

Assignments #2 (Ref Video Lectures 5-14)

6. Download the housing price data set of Windsor City of Canada (https://drive.google.com/drive/folders/1XGdUi0w_FcHcnlQt9mU5y_PNLyFhCW9V). Design a housing price predictor taking only floor area (plot size), number of bedrooms, and number of bathrooms into considerations. Out of total 546 data, you may take 70% for designing the predictor and 30% for validating the design. The predictor design should be done using the following methods:

a) Normal equations with and without regularization and compare their performances in terms of % error in prediction. (only allowed to use NumPy library of Python, no other functions/libraries are allowed) **(Ref Lecture-8 and 12)** **20**

b) Design Predictor using Batch Gradient Descent Algorithm, Stochastic Gradient Algorithm and mini batch Gradient Descent algorithms (determining minibatch size is your choice- here it could be 10, 20, 30 etc.) with and without **feature scaling** and compare their performances in terms of % error in prediction. (only allowed to use NumPy library of Python, no other functions/libraries are allowed)

(Ref Lecture- 10 and 11) **30**

c) Design Predictor using Batch Gradient Descent Algorithm, Stochastic Gradient Algorithm and mini batch Gradient Descent algorithms (determining minibatch size is your choice- here it could be 10, 20, 30 etc.) with and without **regularization** and compare their performances in terms of % error in prediction. (only allowed to use the NumPy library of Python, no other functions/libraries are allowed) **(ref Lecture-10, 11 and 12)** **30**

d) Implement the LWR algorithm on the Housing Price data set with different tau values. Find out the tau value which will provide the best fit predictor and hence compare its results with a), b) and c) above. **50**

Submission deadline : **19th June, 2022**