked if a signed copy of this form is not included with your submission.

The QLearning agent requires the implementation of extractPolicy() and train() methods.

The rule based agents are:

- Aggressive Agent
- Defensive Agent
- Random Agent

```
Against Aggressive Agent:
Playing move: X(1,2)

| | | |
| | |X|
| | | |

Playing move: O(0,0)

|O| | |
| | |X|
| | | |

Playing move: X(1,1)

|O| | |
| |X|X|
| | | |

Playing move: O(2,1)

|O| | |
| |X|X|
| |O| |

Playing move: X(1,0)

|O| | |
|X|X|X|
| |O| |

X won!
```

Wins: 50 Losses: 0 Draws: 0

Against Defensive Agent:
Playing move: X(1,1)

```
| | | |  
| |X| |  
| | | |
```

Playing random move
Playing move: O(2,1)

```
| | | |  
| |X| |  
| |O| |
```

Playing move: X(1,0)

```
| | | |  
|X|X| |  
| |O| |
```

Playing defensive move
Playing move: O(1,2)

```
| | | |  
|X|X|O|  
| |O| |
```

Playing move: X(2,0)

```
| | | |  
|X|X|O|  
|X|O| |
```

Playing defensive move
Playing move: O(0,0)

```
|O| | |  
|X|X|O|  
|X|O| |
```

Playing move: X(0,2)

```
|O| |X|  
|X|X|O|  
|X|O| |
```

X won!

Wins: 16 Losses: 0 Draws: 34

Against Random Agent:

Playing move: X(1,1)

```
| | | |  
| |X| |  
| | | |
```

Playing move: O(0,0)

```
|O| | |  
| |X| |  
| | | |
```

Playing move: X(1,0)

```
|O| | |  
|X|X| |  
| | | |
```

Playing move: O(2,2)

```
|O| | |  
|X|X| |  
| | |O|
```

Playing move: X(1,2)

```
|O| | |  
|X|X|X|  
| | |O|
```

X won!

Wins: 50 Losses: 0 Draws: 0