Report on Time series prediction with Machine Learning

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To run the attached python file, the sci-kit module must be installed in python.

**Name of the company**: Nokia

**Name of the ML models**:

1. Linear Regression
2. K Neighbor Regression
3. Polynomial Feature Regression
4. Gradient Boosting Regression
5. Elastic Net Regression

**Way of training and testing**:

80% random days were chosen for training and rest were used for testing.

**Dealing with overfitting and underfitting**:

Changing seed in test train split does not significantly alter MSE values for 80% random test split. So 80% split for this dataset seems no overfit or underfit.

**MSE values:**

Linear Regression: 0.009845662377604623

KNN Regression: 0.018514795918367376

Polynomial Regression: 0.010135060505842283

GradientBoostingRegressor: 0.012334756167537929

ElasticNet Regression: 0.09211289306538942

Based on MSE values, Linear Regression performed better.

**Conclusion**:

Increasing length of the consecutive days to consider ( instead of 5) should perform better. There might be more models in the sklearn library. Other models might perform better.