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Reinforcement Learning
Exercise 0
Submit until **Thursday, November 9 at 2:00pm**

Register in ILIAS[1] and post interesting RL applications in the forum, if you happen to see one that has not been posted already. **Find one or two peers and form a study group.** If you do not find a group directly, use the forum. Send your solutions and your group's email addresses at `kalweitg@cs.uni-freiburg.de` (**subject has to contain:** [**RL1718**]).
We will provide git repositories to each group. If you do not know git, go through a tutorial[2]. Please push your solutions for the following exercises to your assigned repository. **After this exercise, submissions via email will not be accepted.**

Preliminaries

This exercise is based on Lecture 1[3] from David Silver's RL course[4]. Watch before the upcoming meeting on Friday, October 27.

1 Introduction to RL (10p)

Understand the reinforcement learning setting and explain *model*, *policy* and *value-function* in your own words. Submit a PDF or text file.

2 Gym (10p)

Have a look at the OpenAI Gym[5] tutorial. Write a small control loop using Gym, where you iteratively receive an observation from the CartPole environment, render the scene and apply an action. The agent may follow any policy of your choice. Print the observations and rewards returned by the environment to the console.

[1] `https://ilias.uni-freiburg.de/goto.php?target=crs_868184&client_id=unifreiburg`
[2] `https://rogerdudler.github.io/git-guide/index.html`
[3] `https://youtu.be/2pWv7GOvuf0`
[4] `http://www0.cs.ucl.ac.uk/staff/d.silver/web/Teaching.html`
[5] `https://gym.openai.com/docs/`