Practice of Deep Learning
Day 2, Part 4/4

Matthieu De Mari

Day 2 Lab submission

- As part of your assessment, please submit your report (it should contain answers to all questions, including the code snippets requested in some of the questions).

- **Note:** No need to submit the notebooks along with your report, as long as the requested code snippets are shown in your report.

- **Deadline: XXXX**

A typical report, we have received in the past

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Ryan Lee 1006652

Part A

Question 1

Given the code executed above, can you describe the different elements of the Machine Learning problem that we seem to be currently facing? At the moment you should be able to describe the task (T), dataset (D), inputs and outputs (I, O). The model (M) and loss (L) will be discussed later.

Task (T): This is a binary classification task, where the goal is to classify inputs into one of two categories.
Inputs (I): There are two input features x_1 and x_2, in which both features are real values in [-1,1].
Outputs (O): The output is a binary label with integer value of either 0 or 1.
Dataset (D): The dataset contains 1000 samples, with an imbalanced class distribution: 222 samples belonging to class 0, and 778 belong to class 1.

Question 2

What geometric property of the decision boundary makes it challenging for linear models like