INTERNSHIP: STUDENT DAILY REPORT

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| Name of the Student | Vivek kumar Shriwas |
| Internship Project Topic | TCS iON RIO-125: Forecasting System - Project Demand of Products at a Retail Outlet Based on Historical Data |
| Name of the Organization | TCS iON |
| Name of the Industry Mentor | Sreekathiayini Ruthraiyah |
| Name of the Institute | Viswakarma University |

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| Date | Day | Hours Spent |
| 7/08/2023 | Day 21 | 3 hours and 30 minutes |
| Description:  **Self-learning Duration : 3 hours**  **Activity Report Duration : 30 minutes**  **Activities:**   1. **Further Experimentation with Random Forest (1 hour):**    * Continued working with the Random Forest model for time series forecasting.    * Experimented with different feature combinations and lag intervals to improve the model's predictive performance.    * Conducted cross-validation to assess the model's generalization ability on unseen data. 2. **Exploring Advanced Time Series Techniques (1 hour):**    * Researched advanced techniques for time series forecasting, including Long Short-Term Memory (LSTM) networks and Prophet.    * Studied the architecture of LSTM networks and their suitability for capturing complex temporal patterns.    * Explored the capabilities of the Prophet library developed by Facebook for forecasting. 3. **Implementing LSTM for Time Series (1 hour):**    * Delved into implementing an LSTM network using a Python deep learning framework.    * Preprocessed the time series data to be compatible with the sequential nature of LSTM inputs.    * Constructed an LSTM architecture with appropriate layers and parameters. 4. **Initial Results with LSTM (1 hour):**    * Trained the LSTM model using the prepared dataset and monitored its convergence.    * Evaluated the model's performance using metrics like Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE).    * Compared the results with those obtained from the Random Forest model.   **Challenges:** Working with deep learning models like LSTM brought about challenges in data preparation and parameter tuning. Finding the optimal architecture and hyperparameters for the LSTM network was a time-consuming process. Ensuring that the model doesn't overfit and produces meaningful predictions required careful adjustments. | | |