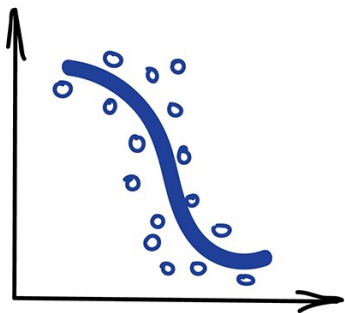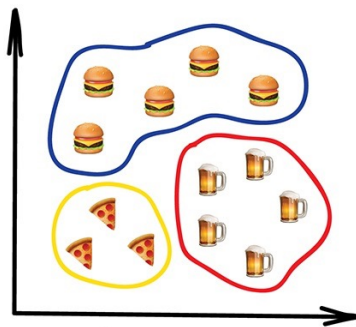# Homework 1.

TDT4173 – Fall 2023

Purpose

- Hands-on introduction to machine learning algorithms

- Give intuition about basic data manipulation techniques

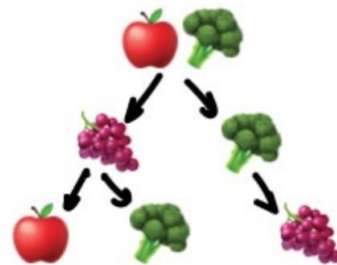- Make you ready to start the main project

What to do?

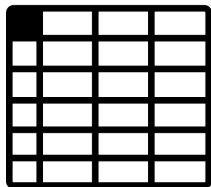1. Implement **two out of three** given algorithms
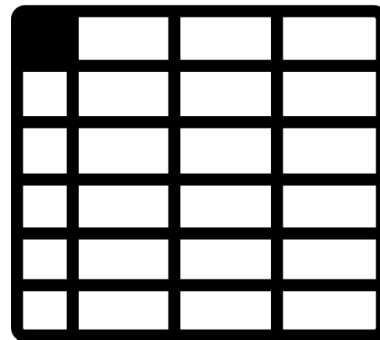
Logistic regression

k-means

Decision tree

What to do?

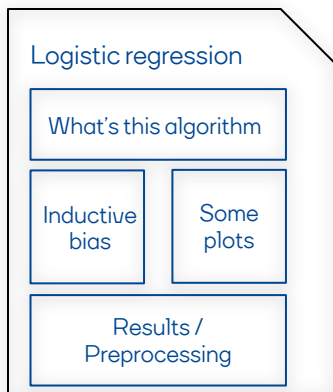2. Evaluate each of them on the corresponding datasets
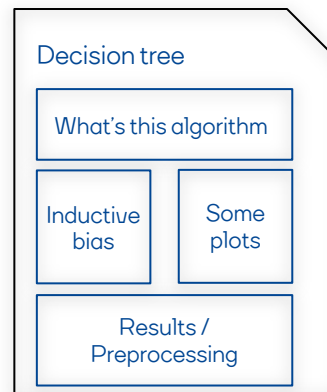
Easy
(to debug your implementation)

Not-That-Easy
(requires some thinking*)

* feature engineering is highly
recommended

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What to do?

3. Write a short (2 pages **max**) report

Logistic regression

What's this algorithm

Inductive bias

Some plots

Results / Preprocessing

1st page

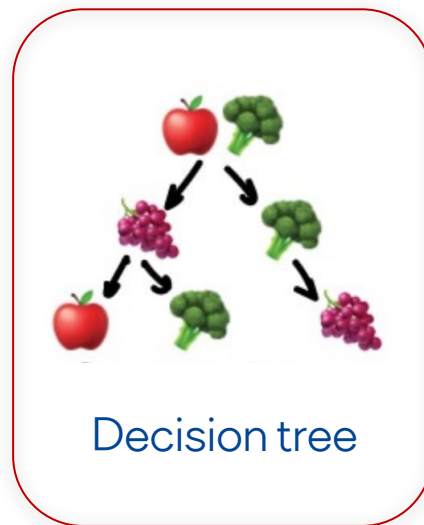Decision tree

What's this algorithm

Inductive bias

Some plots
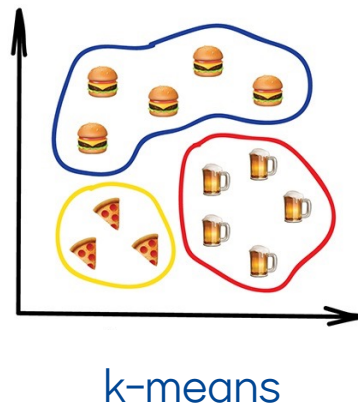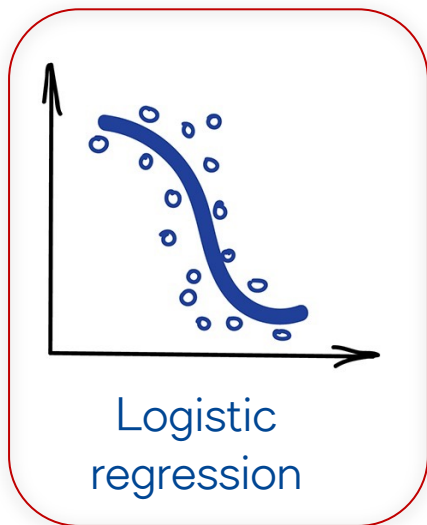
Results / Preprocessing

2nd page

What do you have?

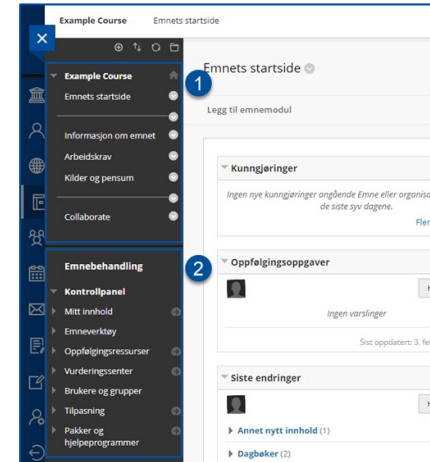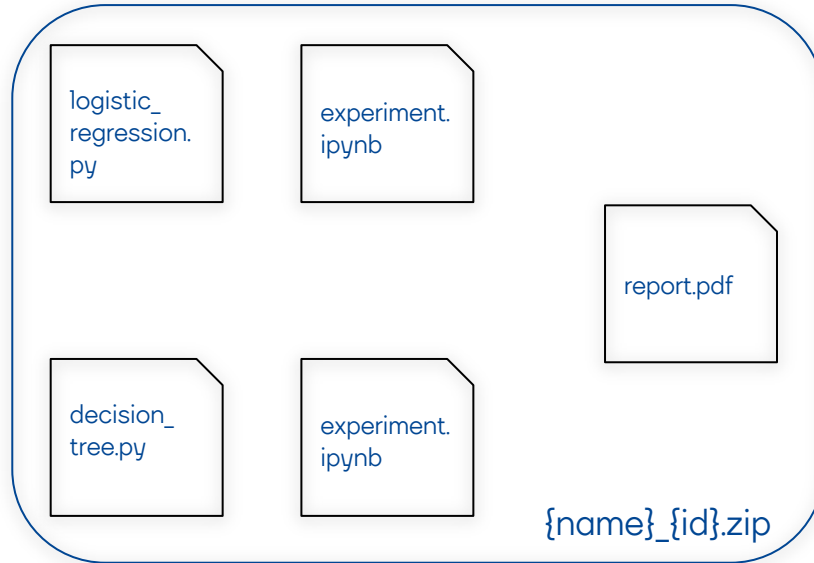- Github repository with detailed instructions

- Skeleton code for algorithms (fill in the gaps)

- Almost ready to submit Jupyter notebook (test your implementation and get the required scores)

- Teaching Assistants!!

What to deliver?

For example, you chose logistic regression and decision tree

Logistic regression

k-means

Decision tree

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What to deliver?

logistic_regression.py

experiment.ipynb

report.pdf

decision_tree.py

experiment.ipynb

{name}_{id}.zip

Details

- Deadline: **17.09.2023 22:00:00**

- Pass or Fail. Pass is required to pass the course!

- The assignment is individual

- Algorithms should be implemented from scratch
  (pandas, numpy, itertools, collections allowed)

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The link will be available on Blackboard today.

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