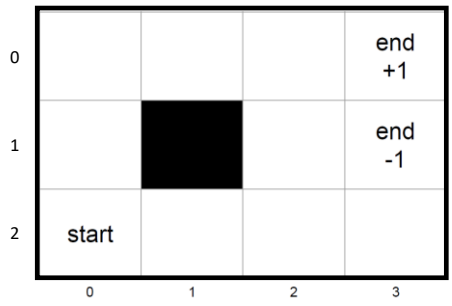
Workshop Lecture 3

Part A: Continuing with the simple maze

In the Blackboard folder for this week, you will see the python script "`lecture3-simulation.py`" under the workshop materials. Save locally, and run with (in terminal, `cd` to location of script):

```
python3 lecture3-simulation.py
```

This script provides the same simple maze as in week 2 (class `State`), but with a few tweaks (you are encouraged to tweak in whatever way you see fit to improve visualisation, usability, etc). There are two 'agents' implemented: `Agent` instantiates a basic value iteration algorithm as used last week, and `IRLAgentPlus` provides some changes to the `IRLAgent` class from week 2.



Part B: Extending the IRL Agent

To enable the `IRLAgentPlus`, uncomment the relevant line in `main`, and run the simulation again. In contrast to providing feedback after every action as with `IRLAgent`, `IRLAgentPlus` allows the shaping of training in a different way – what is this? What are the implications of this difference?

Compare the performances of all three systems, and evaluate the differences in terms of speed of training, involvement of the human supervisor (you), etc. It may be worth adding graph plots of the relevant variables (e.g. `Matplotlib`).

Consider the following potential extensions `IRLAgentPlus`:

- Can you improve the selection of a new action if the proposed one is rejected? (consult the `IRLAgentPlus.chooseAction` method)
- Instead of merely providing positive/negative feedback on proposed actions, how could you explicitly guide which action the agent should take next?
- How could you integrate explicit reward feedback into `IRLAgentPlus`?