

Task 1

Task 1

Tasks

- Solve the gridworld environment `MazeWater2` in file `gridworld.py` within as few episodes as possible
- Plot your results as the real cumulative reward of the current episode (y-axis) over episodes (x-axis), averaged over ten trainings
- Be creative: Create a varying environment of your own choice that derives from `GridworldEnv` and has an "interesting" structure (e.g. a maze, labyrinth) which poses a challenging problem for classical RL. Show that this environment can be solved.

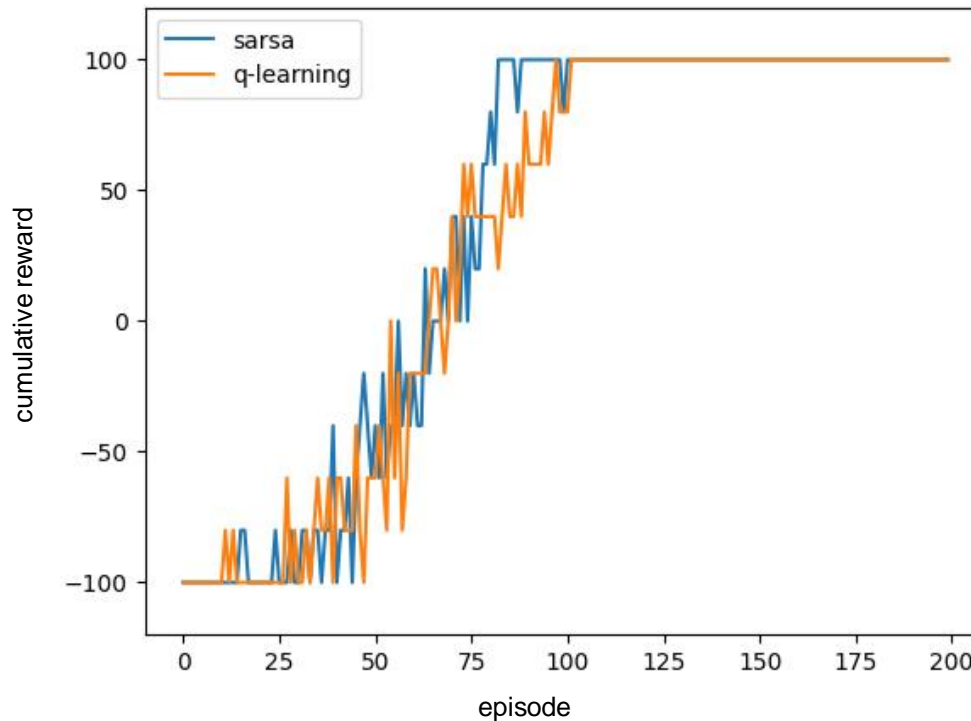
Deadline: 25.07.2025 23:59

Hints:

- You are allowed to use any public function of the environment, except for the `step_dp` function
- Have a look at [Optuna](#) for optimizing your hyperparameters automatically (e.g. ϵ , α , ...)
- The cumulative reward is the sum of all the rewards obtained within an episode

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- Your plots should look roughly as shown below. Please ensure that the resulting plots focus on the episodes where the environment is just about getting solved until it is solved consistently for the first few times.



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Notes on task 1:

- All solutions must be implemented by yourself (not in a group) in Python 3
- Do not modify any of the provided Python files
- Your Moodle submission includes the following:
 - your code (Jupyter notebook or Python file)
 - a readme.txt explaining how to run the code
 - a pdf/doc(x) file containing at most five pages (including images/plots) presenting the approaches you tried out, corresponding results and your final best solution.
You are encouraged to present approaches/ideas that did not work well, too.
Also include a description of your newly created environment and a plot showing that it can be solved.