Tutorial Week 3 – Agents and basic search

Aim

- Review definitions
- Accessing the aiama-python code.
- Implement simple vacuum world agent.
- Implement breadth-first search algorithm.

1. **Give a PEAS description of the task environment for a self driving car. What are the characteristics or dimensions of this task environment. See section 2.3 of the book.**

   Choose your own problem for an intelligent agent and give a PEAS description and characteristics of your chosen task environment.

2. **Download the aiama-python book code.**

Go to https://github.com/aimacode/aima-python and follow the instructions in the installation guide. If you do not have Git installed then download the zip file. Extract the file to your chosen drive, H: drive if you are on campus. There should now be a directory called aima-python.

Launch 'JupyterLab' and open a terminal (File->new->terminal). Change into the aiama-python directory. Here you will see all the python and notebook files that come with the book.

In your anaconda terminal type:

```
conda create -n py37 python=3.7

conda activate py37

conda install jupyterlab

pip install -r requirements.txt

jupyter lab
```

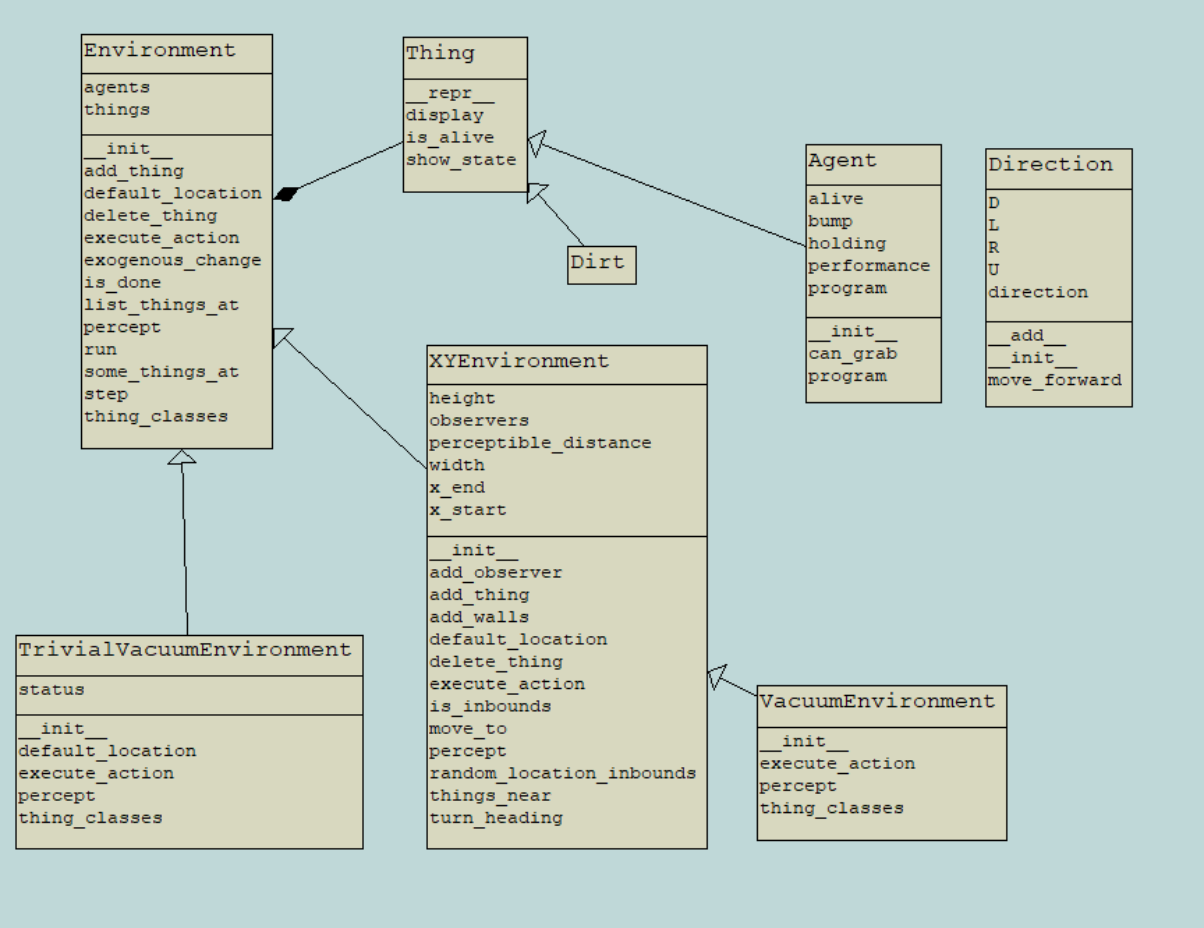
These commands will set up Python 3.7 and libraries needed to run the programs in the directory. (Be patient, this may take a while)

I will be supplying .ipynb files which should be moved to the aiama-python folder to function properly.

3. **Simple Vacuum world example.**

Now, let's explore our first intelligent agent environment. We will recreate the simple vacuum agent example discussed in lecture 2.

Open the Jupiter notebook that implements the simple reflex agent described in the lecture notes. Refer to the agents4e.py and the agents.ipynb files. I've also created a class diagram for your reference.



Familiarise yourself with the structure and code. Test yourself by attempting the questions at the end of the notepad.

4. Breadth first search algorithm.

Similarly, explore and implement the breadth-first search algorithms applied to the Romania problem. Refer to Tut3search4e.ipynb and test yourself by attempting the questions at the end of the notepad.

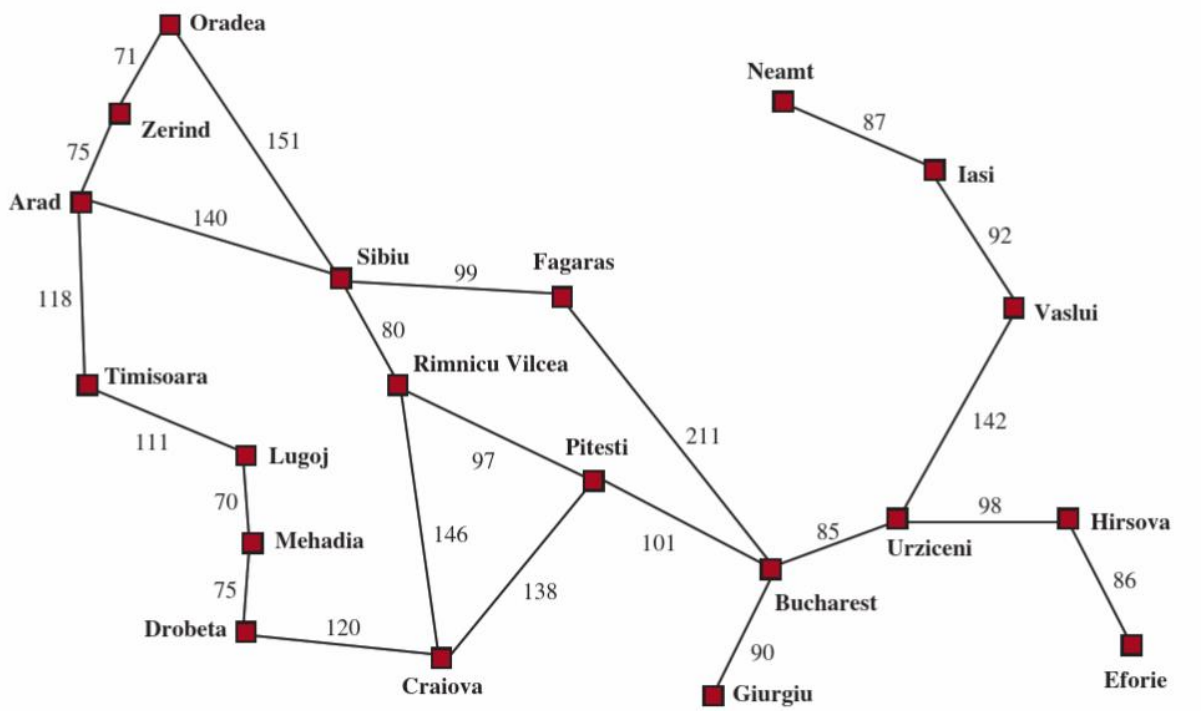


Figure 3.1 A simplified road map of part of Romania, with road distances in miles.

End