**Edureka: Python Projects**

**Mini Project 1: Basic Student Performance Analysis**

**Objective:** Develop a Python program to analyse basic student performance metrics using fundamental Python concepts.

**Requirements:**

* **Python Installation:** Set up the development environment using Jupiter Notebook.
* **Python Operators:** Perform basic arithmetic operations to calculate grades and averages.
* **String Operations:** Manipulate and format student names and grade categories.
* **Conditional Statements:** Implement logic to classify students as Pass or Fail based on their grades.
* **Loops:** Use loops to iterate through student data for various calculations.
* **Functions:** Create user-defined functions for calculating averages and determining the highest and lowest grades.
* **Break and Continue Statements:** Implement logic to handle specific conditions, such as skipping invalid entries or stopping the process if a certain criterion is met.

**Mini Project 2: Advanced Sales Data Analysis**

**Objective:** Build a Python program to perform advanced sales data analysis using more complex data structures and libraries.

**Requirements:**

* **List Operations:** Store and manage sales data in lists, perform operations like appending, removing, and sorting.
* **Tuples and Sets:** Use tuples to store immutable data and sets for operations like union, intersection, and difference.
* **Dictionaries:** Organize sales data in dictionaries, using key-value pairs for efficient data retrieval.
* **NumPy Operations:** Perform numerical operations on large datasets using NumPy, such as calculating totals and averages.
* **Pandas Operations:** Load, manipulate, and analyse sales data using Pandas Data Frame.
* **Data Visualization:** Use Seaborn and Plotly to create visual representations of sales trends, such as bar charts, line graphs, and heatmaps.
* **SQL Commands:** (Optional) Introduce basic SQL commands to query and manipulate data if stored in a database, or use Pandas to simulate SQL-like operations.

**Resources:**

* **Python Documentation:** [Python Official Documentation](https://docs.python.org/3/)
* **NumPy Documentation:** NumPy User Guide
* **Pandas Documentation:** Pandas Documentation
* **Data Visualization:** Seaborn Documentation, Plotly Documentation

**Edureka: Data Science Minor Project**

**Minor Project: Sales Data Dashboard**

**Objective:** Create an interactive dashboard to visualize and analyze sales data over time.

**Requirements:**

* **Python Basics:** Prepare and clean data using Python.
* **Python Libraries:** Use Pandas for data processing and NumPy for numerical analysis.
* **Data Visualization:** Use Seaborn and Plotly to create interactive charts such as line charts, bubble charts, and KPI charts.
* **Tableau:** Design an interactive dashboard in Tableau, incorporating features like line charts, filters, and custom actions.
* **SQL:** Write SQL queries to extract and summarize sales data.
* **Statistical Analysis:** Perform basic statistical analysis to identify key sales metrics and trends.

**Resources**

* **Python Libraries:** NumPy Documentation, Pandas Documentation
* **Data Visualization:** Seaborn Documentation, Plotly Documentation
* **SQL:** W3Schools SQL Tutorial
* **Tableau:** Tableau Documentation