

## Task 1: Data Cleaning and Preprocessing

**Objective:** Clean and prepare a raw dataset (with nulls, duplicates, inconsistent formats).

**Tools:** Excel / Python (Pandas)

**Deliverables:** Cleaned dataset + short summary of changes

### Hints / Mini Guide:

Identify and handle missing values using `.isnull()` in Python or filters in Excel.

Remove duplicate rows using `.drop_duplicates()` or Excel's "Remove Duplicates".

Standardize text values like gender, country names, etc.

Convert date formats to a consistent type (e.g., dd-mm-yyyy).

Rename column headers to be clean and uniform (e.g., lowercase, no spaces).

Check and fix data types (e.g., age should be int, date as datetime).

### Dataset names from Kaggle suitable for Task 1:

Customer Personality Analysis

Medical Appointment No Shows

Mall Customer Segmentation Data

Netflix Movies and TV Shows

Sales Data

### By completing this task, you will:

Gain hands-on experience in identifying and fixing common data issues like missing values, duplicates, and inconsistent formatting.

Learn to use Excel functions or Pandas in Python for real-world data cleaning.

Improve your understanding of data pre-processing, which is a critical step before data analysis or visualization.

Build confidence in handling raw datasets independently.

- Create a clean, structured dataset that is ready for analysis or modelling.

### Interview Questions Related To Above Task:

- 1.What are missing values and how do you handle them?
- 2.How do you treat duplicate records?
- 3.Difference between `dropna()` and `fillna()` in Pandas?
- 4.What is outlier treatment and why is it important?
- 5.Explain the process of standardizing data.
- 6.How do you handle inconsistent data formats (e.g., date/time)?
- 7.What are common data cleaning challenges?
- 8.How can you check data quality?

## Task Submission Guidelines

- Time Window:

10 You:00 can PM complete the task anytime between 10:00 AM to 10:00 PM on the given day.  
Submission link closes at

- Self-Research Allowed:

• You are free to explore, Google, or refer to tutorials to understand concepts and complete the task effectively. Try to resolve all errors by yourself. This helps you learn problem-solving and ensures you don't face the same issues in future tasks.

- No Paid Tools:

If the task involves any paid software/tools, do not purchase anything. Just learn the process or find free alternatives.

- GitHub Submission:

Create a new GitHub repository for each task.

Add everything you used for the task — code, datasets, screenshots (if any), and a short README.md explaining what you did.

