**DAT-410 Machine Learning**

***Homework:* 02**

***Assigned:* 02/27/2024**

***Due:* 03/06/2024**

***Points:* 50**

***Submission:*** Please submit a **.pdf** document (<your\_name>\_hw02**.pdf**)

Answer the following. (5 Points each)

1. Explain feature selection in detail.
2. Explain forward and backward selection.
3. Explain feature scaling along with its uses in Machine Learning.
4. Explain any 4 feature scaling techniques. Give the equation for each.
5. Explain the outlier treatments for normal, skewed, and other distributions.
6. List any 4 advantages and any 3 disadvantages of feature extraction.
7. Give any 5 differences between linear and non-linear regression.
8. Explain multiple linear regression along with its equation.
9. **Explain the time and space complexity of a multiple linear regression.**
10. Explain bias-variance trade-off.
11. Extra credit: Explain the 3 regularization models along with loss functions.