**Virtual Initio Programming: Exercises with Goals**

**AIM:** This exercise sheet provides additional exercises programming with goals in the BDI reasoning cycle.

**Exercise 1**: Create a cognitive agent that, when it has a goal to learn to follow an oval, learn\_oval, (as in WS24) it selects an action (either at random or the current best action – depending upon epsilon), tests to see the outcome and modifies its reward dictionary accordingly. When epsilon equals zero it adds a belief that it has learned to follow the oval.

**Exercise 2:** Create a cognitive agent that has a goal to follow\_oval but can’t do this until it has first learned to follow the oval.

**Exercise 3:** Create a cognitive agent for the world **zigzag.xml**. If the agent has no goal, prompts the user to give it a goal (which can be to enter a black floor space or a clear floor space). When it has achieved a goal, it prompts the user for a new one. If the user enters end, then the agent stops.



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