TETHRAL DATA SCIENCE CURRICULUM

COURSE OUTLINE

WEEK1: INTRODUCTION TO DATA SCIENCE

- Introduction to Data Science and its applications
- Data Science, Data Analysis, and Data Engineering
- The data science workflow
- Mathematics/Statistics for Data Science

WEEK2: INTRODUCTION TO PYTHON

- Setting up Python environment (Anaconda, Jupyter)
- Basic Python programming
- Data types, variables, and operators
- Control structures (if statements, loops)

WEEK3: CONTINUATION OF PYTHON

- Functions and modules
- Python Built-in Functions
- OOP

WEEK4: DATA MANIPULATION WITH PYTHON

• NumPy for numerical data

• Pandas for data manipulation

• Data Cleaning and preprocessing

WEEK5: DATA VISUALIZATION WITH PYTHON

• Matplotlib for data visualization

• Seaborn for data visualization

WEEK6: EXPLORATORY DATA ANALYSIS (EDA)

• Exploratory data analysis with Pandas and Numpy

• Data visualization best practices

WEEK7: MACHINE LEARNING FOUNDATIONS

• Introduction to Machine learning

• Supervised learning vs Unsupervised learning

• Model evaluation and validation

• Linear regression

WEEK8: ADVANCED MACHINE LEARNING

• Classification algorithm (Logistic regression, Decision Trees)

• Ensemble methods (Random Forest, Gradient Boosting)

WEEK9: ADVANCED MACHINE LEARNING

- Clustering algorithm (K-Means)
- Model selection and hyperparameter tuning

WEEK10: GITHUB AND DEPLOYMENT

- Introduction to Git and Github
- Flask app for deployment
- Streamlit for deployment

WEEK11: CAPSTONE PROJECT

- 2 capstone project. Supervised and unsupervised model
- Deployment on Streamlit

WEEK12: CAPSTONE PROJECT PRESENTATION