Presentation of the project : The Phantom of the Opera

March 10, 2020

Game

- The game is inspired by Gaston Leroux's novel " Le Fantôme de l'Opéra"

- It happens in Opéra Garnier.

The story

- ▶ The opera is haunted by a mysterious phantom.
- ▶ The usual solo singer is replaced by a young singer.
- ▶ But the new young singer is abducted by the phantom.

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- ▶ The fantom wants to frighten the singer (**La Carlotta**) so that the show is canceled.
- ▶ The inspector wants to **discover the secret identity of the fantom** who can actually be one of the 8 **suspects**.

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- ▶ The steps alternate the players : phase 1 : IFFI, phase 2 : FIIF.

Rounds

- ▶ The game is organized in **rounds**
- ▶ At the end of a round, the fantom **either screams or does not** : it screams if it is alone in a room or in black room
    - ▶ if it screams : the Carlotta is frightened and moves closer to the exit of the opera
    - ▶ the fact that the fantom screams can give clues to the inspector about the **identity of the fantom**

8 characters

- ▶ Meg Giry (pink) : can use secret stairs
- ▶ Madame Giry (blue) : can lock doors
- ▶ Joseph Buquet (grey) : can turn off the light
- ▶ Raoul de Chagny (red) : can draw an alibi card
- ▶ Le Persan (brown) : can take another character with him when he moves
- ▶ Mr Richard (purple) : can swap position with another character
- ▶ Mr Moncharmin (white) : can make other characters flee his room
- ▶ Christine Daaé (black) : can attract other characters in the same room as hers

Ressources that explain the game

- https://boardgamegeek.com/boardgame/145645/
  le-fantome-de-lopera
- https://www.youtube.com/watch?v=HH27Gd9b_Xc
- https://www.youtube.com/watch?v=OymOa9QqrrQ

The server

- ► Located here :
  https://github.com/nlehir/phantom_opera
- ► Former text files version :
  https://github.com/groznyniko/ia_fopera
- ► **Please note** that a small number of rules is not taken into account by the server : in that case, consider the server rules. For instance the characters can only move to a distance of one room. The differences are gathered in the file **server_vs _game.txt** in the github.
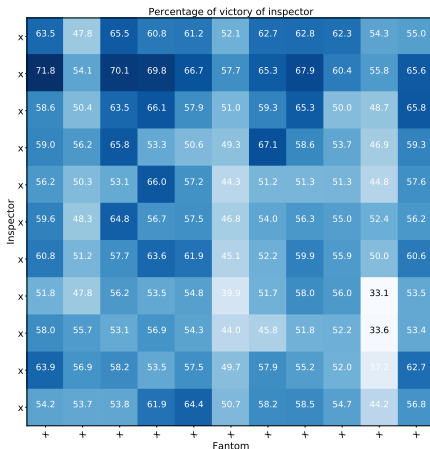
Goal of the project

- You must build **two agents** (two AIs)
  - an **inspector**
  - a **fantom**

Goal of the project

- ▶ The files **random_inspector.py** and **random_fantom.py** choose random actions.
- ▶ You must build smarter clients that play against each other.

Evaluation

- ▶ Interest of your method
- ▶ Comparison between agents :

Percentage of victory of inspector

Evaluation

- It is required that you provide a document explaining your method (pdf preferred) and why you chose this method. It does not need to be very long but clear enough so that I understand what you tried to do.

Recommended approach

- ▶ 1) use hard-coded methods and heuristics
- ▶ 2) try decision trees, Monte Carlo methods, or even Machine Learning

It is easy to underestimate the difficulty of using a complex Machine Learning method on this problem.

Release

Use the latest release on
https://github.com/nlehir/phantom_opera/releases

Organisation

- If you create your own modules, please insert them in a folder named for instance "src_name".
- I will compare your agents using a bash script.

Practical information

- ▶ Your agents must have a python interface to communicate with the server.
- ▶ You can send me the project by email or with a link to a repo.
- ▶ firstnamelehir @ gmail.com or firstname.lehir @ epitech.eu

Project

- Questions ?

Project

- Questions ?
- Tomorrow we will discuss possible methods to build agents (but you are free to choose any method).

Project

- ▶ You can now build teams, experiment with the game and the server, and start working on the project.