

# CSCN 8020 — Assignment 2: Q-Learning on Taxi-v3

2025-10-15 23:32:23

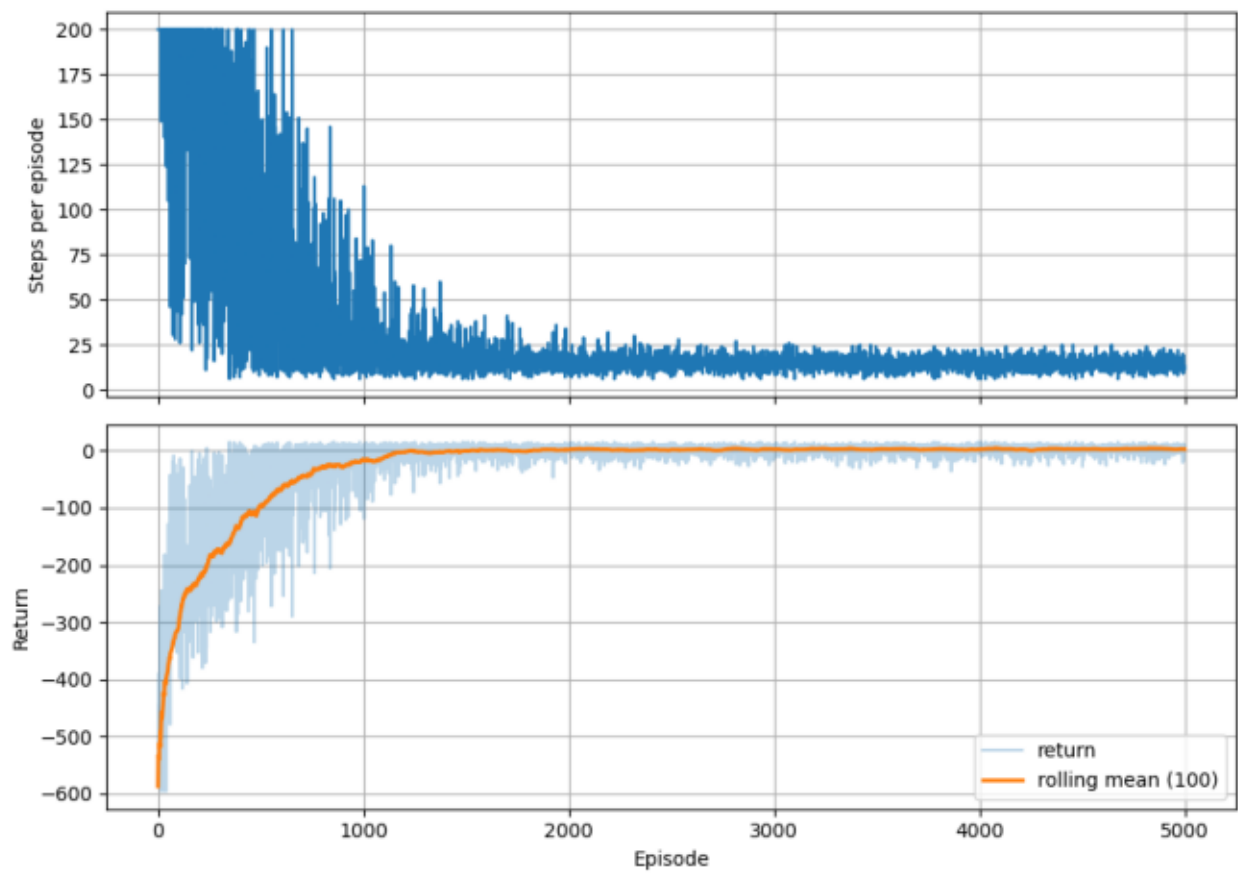
Deliverables included:

- Python code implementing Q-Learning and hyperparameter runs (notebook).
- Metrics CSVs and plots in results/
- Q-table for best run.

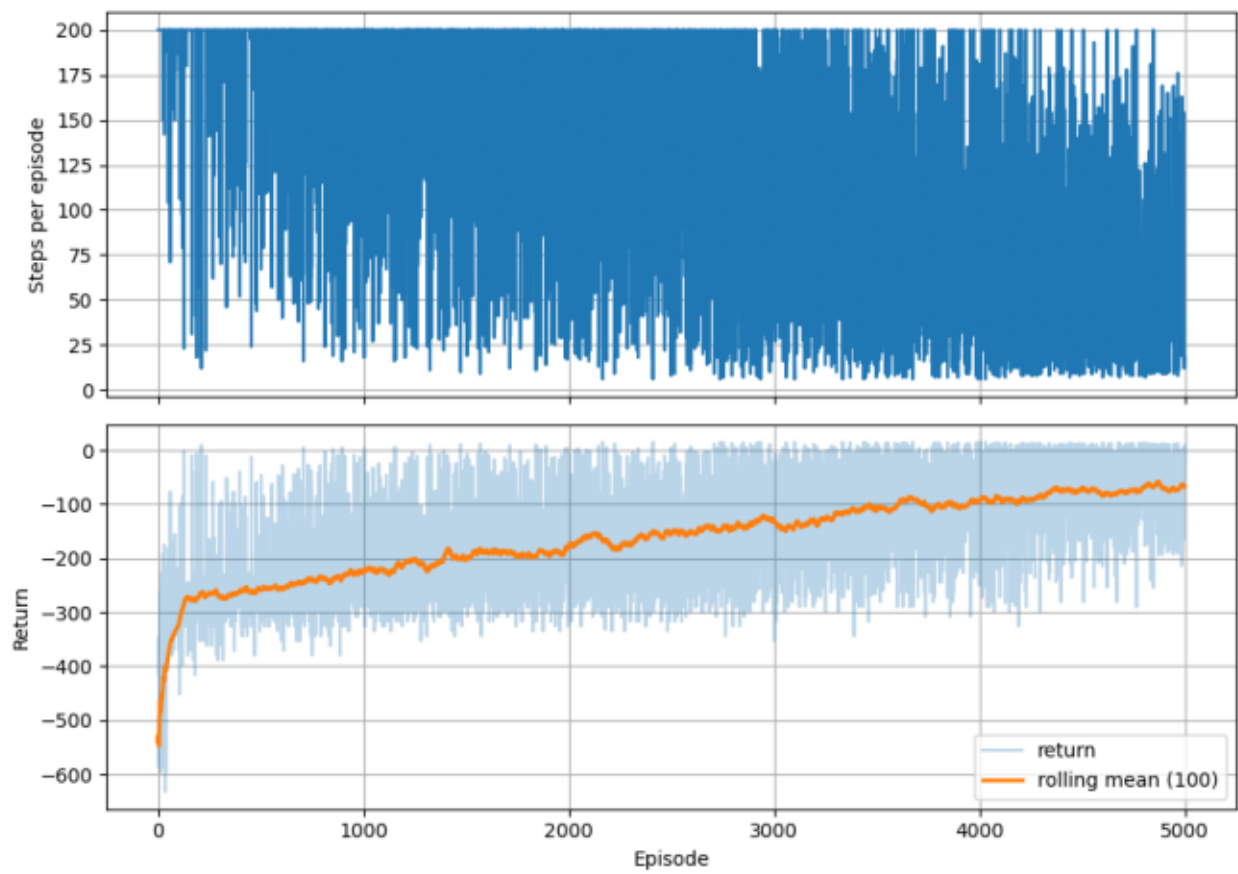
## Experiment Summary (sorted by last 100 avg return)

label	alpha	epsilon	gamma	episodes	avg_steps	avg_return last	100_avg_retu	total_steps	runtime_sec
baseline	0.1	0.1	0.9	5000	30.267	-21.557	2.3	151336	10.037
alpha_0.2	0.2	0.1	0.9	5000	23.415	-11.519	1.82	117073	7.228
epsilon_0.2	0.1	0.2	0.9	5000	32.744	-32.864	-4.75	163719	10.831
epsilon_0.3	0.1	0.3	0.9	5000	36.018	-47.371	-15.03	180089	11.74
alpha_0.01	0.01	0.1	0.9	5000	126.416	-159.609	-66.79	632080	33.903
alpha_0.001	0.001	0.1	0.9	5000	185.33	-258.504	-246.82	926649	51.998

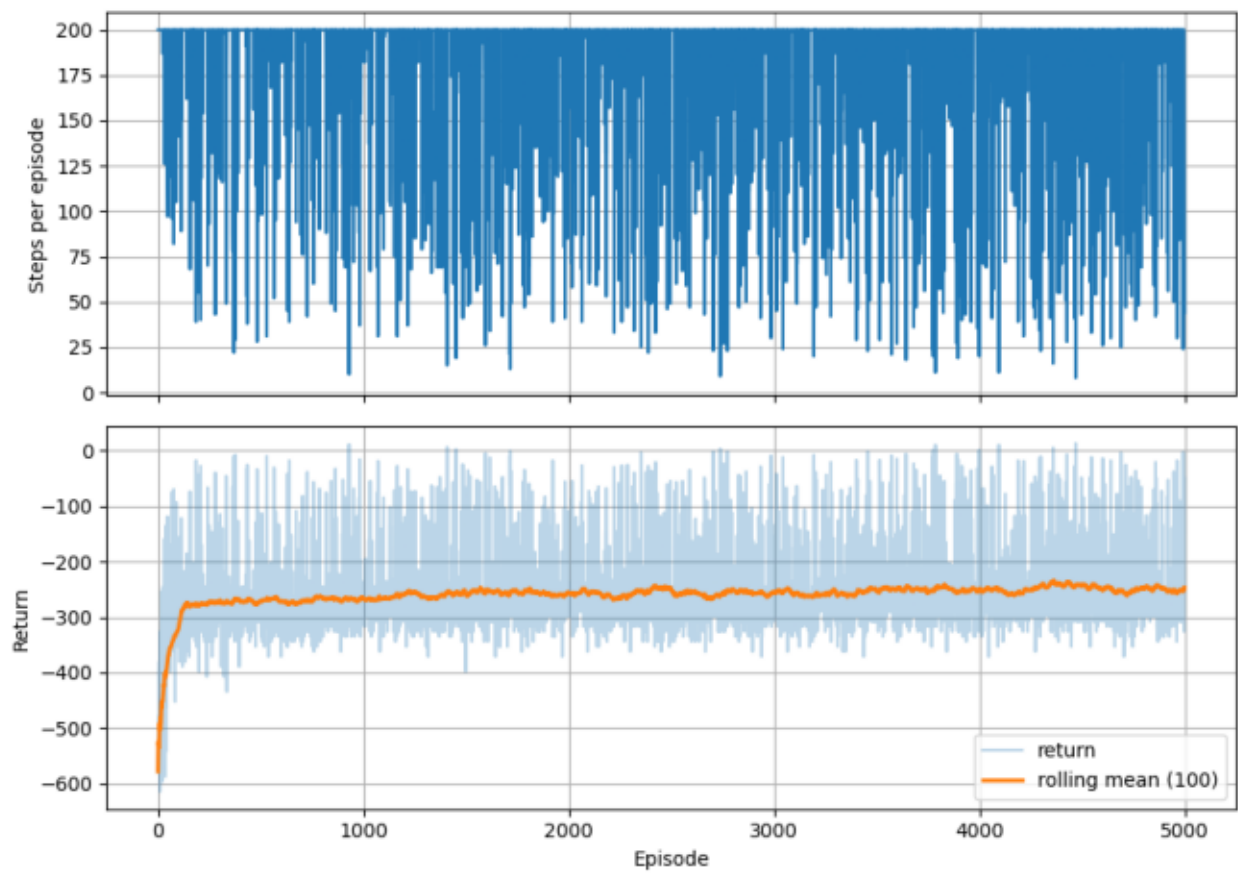
Q-Learning: baseline



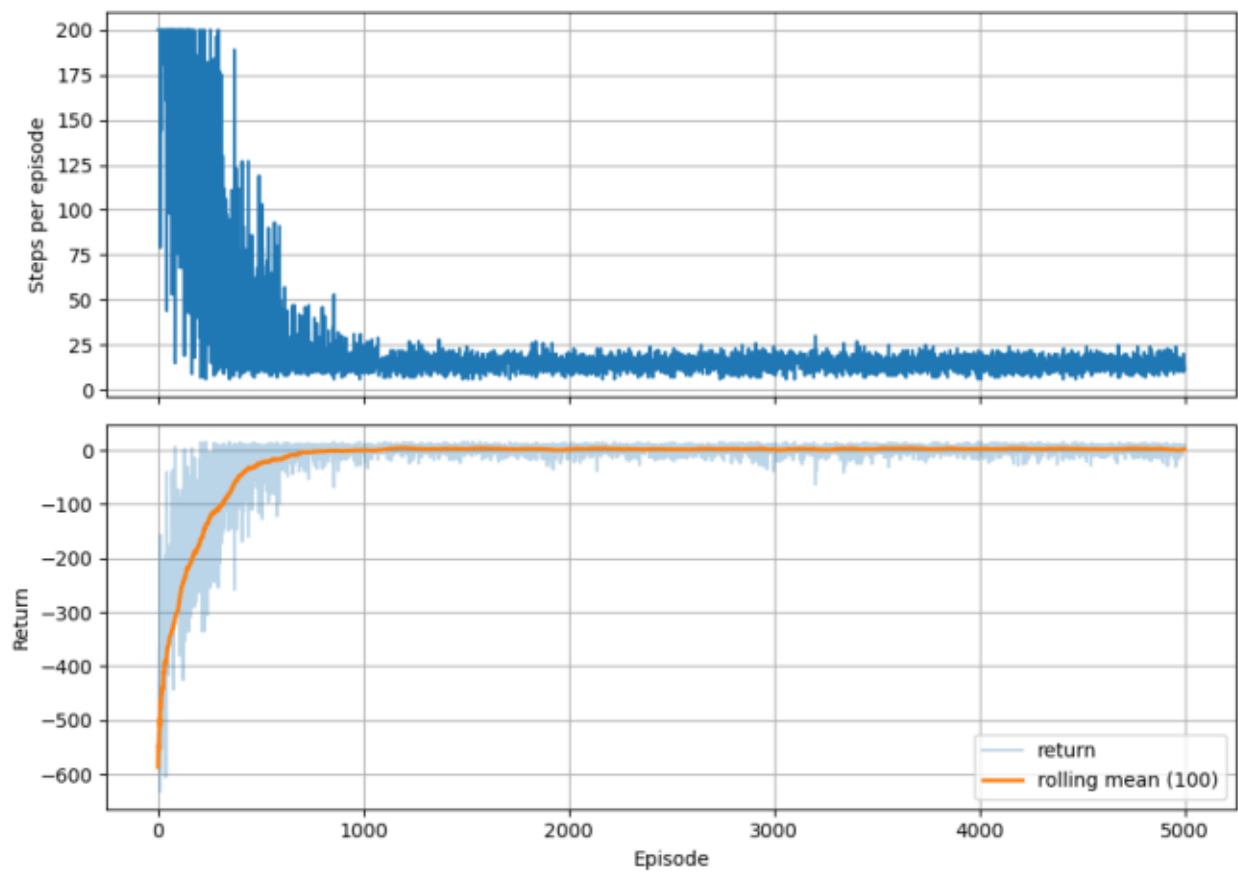
Q-Learning: alpha\_0.01



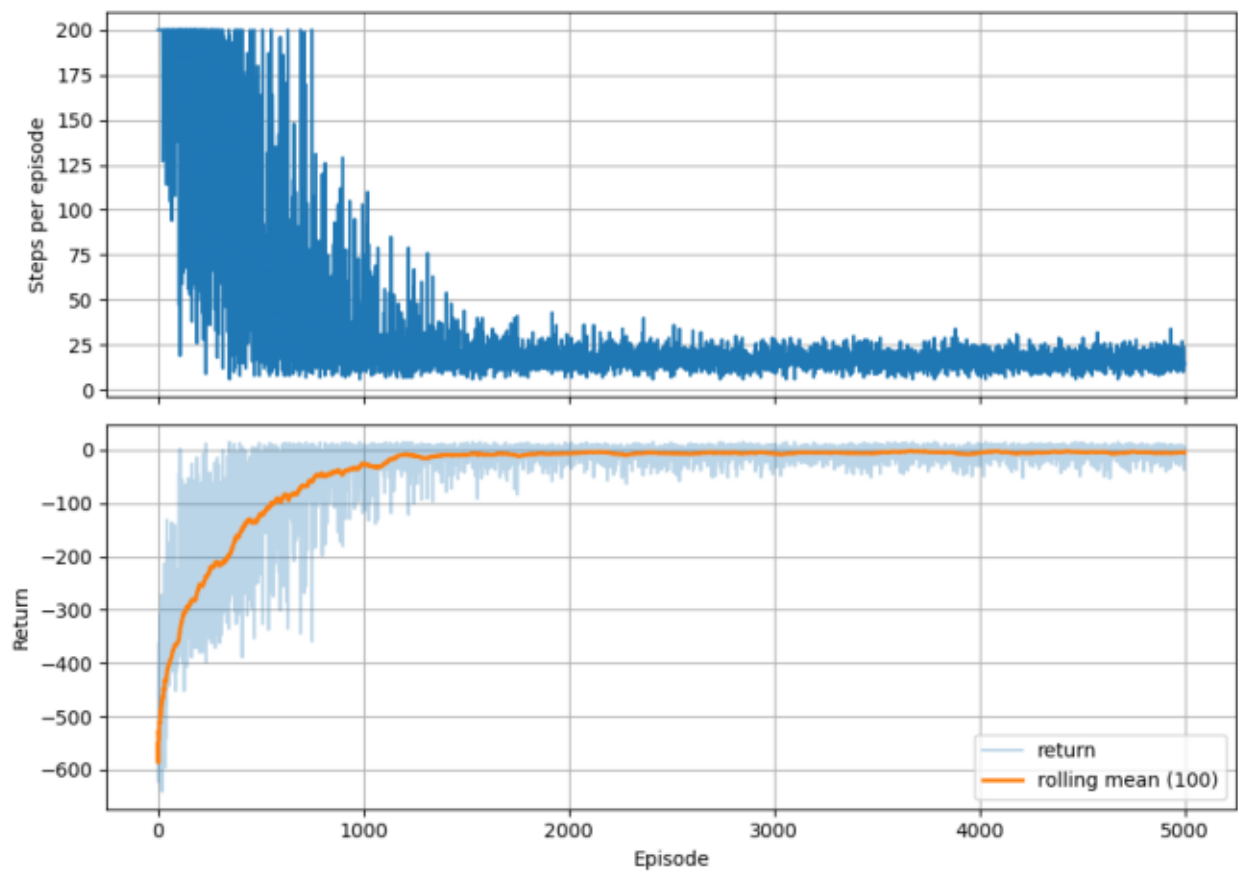
Q-Learning: alpha\_0.001



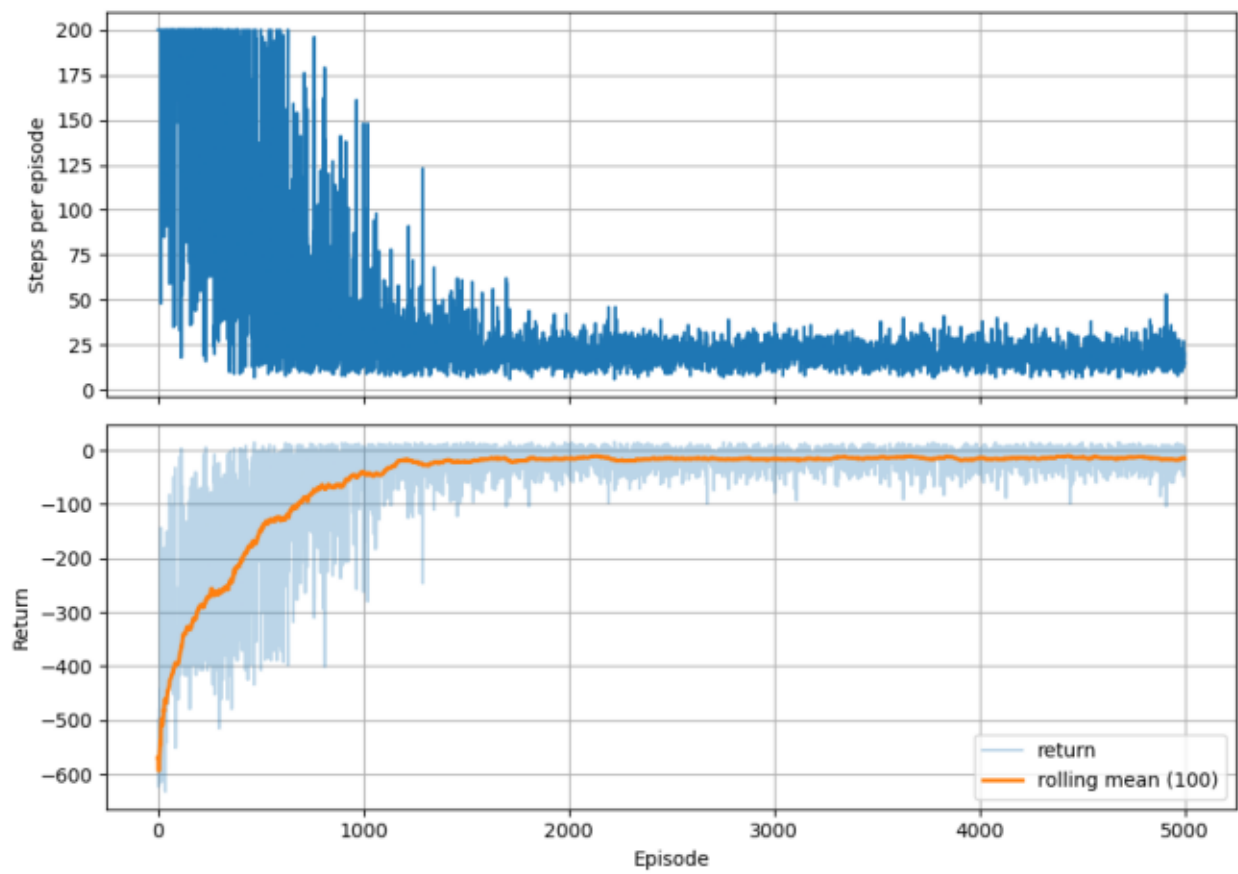
Q-Learning: alpha\_0.2



Q-Learning: epsilon\_0.2



Q-Learning: epsilon\_0.3





Q-Learning: best\_rerun

