

Algorithms and Uncertainty

Winter Term 2025/26

Exercise Set 11

If you would like to present one of your solutions in class, please use the following link to book a presentation slot by Monday evening:

<https://terminplaner6.dfn.de/b/fee97c0ff7c376f91b6a47f883fdab84-1542259>

A short meeting to discuss your solution is mandatory before presenting it in class. To book a time slot for this meeting, please use the following link by Monday evening as well:

<https://terminplaner6.dfn.de/b/76d1d845cafadc2775e3146085d7217d-1542253>

Exercise 1:

(4 Points)

Consider the modified update rule for Multiplicative Weights that sets $w_i^{(t+1)} = w_i^{(t)} \cdot (1 - \ell_i^{(t)} \eta)$. Show that Theorem 18.3 still holds.

Exercise 2:

(5 Points)

State a no-regret algorithm for the case that $\ell_i^{(t)} \in [-\rho, \rho]$ for all i and t . Also give a bound for the regret. You should reuse algorithms and results from the lectures.