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February 25, 2025

MACHINE LEARNING — TP 2: Regression

Remarks: All models here should be built from scratch.

1. Problem 1

Given a dataset of land price as ilustrated in the table below, find a linear regression model that fits the data. Train the model using the gradient descent algorithm.

Size in m2 (X)	Price in 1000 USD (y)
90	7.1
130	10.9
210	19.2
300	28
350	32.8
420	39.9
480	46.1
530	51
640	62.2
710	68.9

2. Problem 2

Build a linear regression which predicts the land price using both the "land_area" and the "distance_to_city" features. (See the dataset in "land_price_1.csv")

3. Problem 3

Using only the distance feature, build a model with hypothesis $h(x) = \theta_0 + \theta_1 x + \theta_2\sqrt{x}$ to predict the land price. (See the dataset in "land_price_2.csv")

4. Problem 4: Mini Project no. 1

With your team, collect your own dataset which consists at least two features and one target variable. Build a linear regression model to predict the target variable. Split your dataset into training set (80 %) and testing set (20 %). Present your model to the class next week!

Submitted by Mr. Touch Sopheak, Mr. Phok Ponna, Mr. Pen Chentra on 25 de febrero de 2025.