Weekly Progress Report

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Domain: Data Science and Machine Learning

Date of submission: 29 July 2025

Week Ending: 02

I. What I Got Done This Week

This week, the focus was on establishing the project environment and performing the initial data loading and inspection to build a solid foundation for the project.

1. **Getting the Data Ready:**
    - I successfully loaded the train_FD001.txt file into a Pandas DataFrame, which was the first main step.
    - I also added the correct column names from the readme.txt file. This helps in keeping track of the different operational settings and the 21 sensors.
2. **Initial Data Inspection:**
    - I did a preliminary check of the data using functions like .head() and .info() to make sure it loaded correctly and to see the data types.

II. Problems I Ran Into

1. **Time Management:**
    - **Problem:** The biggest challenge this week was carefully managing time to understand the project's scope and data structure before diving into a deeper analysis.
    - **How I Handled It:** I decided to focus on completing the foundational setup tasks correctly to ensure a smooth workflow for the more complex stages ahead.
2. **Understanding the Data Format:**
    - **Problem:** It took a moment to figure out the best way to load the text file since it was space-separated and didn't have headers.
    - **How I Handled It:** I looked up the Pandas read_csv documentation and found the right parameters (sep=' ' and header=None) to load it properly.

III. What I Learned

1. **Planning is Key:** This week really highlighted the importance of a methodical approach. Taking the time to set things up correctly at the start makes the next steps much easier.
2. **First Look at Real Data:** Even just loading the data gave me a sense of the scale of a real-world dataset. It’s much more complex than the clean datasets often used everywhere.

IV. Goals for Next Week

With the initial setup complete, I plan to dedicate significant time next week to make substantial progress on the analysis and feature engineering.

1. **Detailed Data Exploration (EDA):**
    - I will analyze the data more deeply by plotting the sensor readings over time to find patterns and identify which sensors are most important.
2. **Create the Target Variable (RUL):**
    - I will write the script to calculate the Remaining Useful Life (RUL) for the training data, which is a critical step before modeling.
3. **Plan Preprocessing:**
    - I'll start planning the data preprocessing steps, specifically how I'm going to scale the features so they can be used in a model.