To,
IITD-AIA Foundation of Smart Manufacturing

Subject: Weekly Progress Report for Week 4

Dear Sir,
During this week, I made progress in various areas of my internship. Here's a day-wise summary of my activities:

July 3:
- Performed hyperparameter tuning on the regression models to reduce the Mean Squared Error (MSE) value of 0.66.
- Learned about 'Hyperopt', a hyperparameter tuning technique.
- Explored the significance of hyperparameter tuning in optimizing model performance.
- Conducted 'Hyperopt' tuning on the regression models.

July 4:
- Trained the dataset using alternative regression algorithms, including the Light Gradient Boosting regressor, Random Forest regressor, and Decision Tree regressor.
- Gained knowledge about the principles and workings of these regression algorithms.
- Focused on training the dataset with different regression models.

July 5:
- Learned about Ridge Regressor, Bayesian Ridge Regressor and Huber Regressor.
- Gained knowledge about the principles and workings of these regression algorithms.
- Focused on training the dataset with the above mentioned regression models.

July 6:
- Explored the PyCaret library, which is commonly used for training data on various regression models.
- Learned about the functionalities and capabilities of the PyCaret library.
- Defined and applied various metrics for evaluating the performance of the algorithms available in the library.
- Engaged in further understanding and utilizing the PyCaret library.

July 7:
- Learned about various optimization techniques, with a specific focus on the Adam optimization technique.
- Explored the principles and applications of the Adam optimization technique.
- Gained knowledge about cloud computing and its basics.
- Focused on understanding the Adam optimization technique and its relevance in model optimization.

July 8:

- Explored additional optimization techniques to determine the most suitable one for achieving optimal results.
- Expanded knowledge on optimization techniques specifically applicable to regression problems.
- Engaged in comparative analysis of different optimization techniques for regression models.
- Conducted a thorough exploration of various optimization techniques.

July 9:

- Continued learning by exploring cloud computing.
- Gained a basic understanding of cloud computing principles.
- Explored the concepts of Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).
- Focused on understanding the fundamentals of cloud computing and its implications.

Throughout the week, I actively engaged in hyperparameter tuning, training the dataset with various regression algorithms, exploring the PyCaret library, and learning about optimization techniques and cloud computing. The focus was on improving model performance, evaluating different techniques, and expanding knowledge in relevant areas.

There were no significant issues or closures during the week. Progress was made as per the track, with tasks completed successfully. It was a week of continuous learning and exploration, with a focus on optimizing regression models and gaining insights into cloud computing concepts.