Machine Learning

To detect the anomalies in Steam Turbine Vibration

Classification and Linear regression

- linear regression contributes coefficients of each sensors

Load Type Classification

Type 2: 10 – 15 MW

Type 3: 15 – 20 MW
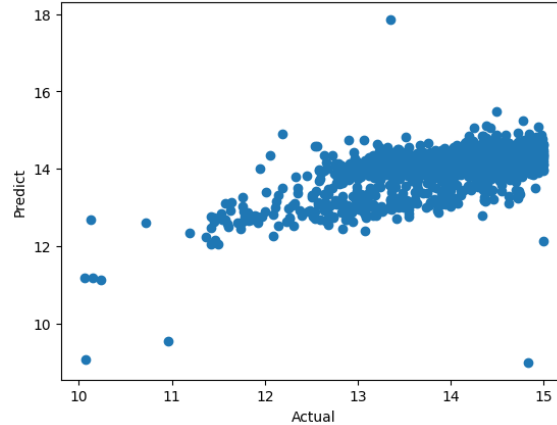
Type 4: 20– 25 MW

Type 5: 25 – 30 MW

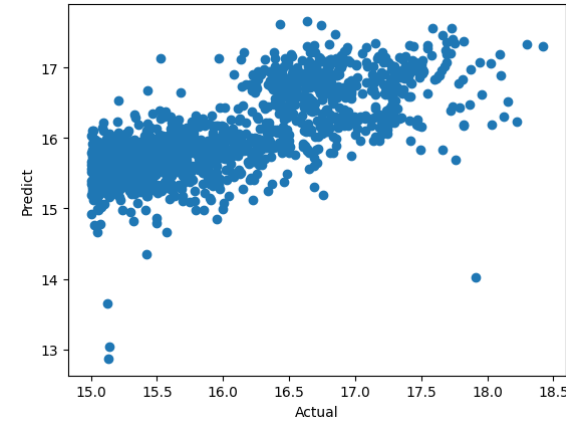Type 6: 30 – 35 MW

Type 7:> 35 MW

Train set: Jan 2021 – Dec 2022

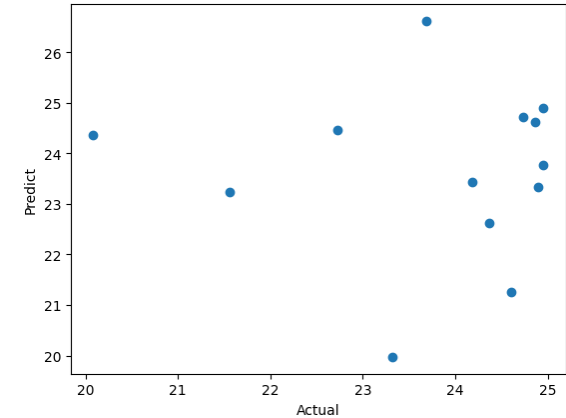Test set: Jan 2023 – June 2023
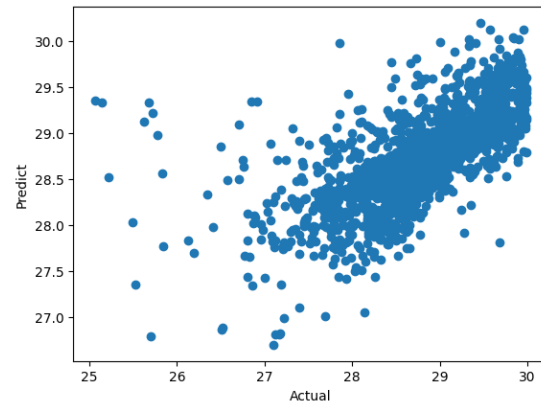

Type 2

Accuracy = 0.3924

Type 3

Accuracy = 0.5585

Type 4

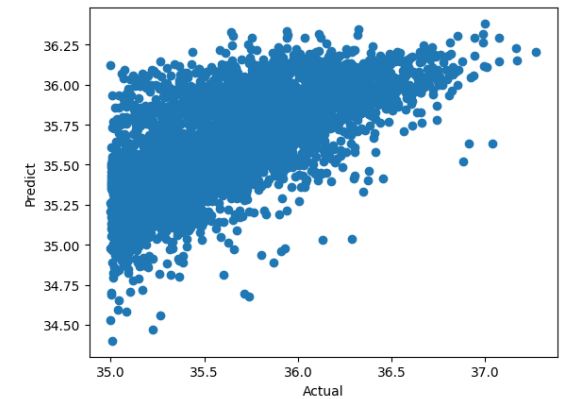**Accuracy = -1.3030**

Type 5

Accuracy = 0.4513

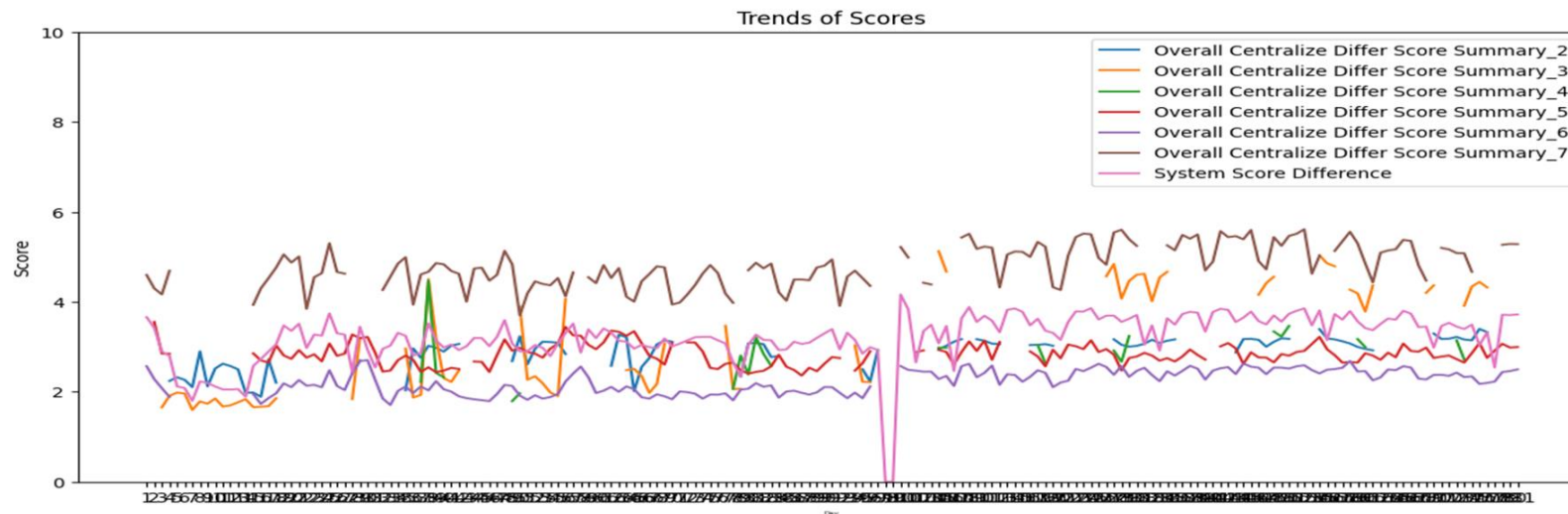**Type 6**
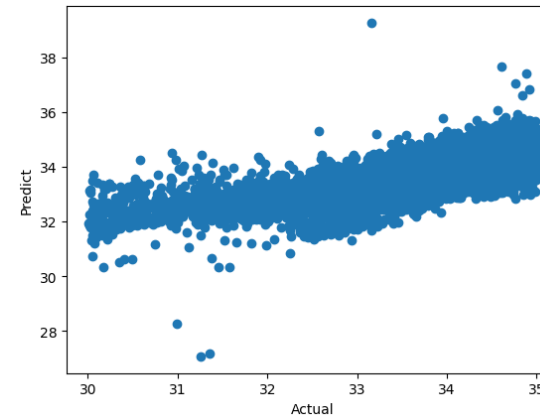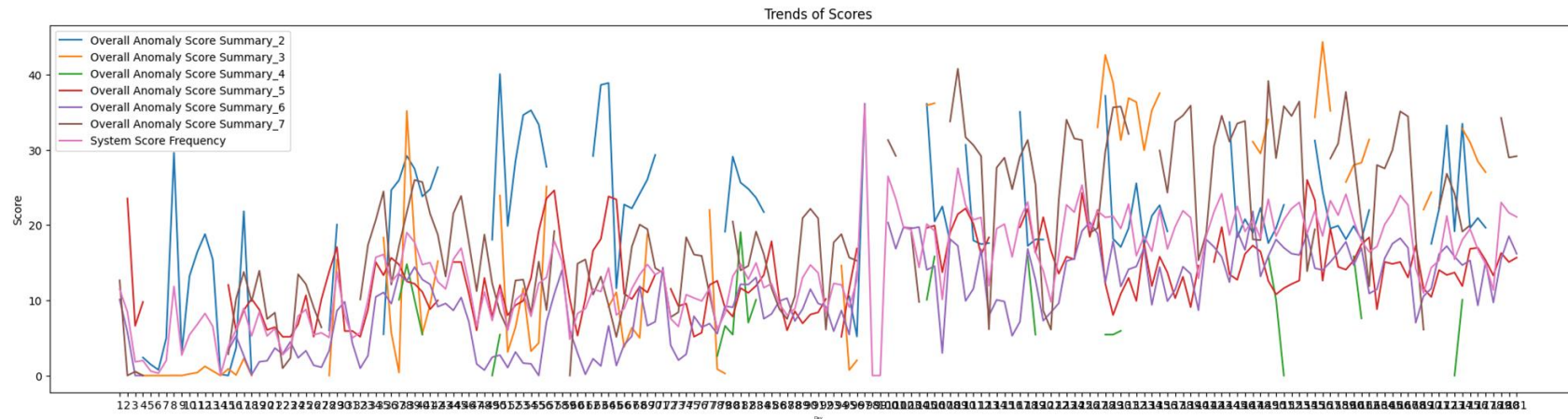
Accuracy = 0.5534

Type 7

Accuracy = 0.4607

Helth Check: Anomaly Score and Centralize Differ Score

- calculate health score to check an outlier score of each sensors in equipment and anomalies

Train set: Jan 2021 – Dec 2022

Test set: Jan 2023 – June 2023

KNN Model

Load Type

Type 2: 10 – 15 MW

Type 3: 15 – 20 MW

Type 4: 20– 25 MW

Type 5: 25 – 30 MW

Type 6: 30 – 35 MW

Type 7:> 35 MW

Train set: Jan 2021 – Dec 2022

Test set: Jan 2023 – June 2023

			55%
LoadType	**Count of Record_ID**	**Sum of Accuracy**	**% Accuracy**
1	887	880	99%
2	10,199	5,521	54%
3	3,991	3,476	87%
5	1,830	499	27%
4	60	12	20%
6	28,980	13,704	47%
7	6,164	4,433	72%
Grand Total	**52,111**	**28,525**	