

In this programming task, you'll get familiar with Jupyter notebooks and the basic concepts of agents and environments (or simulated environments). You can also utilize the `aima-python` library to program your own environments and agents.

We will look at how we can extend the Vacuum Cleaner Agent examined in the lecture for a 2D grid environment and allow the agent and its environment to be visualized as part of the Jupyter notebook.

In this exercise, we will provide you with a Jupyter notebook that we have adapted from the code base `aima-python`. This notebook introduces the data structures for the **Environment** and the **Agent** (as subclasses of the abstract class **Thing**). At the end of the notebook, we give you a chance to try a simple agent whose behaviour is rather limited. It is not entirely autonomous because its program only does one thing automatically: when the agent is in a square with dirt, it can sense the dirt and immediately sucks the dirt to clean the square. Otherwise, it will need your instructions on what to do next.

You will observe that the notebook contains some bugs. You will need to find those bugs and fix them.

You will also want to improve the provided agent and give it a more powerful program that can do more than the simple behaviour described above.