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 |
| 21/07/2023 | Day 4 | 7 hours and 45 minutes |
| Description:  **Self-learning Duration : 7 hours**  **Activity Report Duration : 45 minutes**  **Activities:**   1. **Exploring Forecasting Evaluation Metrics (2 hours):**    * Researched various metrics used to evaluate time series forecasting models.    * Learned about metrics such as Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), Mean Absolute Percentage Error (MAPE), and more.    * Explored the strengths and limitations of different metrics. 2. **Hands-on with ARIMA Modeling (1.5 hours):**    * Dived into AutoRegressive Integrated Moving Average (ARIMA) models.    * Understood the concepts of stationarity and differencing.    * Implemented ARIMA model fitting and forecasting on sample time series data. 3. **Data Preprocessing for ARIMA (1 hour):**    * Explored techniques to make time series data stationary.    * Practiced differencing and transforming data to achieve stationarity.    * Prepared datasets for ARIMA model training. 4. **Implementing ARIMA in Python (1.5 hours):**    * Used the **statsmodels** library to build and fit ARIMA models.    * Tuned model hyperparameters such as order (p, d, q) for best fit.    * Validated the model by splitting data into training and testing sets. 5. **Documenting ARIMA Workflow (45 minutes):**    * Added today's activities related to ARIMA modeling to the project documentation.    * Included code snippets, parameter explanations, and insights from model implementation.    * Ensured coherence and clarity in the documentation.   **Challenges:** Encountered challenges in determining optimal ARIMA hyperparameters and interpreting the results of the fitted models. Took additional time to grasp the intricacies of differencing and stationarity. | | |