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 |
| 29/07/2023 | Day 12 | 3 hours and 45 minutes |
| Description:  **Self-learning Duration : 3 hours**  **Activity Report Duration : 45 minutes**  **Activities:**   1. **Studying Time Series Smoothing Techniques (1 hour):**    * Explored various time series smoothing techniques, including moving averages and exponential smoothing.    * Learned about the concepts of window size, weights, and smoothing factors in different methods.    * Understood how smoothing can help reveal underlying patterns in noisy time series data. 2. **Implementing Moving Averages (1 hour):**    * Implemented simple moving average (SMA) and weighted moving average (WMA) on a dataset using Python and libraries like NumPy.    * Experimented with different window sizes to observe their effects on the smoothed data.    * Visualized the original data alongside the smoothed data to compare the differences. 3. **Understanding Exponential Smoothing (1 hour):**    * Dived into exponential smoothing techniques, including single, double, and triple exponential smoothing.    * Grasped the concepts of level, trend, and seasonality components in exponential smoothing.    * Explored how to set smoothing factors to achieve different levels of responsiveness to past observations. 4. **Applying Exponential Smoothing (30 minutes):**    * Applied simple exponential smoothing to a time series dataset in Python, using libraries like **statsmodels**.    * Adjusted smoothing parameters and observed their impact on the smoothed data.    * Noted down the challenges faced and lessons learned during the implementation. 5. **Updating Learning Journal (15 minutes):**    * Recorded the insights gained about time series smoothing techniques and their practical applications.    * Included code snippets and visualizations to illustrate the effects of different smoothing methods.   **Challenges:** One of the challenges encountered was tuning the smoothing parameters for exponential smoothing to achieve the desired level of smoothness without overfitting to noise. Additionally, understanding the trade-off between responsiveness and stability in smoothing techniques required careful consideration. | | |