

# Theoretical homework 2

2-AIN-150, Winter 2025

Deadline: 8.12.2025, 23:59

Before you start solving the homework, please read the general instruction at the end of the document. Submitted solutions should be your own. Do not copy and do not try to find solution in literature or over the internet.

## VC dimension

- a) Given two input attributes  $x_1, x_2$  and set of hypotheses  $H$ , which consists of all circles in plane (all points inside of circle are classified as positive and outside as negative). How many parameters does this hypothesis have? What is VC dimension of this hypothesis set?
- b) Given two input attributes  $x_1, x_2$  and set of hypotheses  $H$ , which consists of all axis aligned squares in plane (all points inside of the square are classified as positive and outside as negative). How many parameters does this hypothesis have? What is VC dimension of this hypothesis set?

## General instructions

Submit a solution in PDF format via Classroom.