Weekly Report: MD. Ariful Islam Shakil

Week-03 (April 07 – April 11)

1. **Machine Learning specialization**:
    i. Course 02: Advanced Learning Algorithms
        a) Week-04: Decision Tree, Entropy, Information Gain, Handing Categorical Data, Random Forest, XGBoost
    ii. Course 03: Unsupervised Learning, Recommenders, Reinforcement Learning
        a) Week 01: Clustering Algorithm, Anomaly Detection
        b) Week 02: Recommendation System (Collaborative Filtering, Content Base Filtering)
2. **Mathematics for Machine Learning: Linear Algebra**
    i. Week – 04: Non-squired matrix multiplication, Matrices changing basis, Transformation in changed basis, Orthogonal Matrices
    ii. Week – 05: Eigenvalues, Eigenvectors, Changing to Eigenbasis.
3. **Mathematics for Machine Learning: Multivariate Calculus**
    i. Week – 01: Basics of Calculus, Function, Gradiant and Derivatives, Product Rule, Chain Rule.
    ii. Week – 02: Differentiations based on multiple variable, Partial Derivatives, Jacobian.
4. **OOP Concepts**
    i. Merged Documentation of OOP concept.
5. **Academia Research**
    i. Lecture: How to Search & Analyze Relevant Research Papers, Blogs & Online Resources.

6. **AGILE**
    i. Lecture 02: Detailed lecture on Agile Framework “Scrum”
7. **Machine Learning**
    i. Lecture: Life cycles of Machine learning project from Data collection to model evaluation and deployment as well as maintenance.
    ii. Assigned ML project on stock price prediction based on **Tesla_Stock_dataset**
8. **Research paper**
    i. XGBOOST
        a) Submitted review report