

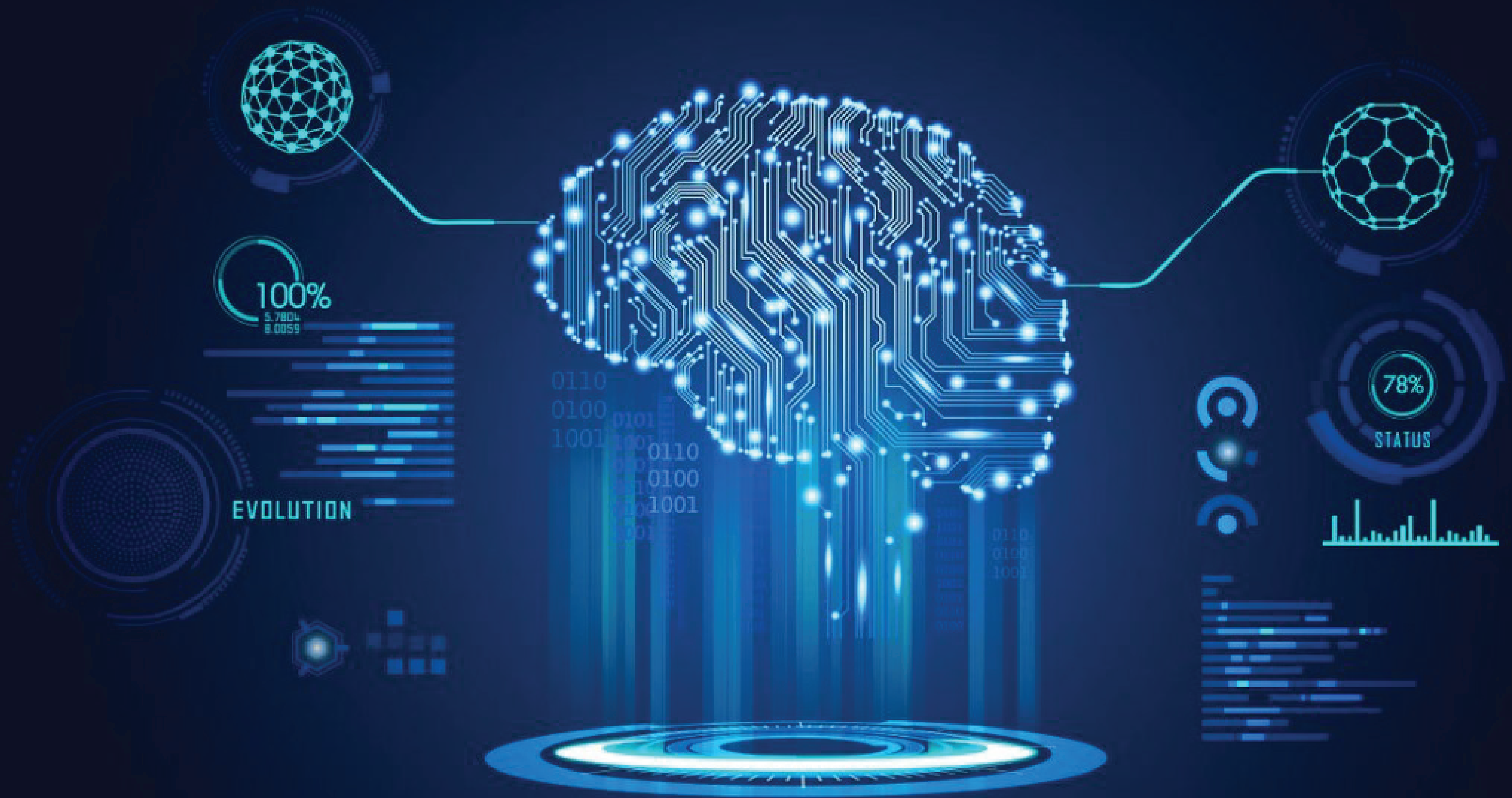


PEA

PETROLEUM ENGINEERS ASSOCIATION



2 Months Online Training On **MACHINE LEARNING FOR OIL AND GAS** **USING PYTHON** **THE ULTIMATE DATA-DRIVEN ADVENTURE**



MR. NASHAT JUMAAH

11+ years experience in oil and gas industry



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+91 6205464268

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www.peassociations.com

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ABOUT THIS TRAINING

The "Machine Learning for Oil and Gas Using Python" course is meticulously designed to equip you with the skills and expertise to harness the potential of data and implement data-driven solutions in the Oil and Gas sector.

Over the span of 2 months, you'll delve into a well-structured curriculum that blends theory and hands-on projects to ensure you're ready to tackle real-world challenges



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SKILLS GAINED

- Get started with Python and Machine Learning
- Learn the Basics of Python as an ML tool
- Data Manipulation, Filtering, visualization, and processing
- Machine Learning Implementation
- Work with actual Oil and Gas Data
- Learn from an instructor with 12 years of experience in programming and technology
- Create KPI Dashboard for Oil and Gas Field Operations with ML implementation to derive insights and prediction



AUDIENCE

- Reservoir Engineers
- Production engineers
- Chemical engineers
- Drilling engineers
- Geologists and petrophysics
- AL and workover engineers



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WHAT YOU WILL GET FROM JOINING

- Access to Video Recordings on a daily basis.
- Study materials ppt, pdf
- Many Oil and Gas Datasets.
- Learn Python through the Anaconda package



PREREQUISITES

- No knowledge is required
- A working laptop with Windows OS, MacOS, or GNU Linux Distro



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PYTHON MODULE

This module will cover all Python basics to get started and feel confident in writing code and maintaining future code bases.



MODULE 1:

- Introduction to Python for the oil and gas industry
- Python tools and package options
- Data types and basic Python functions
- Introduction to datacasting
- Introduction to string and string manipulation

MODULE 2:

- Data container (Lists and Dictionaries)
- Operation on containers.
- Introduction to loops
- Introduction to Branching (IF Statements)
- Mixing Lops and Branching
- Introduction to User Functions



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PYTHON MODULE

This module will cover all Python basics to get started and feel confident in writing code and maintaining future code bases.



MODULE 3:

- Working with Arrays and Applying mathematics to them
- Working with tabulated data
- Basic Pandas functions for data manipulation
- Introduction to visualization.
- EDA - Exploratory Data Analysis



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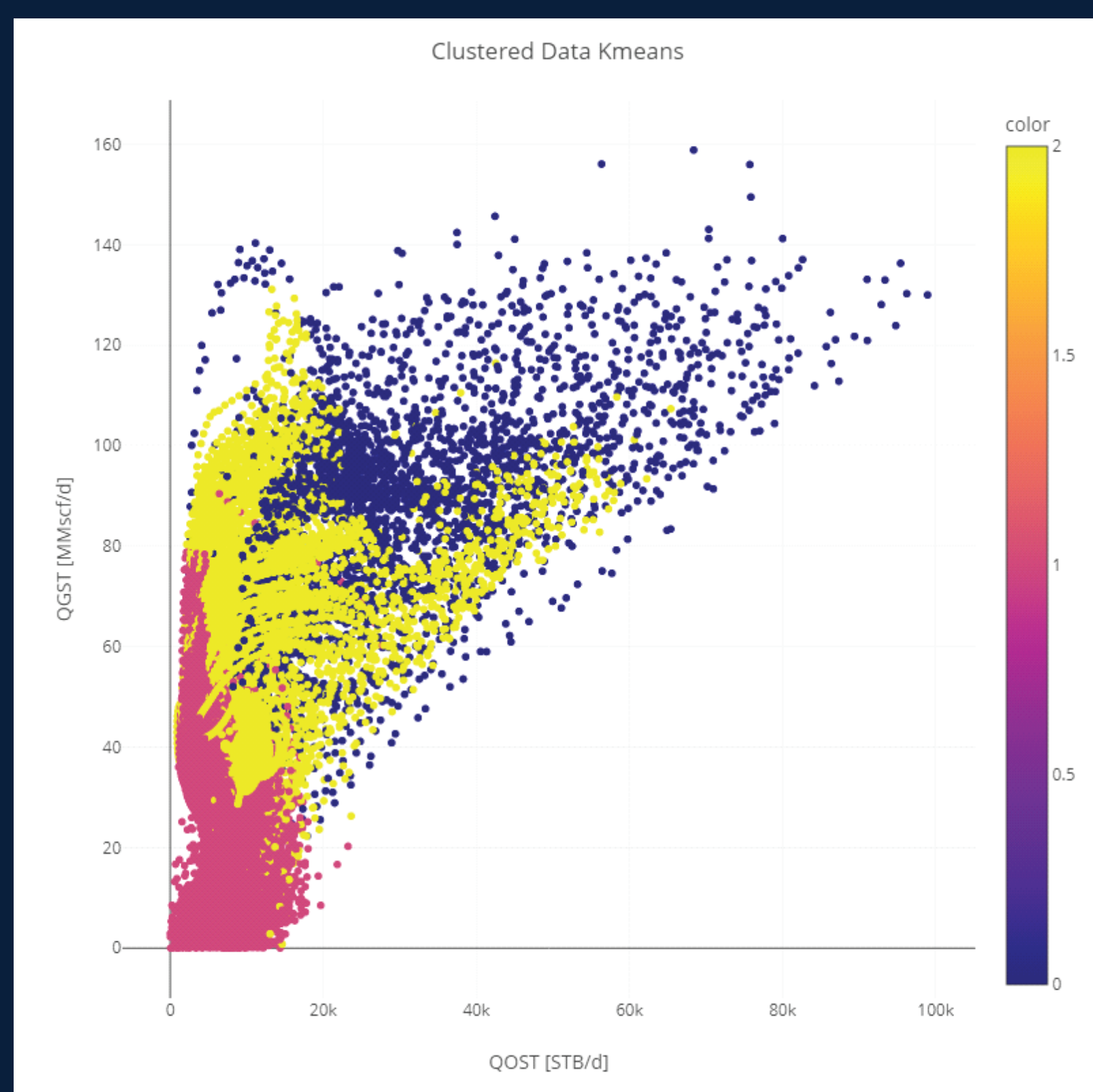
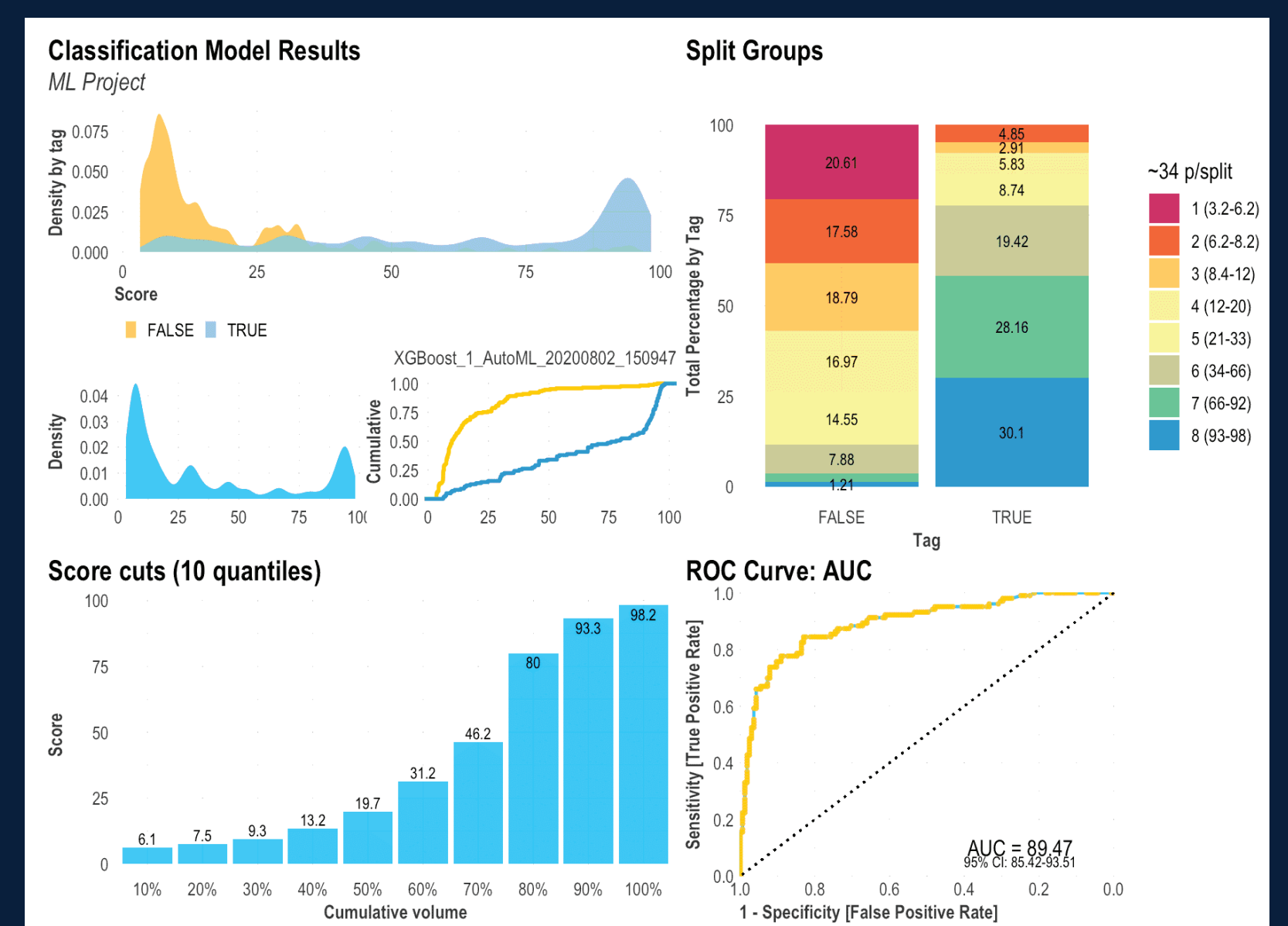


MACHINE LEARNING MODULE

This module will introduce the trainee to machine learning concepts and various uses and implementations, in this module user will learn how to utilize Python as a tool for various ML-related projects

MODULE 4:

- Processing Tabulated Data.
- Data Filter, cleansing, and Outlier handing
- Imputations and their methodologies
- Feature Engineering
- Plotting for ML (Distribution, Pair plots, box, LMPlots, Heat)
- Machine Learning Workflows (Putting Everything in place)



MODULE 5:

- Introduction to machine learning Types
- Introduction to Unsupervised Learning
- K-Mean Clustering using Sklearn
- Clustering Oil wells based on petrophysical properties
- Clustering Gas Wells Based on Liquid Loading Index
- Hierarchical clustering and Dendrogram.
- Hierarchical Cluster Based Water Cut in Oil Wells



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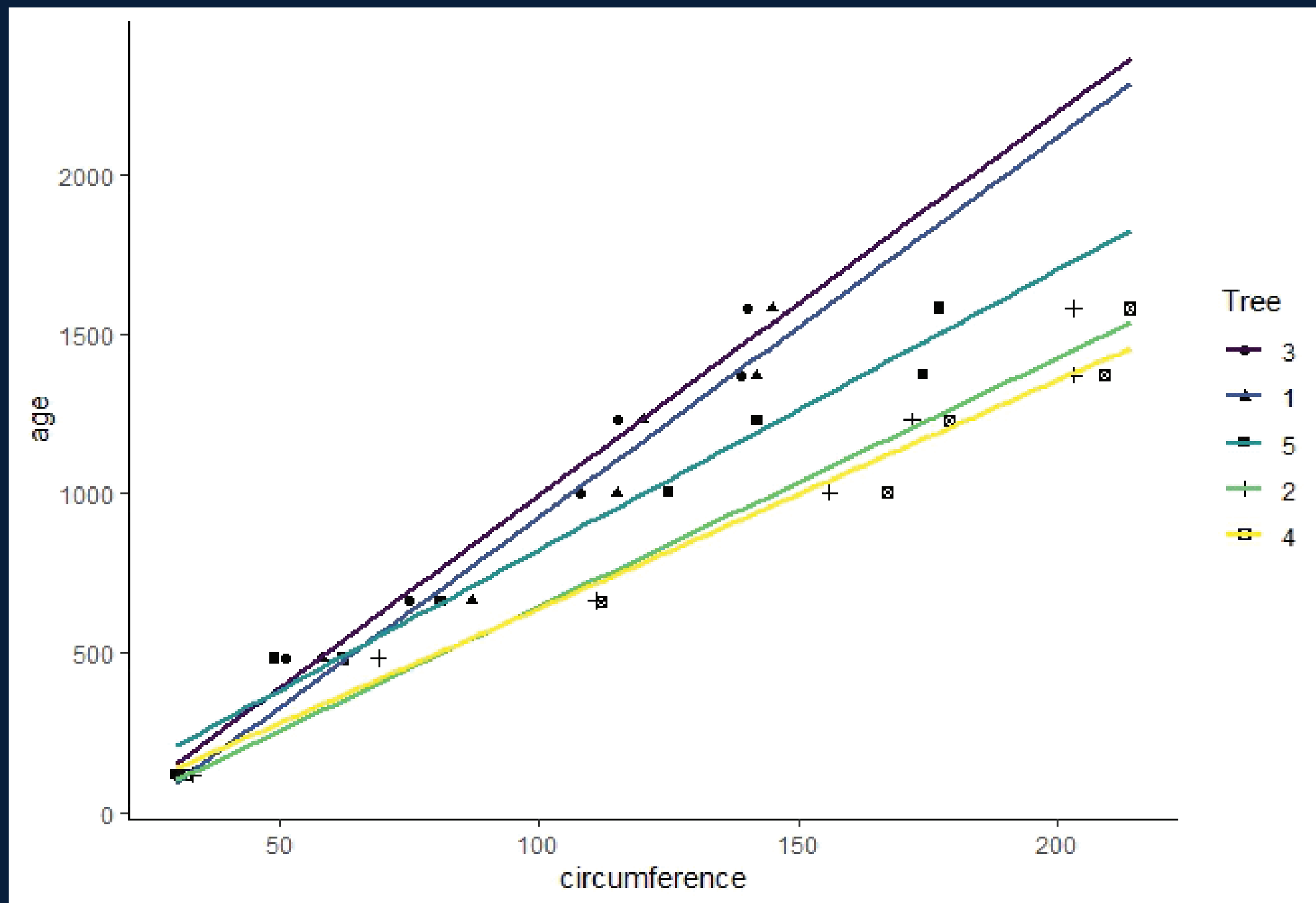
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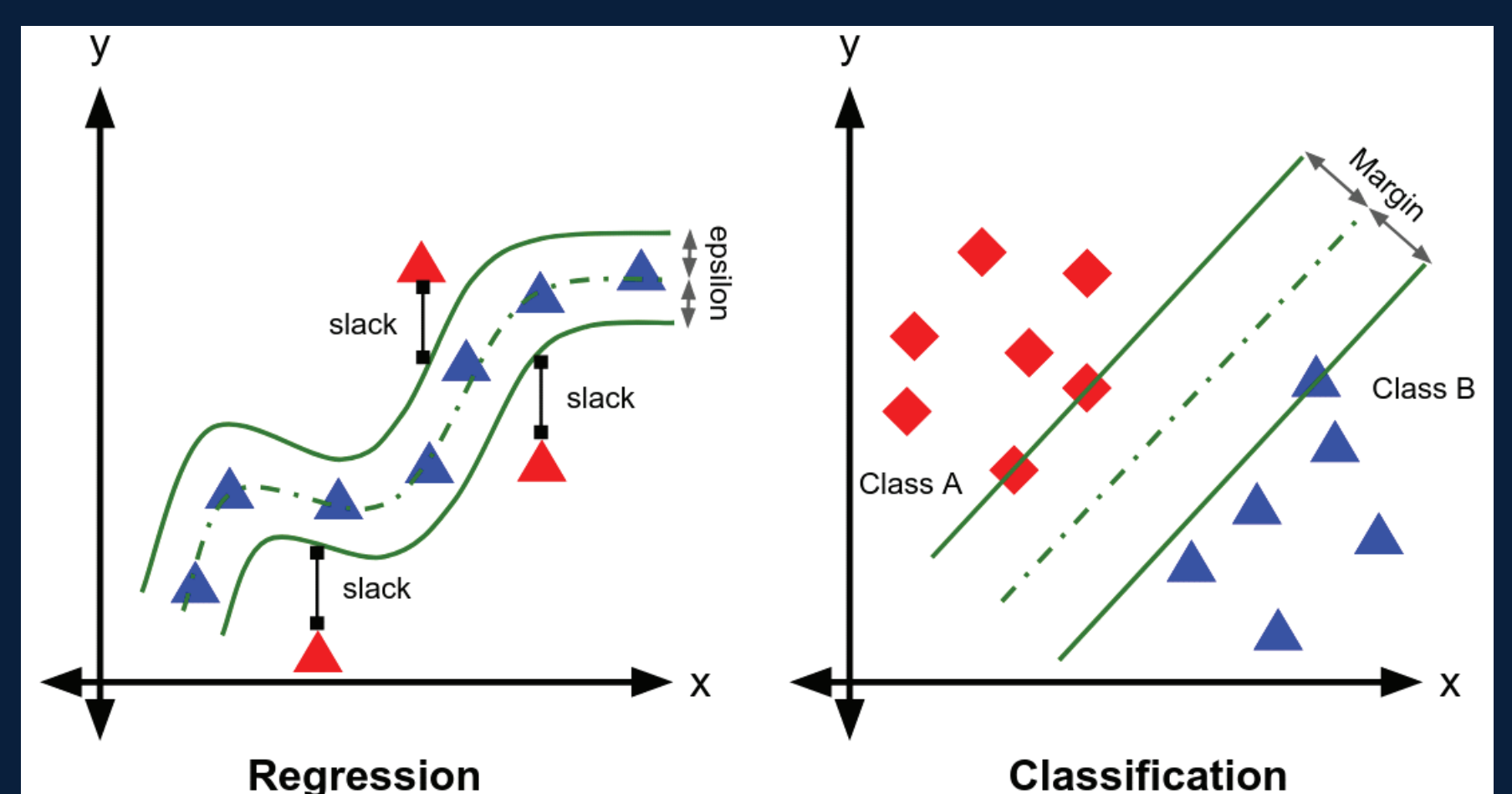


MODULE 6:

- Introduction to Regression
- Basics of Regressions using NumPy Poly1d.
- Introduction to Linear Regression in SKlearn
- Multivariate Regression in ML
- Regression Applied to Oil and Gas Production Prediction
- Evaluation of Regression Models
- Regression Sensitivity Analysis using OVAT
- Predicting Drilling Performance Using Multilinear Regression

MODULE 7:

- Introduction to classification problems
- Classifications as applied to Oil and Gas Industry Problems.
- Introduction to Logistic Regression.
- Introduction to KNN.
- Classifying Flow Stability in Oil Wells.
- Comparing Decline Curve Analysis to ML Regression
- Introduction to Support Vectors (SVM)
- Predicting Geomechanical Properties using SVM
- Shale Formation Simulation Classification



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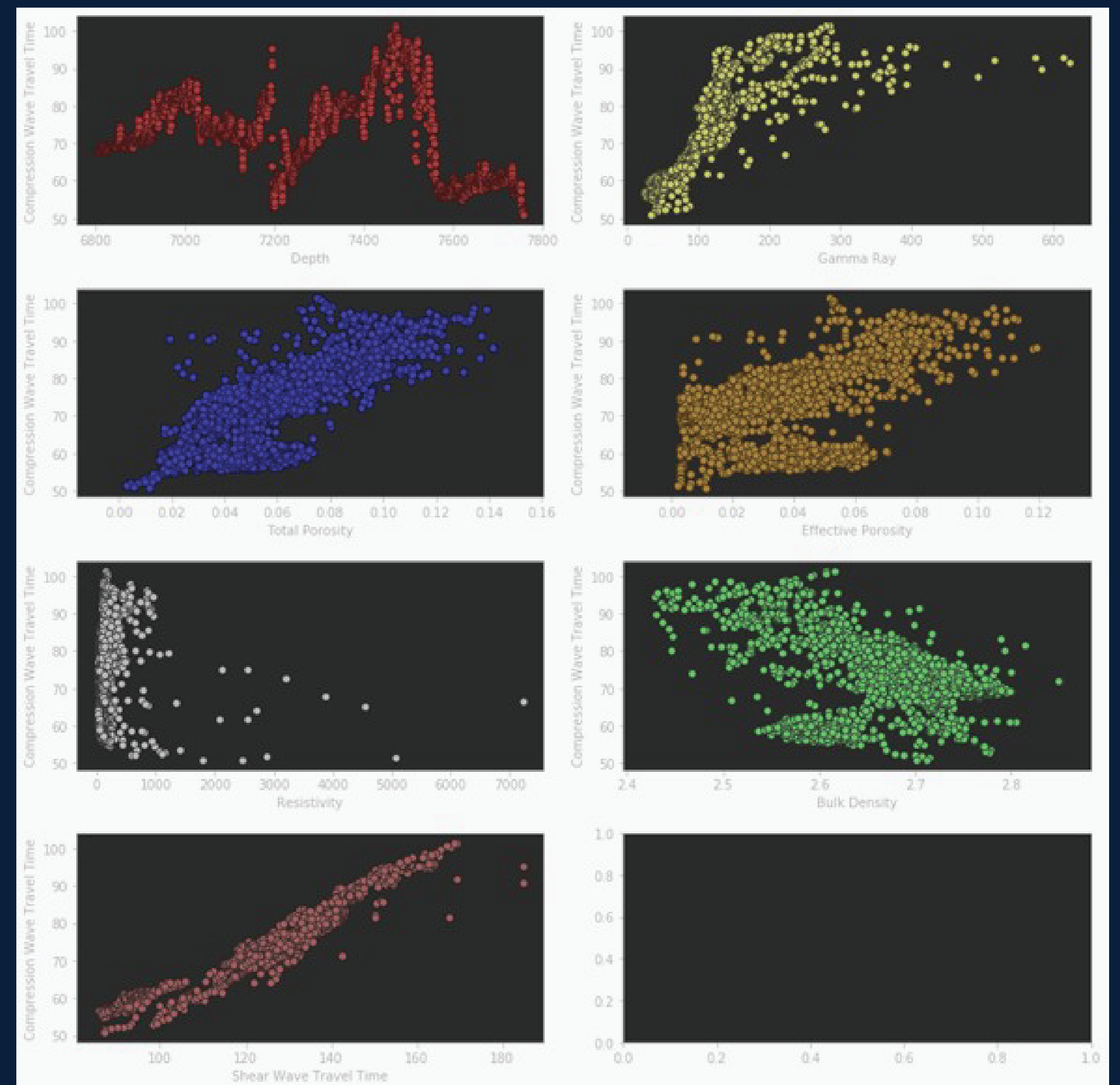
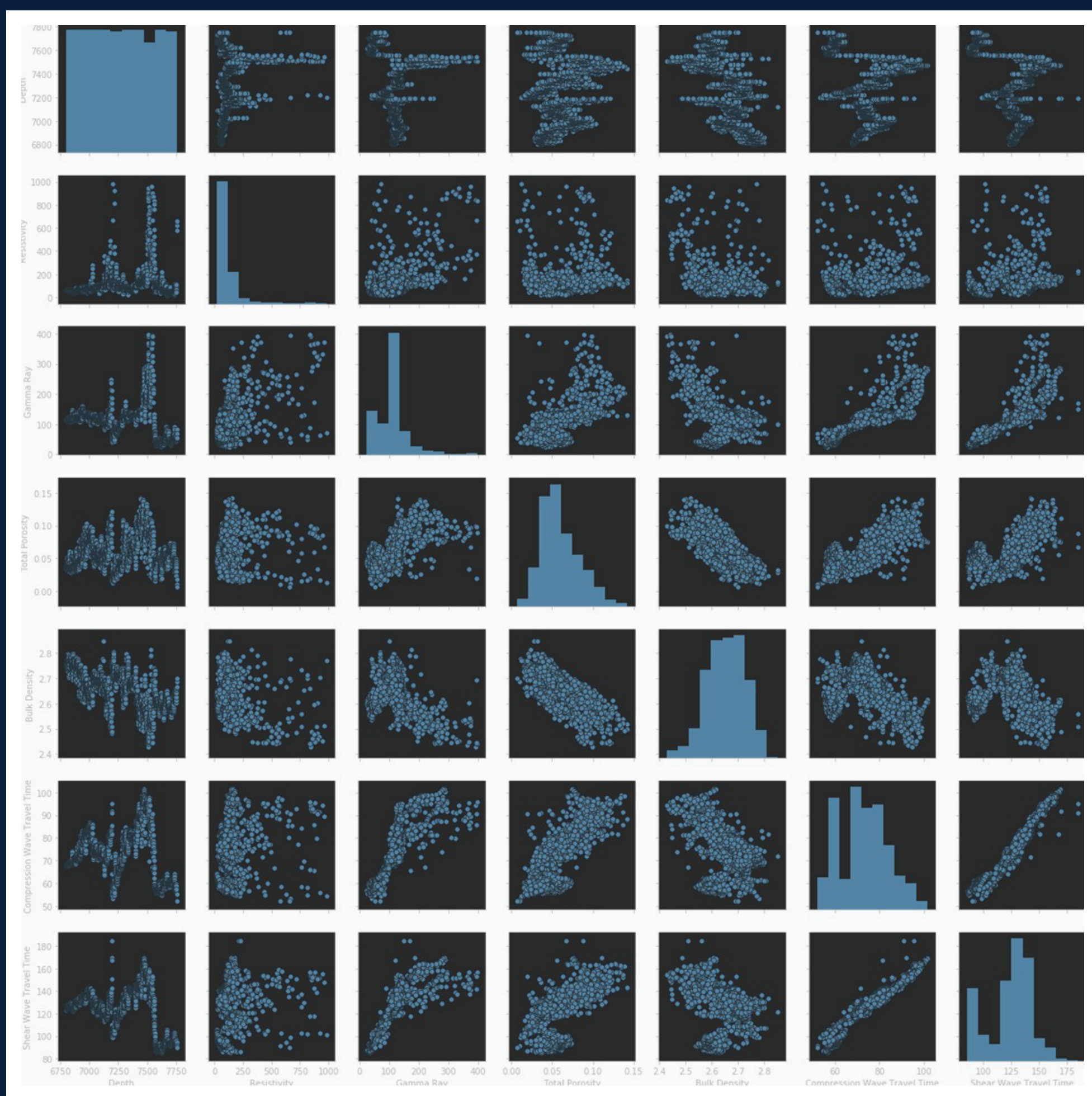
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MODULE 8:

- Introduction to Neural Networks
- Introduction to deep learning
- Introduction to fuzzy logic
- Applications of NN in the oil and gas industry
- Model Optimization
- Dashboarding and ML Implementation
- Notes on OOP approach and Production Grade Code.



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