**Project Status Report**

**Topic**: RNN/LSTM for time series prediction (e.g. stock market, weather, hurricane intensity data)

**Team members:**

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**Technique / Algorithm:**

We will be implementing **Long Short-Term Memory (LSTM)** or **Stacked LSTM** models for time series prediction. LSTMs are a type of Recurrent Neural Network (RNN) specifically designed to overcome the limitations of traditional RNNs, such as the vanishing gradient problem (a problem that occurs when increasing network depth, updating weights via back-propagation and gradient-based learning models will slowly decrease slowly to the point of stopping updates and thus stopping learning), by using a series of gating mechanisms. They are particularly suited for learning and capturing long-term dependencies in sequential data. Using past input and current input, we can use LSTM to predict future predictions.

**Data Set Details (As Provided from the Dataset Link Below):**

Name: AI4I 2020 Predictive Maintenance Dataset

Dataset Characteristics: Multivariate, Time-Series

Subject Area: Computer Science

Associated Tasks: Classification, Regression, Causal-Discovery

Feature Type: Real

# Instances: 10000

# Features: 6

Info: The dataset is synthetic and reflects real-world predictive maintenance scenarios.

Link: <https://archive.ics.uci.edu/dataset/601/ai4i+2020+predictive+maintenance+dataset>

**Programing Language:**

Python: NumPy, Pandas, Matplotlib, Seaborn