CS4341: Intro to AI
C-Term 2020/2021
Final Group Project

1   Goal of this Project

The goal of this project is to code an AI capable of playing the game Bomberman in 10 different situations. The code and all the technical information are available at `https://github.com/NESTLab/CS4341-projects/tree/master/Bomberman`.

For the purposes of this project, *solving* a specific situation means that your agent is able to survive it 80% of the times. Specifically, we'll run your AI 10 times for each situation, and if the AI wins 8 times out of 10, you'll get full points.

You can use any of the techniques we have seen in class, or any other technique you decide to study on your own. You can solve each situation in a different way, or find one single solution that fits all of them. It's up to you.

This is a group assignment, so make sure to organize the work well so everybody gets to do something.

2   Grading

There are two scenarios, and for each scenario, five variants to solve. The grading is as follows:

Scenario	Variant	Points
1	1	5
1	2	10
1	3	10
1	4	10
1	5	15
2	1	5
2	2	10
2	3	15
2	4	15
2	5	25

The total number of points available is 120 out of a (theoretical) maximum of 100.

Bug Bounty   This code was made by the professor on purpose for this project, mostly by night, fueled by coffee and pure fun. There might be bugs. For each bug you might find, submit a GitHub pull request with the fix and you will get **1 extra point** on your final grade. The extra points will be awarded only to the first group to find a specific bug and provide a solution.

3 Deliverables

There are two main deliverables to provide: a 6-page report and the code. You'll see that, in the repository, there is a folder called `groupNN`. You must rename this folder with the number of your group, and then modify the code as you see fit.

You must submit an archive called `GroupNN.zip` where `NN` is the number of your group. The archive must be structured as follows:

```
groupNN/
    report.pdf
    __init__.py

    scenario1/
      map.txt
      variant1.py
      variant2.py
      variant3.py
      variant4.py
      variant5.py
      <other custom files>

    scenario2/
      map.txt
      variant1.py
      variant2.py
      variant3.py
      variant4.py
      variant5.py
      <other custom files>

    <other custom files>
```

The files `variant?.py` must be executable with the following commands:

```
$ cd groupNN/scenario1
$ python3 variant1.py
$ python3 variant2.py
$ python3 variant3.py
$ python3 variant4.py
$ python3 variant5.py

$ cd groupNN/scenario2
$ python3 variant1.py
$ python3 variant2.py
$ python3 variant3.py
$ python3 variant4.py
$ python3 variant5.py
```