

6 Weeks long VILT Hands on Experience Training on Oil and Gas Data Management & Dashboarding Through SQL, NoSQL & Python



MR. NASHAT JUMAAH

11+ YEARS EXPERIENCE IN
OIL AND GAS INDUSTRY



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ABOUT THIS TRAINING COURSE:

This course will work you through the life cycle of data and databases in general and how they play vital part in oil and Gas industry.

Multiple libraries are used in the training in Anaconda Python Package (Pandas,Plotly,Matplotlib,pyodbc, SQLAlchemy)

This Training covers wide range of oil and gas industry challenges via python and SQL and NoSQL Integration.

Oil and Gas Field projects through data management and utilization of streamlit dashboards.

All examples will be handed to the trainees fully coded with companion files.

Main Covered Topics (Reservoir Engineering, Production Engineering, Drilling and Workover, Operations, Fluid Properties)

By end of the course participants will have an excellent knowledge of python, databases, python-sql integration, data management and many more skills.



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SKILLS AND BENEFITS YOU WILL ACQUIRE.

Master the basics of CRUD Operation

Learn data management concepts and RDMS

Understand Modern Database concepts (Object Relational and Non-Relational Databases.)

Learn how to visualize data in python using SQL data sources.

Create Clean and organized code.

Use python libraries to code for various problems encountered in the industry.

Create monitoring KPIs dashboards.

Create data management dashboards

Integrate pandas and SQL for better control over data tables.

Learn the concept of Modern Object Relational Databases.

Learn the Document based NoSQL databases that is taking Oil & Gas industry by storm

WHAT YOU GET:

Video Recordings on daily basis.

Study materials ppt, pdf

Sample code files.

Large selection of companion data for the codes to work

All the examples solve and commented on.



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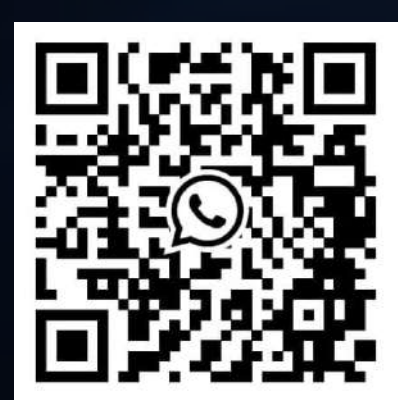
PRE REQUISITE:

- Elementary knowledge in python is an asset
- Basic knowledge of oil and gas industry is beneficial.
- A working laptop.
- The will to learn and self-develop



WHO CAN ATTEND:

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



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MODULE 1:

- Introduction Anaconda Python Package
- Introduction to database & RDMS
- Introduction to MS-SQL server environment
- Life cycle of oil and gas data.
- Recap of Python Programming Language
- Data Containers recap
- Pandas Recap



MODULE 2:

- Introduction to pyodbc connector
- Introduction to elements of database design
- Decision making and code flow control
- Functions and Classes.
- Introduction to drivers and SQL connectivity.
- Reading data from SQL databases.
- SQL Data types.
- Design validation and null value handling.

SELECT * FROM XY

| ID | NAME | ... |
|----|------|-----|
| 1 | ... | ... |
| 2 | ... | ... |
| 3 | ... | ... |
| 4 | ... | ... |
| 5 | ... | ... |
| 6 | ... | ... |
| 7 | ... | ... |
| 8 | ... | ... |
| 9 | ... | ... |
| 10 | ... | ... |
| 11 | ... | ... |
| 12 | ... | ... |
| 13 | ... | ... |
| 14 | ... | ... |
| 15 | ... | ... |
| 16 | ... | ... |
| 17 | ... | ... |
| 18 | ... | ... |
| 19 | ... | ... |
| 20 | ... | ... |
| 21 | ... | ... |
| 22 | ... | ... |
| 23 | ... | ... |
| 24 | ... | ... |
| 25 | ... | ... |
| 26 | ... | ... |
| 27 | ... | ... |
| 28 | ... | ... |
| 29 | ... | ... |
| 30 | ... | ... |
| 31 | ... | ... |
| 32 | ... | ... |
| 33 | ... | ... |
| 34 | ... | ... |
| 35 | ... | ... |
| 36 | ... | ... |
| 37 | ... | ... |
| 38 | ... | ... |
| 39 | ... | ... |
| 40 | ... | ... |
| 41 | ... | ... |
| 42 | ... | ... |
| 43 | ... | ... |
| 44 | ... | ... |
| 45 | ... | ... |
| 46 | ... | ... |
| 47 | ... | ... |
| 48 | ... | ... |
| 49 | ... | ... |
| 50 | ... | ... |



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MODULE 3:

- Conditions in SQL queries
- Python data filtering vs. SQL data filtering
- Introduction to base map creation for oil fields using Python and SQL
- Introduction to SQL operators and other conditioning statements
- Adding data into SQL databases.
- Single data row insertion.
- Multiple data row insertion
- Excel-Python-SQL integration for bulk data loading.
- Introduction to elements of Database design.
- Displaying data in interactive dashboards

| Available Prosper Files | | | | |
|----------------------------------|-----------|--|--|--|
| <input type="radio"/> | PW-11.OUT | | | |
| <input type="radio"/> | PW-12.OUT | | | |
| <input type="radio"/> | R-015.OUT | | | |
| <input checked="" type="radio"/> | R-150.OUT | | | |
| <input type="radio"/> | R-230.OUT | | | |
| <input type="radio"/> | R-450.OUT | | | |
| <input type="radio"/> | R-890.OUT | | | |
| <input type="radio"/> | R-900.OUT | | | |

| Available GAP Networks | | | | |
|----------------------------------|-----------------------|--|--|--|
| <input checked="" type="radio"/> | BP_EFFECT | | | |
| <input type="radio"/> | DGS1_1 | | | |
| <input type="radio"/> | Oil_field1 | | | |
| <input type="radio"/> | Underdeveloped_region | | | |

| Well1 | | | | |
|----------|-------------|-----|-----------|--|
| Pressure | Temperature | GOR | Has Choke | |
| 350 | 91 | 700 | yes | |

| Well2 | | | | |
|----------|-------------|-----|-----------|--|
| Pressure | Temperature | GOR | Has Choke | |
| 450 | 88 | 680 | Yes | |

| Well3 | | | | |
|----------|-------------|-----|-----------|--|
| Pressure | Temperature | GOR | Has Choke | |
| 600 | 75 | 650 | yes | |

| Separator | | | | |
|-----------|-------------|-----|-----------|--|
| Pressure | Temperature | GOR | Has Choke | |
| 150 | 65 | 690 | No | |



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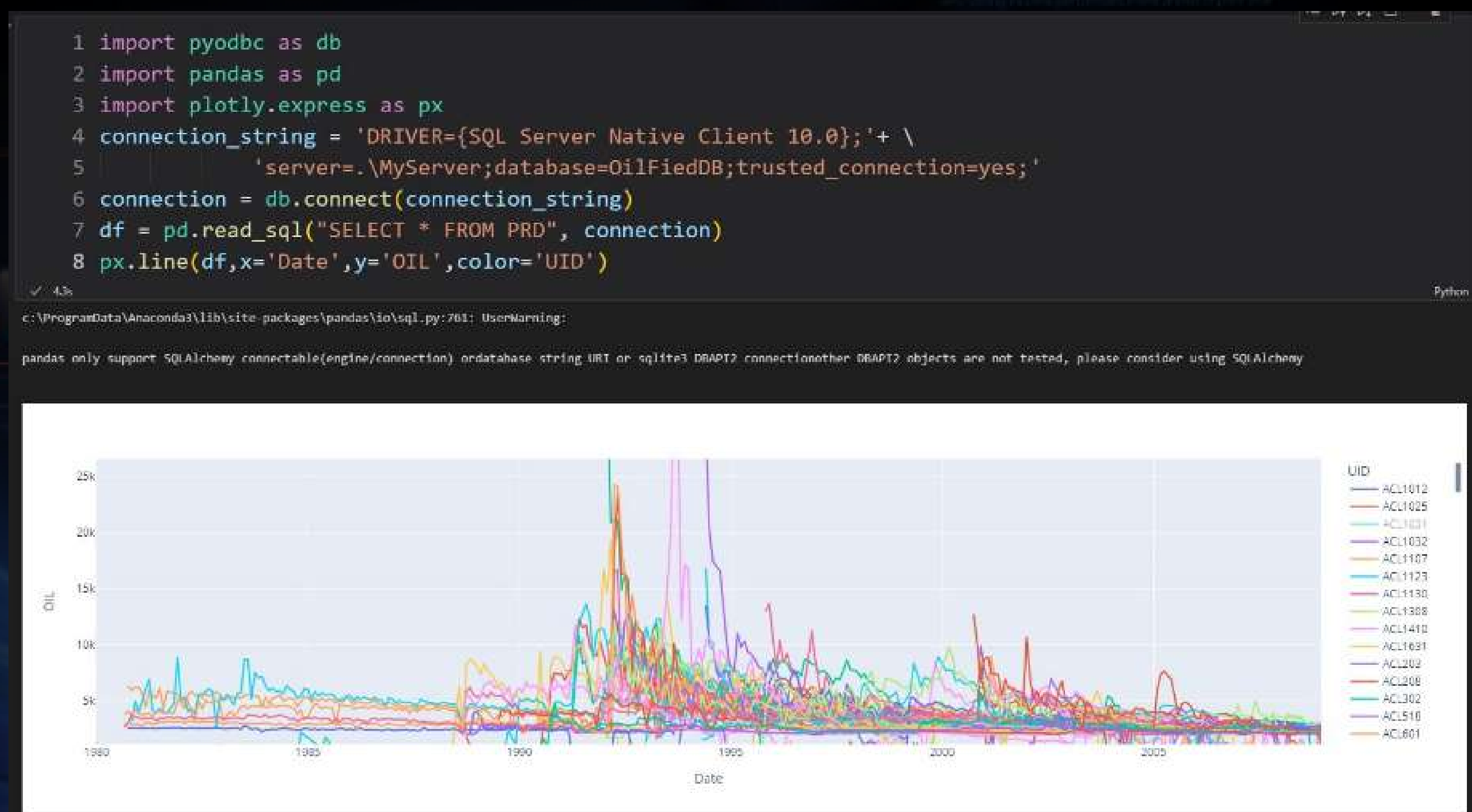


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MODULE 4:

- Deleting and updating records in SQL databases.
- Export data from SQL to various data types.
- Database dashboarding.
- Creating a data monitoring solution for oil and gas production using
- SQL and Python
- Introduction to data views (table views)
- Backing up data from SQL tables.
- Basic Housekeeping in MS-SQL Server



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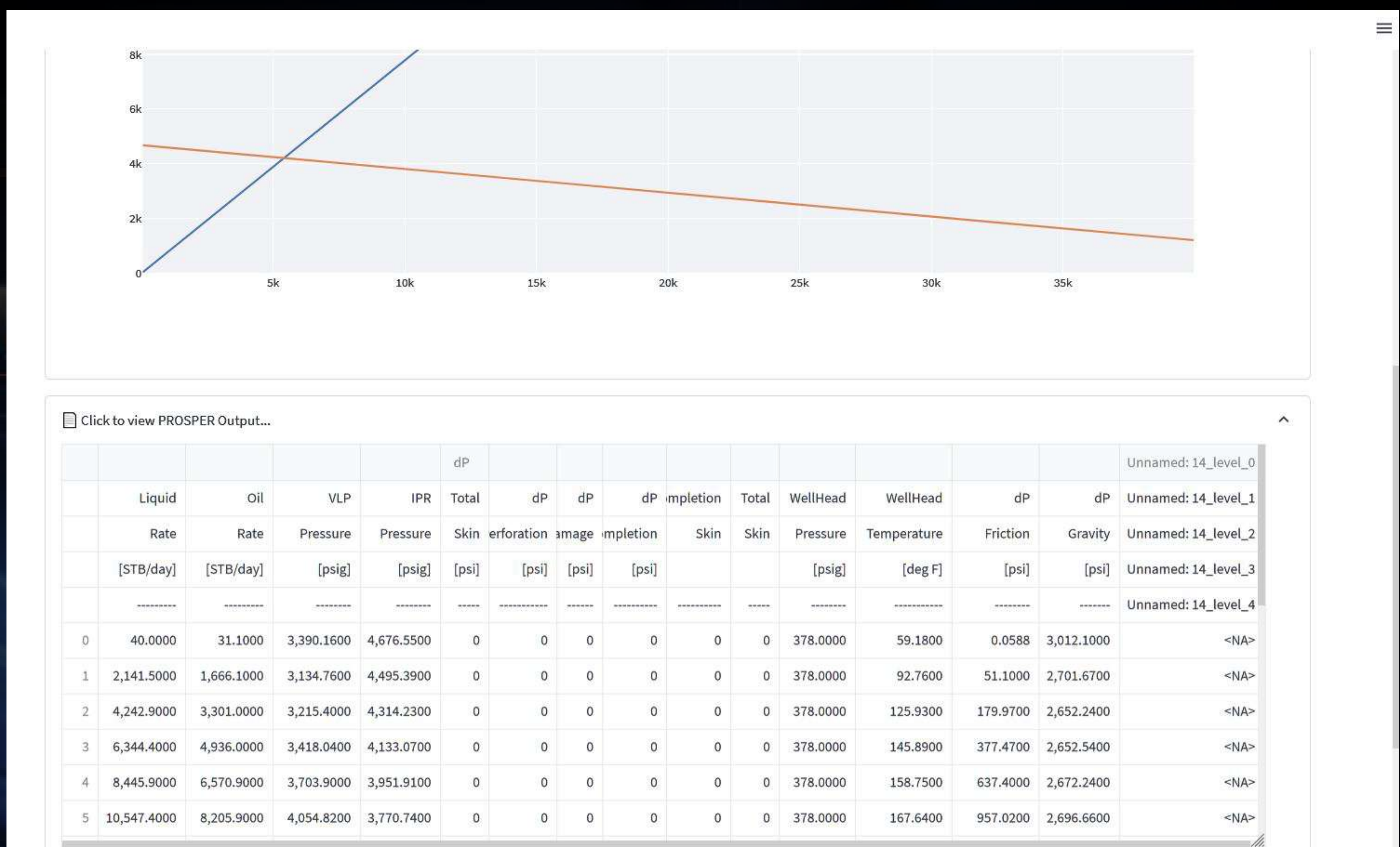


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MODULE 5:

- Basic SQL report generation
- Creating Database from Scratch
- Create multisource data application in python.
- Create Basic Production/Injection Event Recording System in SQL and Python
- Reservoir Management application using SQL and Python.
- Converting Operational data from SQL to Production Engineering and Monitoring Solutions.



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MODULE 6:

- Introduction to object relational databases.
- Introduction to PostgreSQL.
- Basic Operations and Custom datatypes in PostgreSQL
- Introduction to Document databases.
- Introduction to MongoDB and NoSQL technology.
- Introduction to JSON and BSON files and Structures.



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