Rajshahi University of Engineering & Technology

Course No.: CSE 3200
Course Title: Software Development Project II

Project Proposal

Submitted To:

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Project Type: Machine Learning (Time Series Forecasting)

Short Description: Prediction of ‘hourly visibility’ for airport operations on different machine learning models. The airport's ability to function depends heavily on weather and visibility. For efficient aircraft scheduling and deployment, accurate visibility forecasts are crucial.

Data Acquisition:
John F. Kennedy International Airport (JFK) is the main international airport serving New York City. The airport is the busiest of the seven airports in the New York airport system, the 13th-busiest airport in the United States, and the busiest international air passenger gateway into North America. The information that is provided on the website covers the time period starting on January 1, 2010 to July 27, 2018. There are 75119 rows and 16 columns in the dataset.

	DATE	HOURLYVISIBILITY	HOURLYDRYBULBTEMPF	HOURLYWETBULBTEMPF	HOURLYDewPointTempF	HOURLYRe
0	2010-01-01 01:00:00	6.0	33	32	31.0	92
1	2010-01-01 02:00:00	6.0	33	33	32.0	96
2	2010-01-01 03:00:00	5.0	33	33	32.0	96
3	2010-01-01 04:00:00	5.0	33	33	32.0	96
4	2010-01-01 05:00:00	5.0	33	32	31.0	92

Implementation plan: Two different approaches will be experimented with to predict hourly visibility of the airport.

i) Univariate Time Series Forecasting.

ii) Multivariate Time Series Forecasting.

Algorithms to be used:

i) Long short-term memory (LSTM)
ii) Gated recurrent unit (GRU)

Platform: Kaggle