TO,
IITD-AIA Foundation of Smart Manufacturing

Subject: Weekly Progress Report for Week 3

Dear Sir,

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

June 19:
- Explored the NumPy library in detail
- Learned about model ensembling using PyTorch.
- Worked on understanding the functionalities and capabilities of NumPy.
- Explored techniques and concepts related to model ensembling.

June 20:
- Focused on learning the TensorFlow library.
- Explored creating tensors using TensorFlow and converting them from NumPy arrays.
- Learned about tensor shuffling and various tensor indexing techniques.
- Explored aggregation operations on tensors using built-in TensorFlow functions.
- Gained knowledge about the different types of aggregations that can be performed on tensors.

June 21:
- Continued learning about the TensorFlow library in detail.
- Explored mathematical operations that can be performed on tensors.
- Worked on creating a Neural Network regression model using TensorFlow's high-level API, Keras.
- Defined the architecture of the neural network and learned about model evaluation techniques.

June 22:
- Focused on gaining proficiency in the Scikit-Learn library.
- Explored the concepts of overfitting and underfitting in machine learning models.
- Learned about backpropagation in Neural Networks.
- Focused on various pre-processing techniques.
- Explored the dataset provided by the mentor.

June 23:
- Engaged in a thorough analysis of the dataset attributes.
- Explored Flask, a Python web framework used for building web applications.
- Learned about routing, HTTP request handling, and templating in Flask.
- Gained knowledge about Flask extensions and their functionalities.

June 24:
- Learned about Exploratory Data Analysis (EDA) in detail.
- Implemented EDA techniques on the dataset.
- Explored Pearson's correlation matrix and coefficient of correlation.
- Visualized the dataset in 2-D and 3-D for better understanding.
- Conducted EDA to gain insights into the dataset.

June 25:
- Continued performing Exploratory Data Analysis on the dataset.
- Plotted Pearson's correlation matrix for attribute analysis.

- Explored the importance of removing correlated variables in linear regression models.
- Conducted box plot analysis of the dataset.

Throughout the week, I actively engaged in learning and implementing various concepts and techniques related to libraries such as NumPy, TensorFlow, and Scikit-Learn. I also focused on understanding data preprocessing, model evaluation, and web application development using Flask. The EDA performed on the dataset provided valuable insights for further analysis. I look forward to utilizing these skills in upcoming tasks and projects.

Overall, it was a productive week with substantial progress in enhancing my knowledge and skills in the field of data science and machine learning.