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**Assignment -01**

**Assignment 1: Data Exploration using Python**

**Title:**

Basic Data Exploration Operations using Pandas and NumPy

**Aim:**

To perform operations such as loading, exploring, indexing, and converting data types using Python on a dataset.

**Course Outcome:**

**CO2 L1** – Understand the basics of data analysis using Python.

CODE – From Visual Studio Code.

**Sample Output (Mall\_Customers.csv)**

| **Operation** | **Output Example** |
| --- | --- |
| Shape of Data | (200, 5) |
| Missing Values | 0 in all columns |
| Data Types | Gender: object, Age: int64, etc. |
| Count of Zeros | May vary by dataset |
| Indexing | Displays first 5 rows |
| Sorting | Ordered by Income |
| Description | Count, Mean, Std, Min, Max, etc. |
| Unique values | Gender: ['Male', 'Female'] |
| Format Conversions | Gender → category, ID → string |

**Conclusion:**

* The dataset was successfully read and basic statistics were computed.
* Missing values and zero values were identified.
* The structure and content of the data were explored.
* Data types were changed for analysis-friendly formats.