

Prof. Dr. Vladimir Shikhman
Professur für Wirtschaftsmathematik
Technische Universität Chemnitz

Übungsleiter: David Müller
david.mueller@mathematik.tu-chemnitz.de

Mathematical Foundation of Big Data Analytics (SS 2019)
Online Learning II

Ex. 1 You are a manager of a real estate investment firm. Your task is to acquire new real estates. Each period you have to decide whether to buy a house or not given a certain price. After taking your decision the real value of the house, which is either below or above the offered price, is revealed. Naturally you aim to buy all the underpriced real estates and deny the overpriced ones.

In order to make your decision, you can rely on the prediction of N - experts. Each of the experts makes a prediction in every period. Assume you know that one of them is always right, but unfortunately you don't know which one.

Develop a strategy, which assures that the maximum number of mistakes you make is bounded and calculate this upper bound.

Ex. 2 Take the scenario from exercise 1, but now there is no expert, who always chooses right. Therefore you have to adjust your strategy. Concerning the number of mistakes, what would you expect to happen?

- a) Define a new strategy and calculate the upper bound for the number of mistakes.
- b) Imagine the number of experts is doubled. Would this cause the number of maximal mistakes to double? Justify your assumption.