**DATA SCIENCE MINOR PROJECT REPORT**

**INTRODUCTION TO DATA MANAGEMENT**

**PROJECT REPORT**

(Project Semester January-April 2025)

# (Excel Project: Amazon Retail sales Analysis)


Submitted by:

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Programme and Section B.tech(cse), K23PM

Course Code: INT 217

Under the Guidance of

**Maneet Kaur (UID:15709)**

**Discipline of CSE/IT**

**Lovely School of Computer Science and Engineering**

**Lovely Professional University, Phagwara**

## CERTIFICATE

This is to certify that **Raunaque Reza**, bearing Registration no. **12325832** has completed INT 217 project titled, **"Excel Project: Amazon Retail sales Analysis"** under my guidance and supervision. To the best of my knowledge, the present work is the result of his/her original development, effort and study.

**Maneet kaur**
**Proffesor**
**School of Computer Science and Engineering**
Lovely Professional University
Phagwara, Punjab.

Date: 10/04/2025

## DECLARATION

I, **Raunaque Reza**, student of B.tech second year, under CSE/IT Discipline at, Lovely Professional University, Punjab, hereby declare that all the information furnished in this project report is based on my own intensive work and is genuine.

Date:10/04/2024

**RegistrationNo.:12325832**

**Name**:**Raunaque Reza**

# 📘 Excel Data Analysis Project Report

## 1. Introduction

• Crime data is a vital indicator of a nation's public safety and social stability.

- • Analyzing crime patterns helps in improving law enforcement strategies and creating awareness among citizens.

• This research presents an analytical approach using **Microsoft Excel** to evaluate and visualize crime rate data.

• The study utilizes an interactive Excel dashboard, showcasing **key performance indicators** such as:

- Total crime
- Weapon used
- Crime committed by age
- City/State-wise Crime Comparison
- Crime Trend Over the Years
- State maximum crime rate

## 2. Source of Dataset

The dataset was provided has in provided in excel sheet. It contains structured data across 8 sheets:

• The dataset used for this analysis is a **Crime Rate dataset**, commonly used for academic and analytical training purposes.

• It contains crime data including , weapon used , customer ratings, crime categories, crime description, and victim age.

• The data structure is designed to analyze about crime , and which type of age person done and dashboard development.

• Key attributes in the dataset include:

- **Year**
- **State/City**
- **Crime Category**
- **Gender-Specific**
- **Weapon used**
- **Crime domain**

## 3. Dataset Preprocessing

1. **Data Cleaning**
    - Removed duplicate entries to ensure each transaction is counted only once.
    - Handled missing values, especially in fields like age, *weapon*, and *city* by either imputing or excluding them.
    - Standardized inconsistent entries (e.g. cities).
2. **Date Formatting**
    - Converted raw date entries into a recognizable **date format** to enable filtering and time-based analysis (monthly).
    - Extracted components like **month and year** to build slicers for temporal trends.
3. **Data Transformation**
    - Created calculated columns for:
        - **Total crime** in city
        - **Average Rating** per product line or time period.
    - Used Excel formulas or Power Query to derive new metrics needed for KPIs.
4. **Filtering & Structuring**
    - Segmented data based on user-defined filters
    - Sorted product lines and branches based on **performance indicators** like city and gender
5. **Data Aggregation**
    - Aggregated transactional data into summarized values for KPIs:
        - Year
        - State
        - Crime
        - Weapon used
6. **Pivot Table Preparation**
    - Structured the data to support dynamic PivotTables for interactive charts and graphs.
    - Ensured relational integrity if multiple tables (e.g.,weapon,crime description) were used.
7. **Error Checking**
    - Validated calculations for consistency
    - Used Excel tools like **Data Validation**, **IFERROR**, and **ISBLANK** to catch anomalies.

## 4. Analysis on Dataset (for each objective)

Objective 1: Analyze Overall crime rate

General Description:
**Understand the overall performance of crime rate in which city and which city commit highest rate of crime.**

**Visualization:**

Total Reported Crimes: 4,376

**Year with Highest Crimes:** 2019

**State with Maximum Cases:** Uttar Pradesh

**Top Crime Type:** Theft

(KPI cards at the top of the dashboard with star rating indicators)

**Objective used:**
Analyze and Visualize Crime Rate Data in India.
Identify and rank the top 10 cities by crime count.

## 5. Conclusion

- This Excel-based crime data dashboard effectively summarizes key crime statistics across Indian states, offering a clear and interactive view of national and regional crime patterns. Using tools like Pivot Tables, slicers, and charts, the project highlights important insights such as the most reported crime types, high-crime regions, and year-wise trends.

- **Top-Reported Crime Categories theft**
- **High-Crime States is up**
- Peak crime years is 2019 to 2021.

The project demonstrates how Excel tools like **pivot tables, slicers, and charts** can be combined to build a dynamic, insightful crime rate dashboard that supports better analyze.

## 6. Future Scope

This project can be further enhanced by integrating interactive maps to visualize crime density across regions.
Time-based analysis can be extended to observe long-term trends and seasonal crime patterns.
Adding demographic data like gender or age can enable deeper victim profiling and crime segmentation.
Linking external data such as population or poverty rates can help identify root causes of crime.

Predictive models using Excel or Python could forecast future crime trends.
Advanced dashboards with macros and slicers can improve interactivity and usability.
Integration with tools like Power BI can offer more dynamic and scalable visualization options.

## 7. References


- data set taken by Kaggle

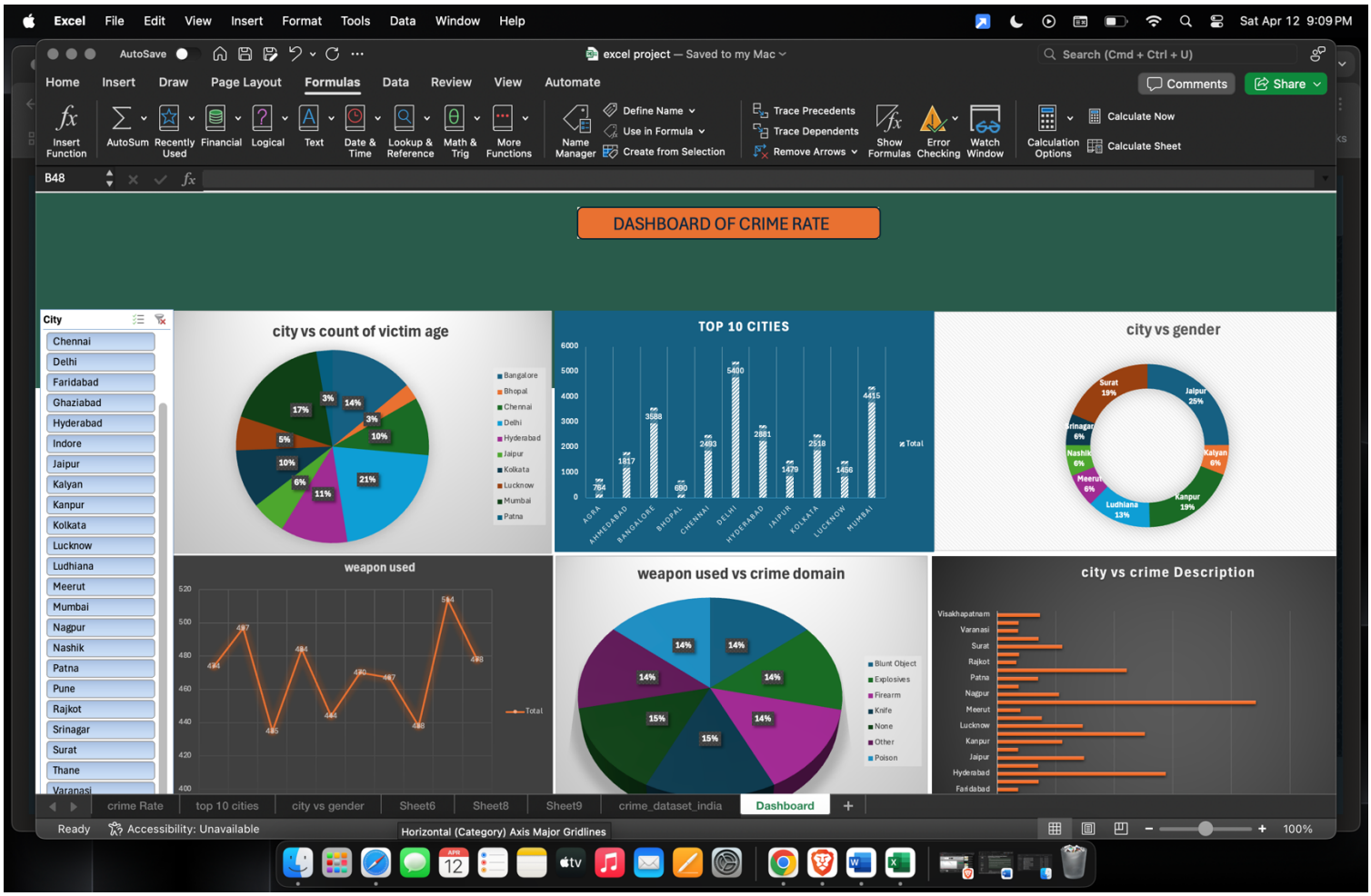
Link: https: //www.kaggle.com/datasets/sudhanvahg/indian-crimes-dataset

- Microsoft **Excel Sample Data**
    - Often used in tutorials and templates for dashboard building.

- Mock **Data Generated Manually**
    - Created for academic or training purposes.
    - Simulated crime rate.

Github link: https: //github.com/Raunaque786/excel-crime-rate-project

Linkdin link: https://www.linkedin.com/posts/raunaque928_visualized-crime-trends-with-a-dynamic-excel-activity-7316846033748049920-BgD8?utm_source=share&utm_medium=member_desktop&rcm=ACoAAEVryhYBoeZWRY3J7eon0hb9yUN-h9V6IiU


DASHBOARD OF CRIME RATE
city vs count of victim age
TOP 10 CITIES
city vs gender
weapon used
weapon used vs crime domain
city vs crime Description
City
Chennai
Delhi
Faridabad
Ghaziabad
Hyderabad
Indore
Jaipur
Kalyan
Kanpur
Kolkata
Lucknow
Ludhiana
Meerut
Mumbai
Nagpur
Nashik
Patna
Pune
Rajkot
Srinagar
Surat
Thane
Varanasi
Bangalore
Bhopal
Chennai
Delhi
Hyderabad
Jaipur
Kolkata
Lucknow
Mumbai
Patna
Total
AGRA
AHMEDABAD
BANGALORE
BHOPAL
CHENNAI
DELHI
HYDERABAD
JAIPUR
KOLKATA
LUCKNOW
MUMBAI
Blunt Object
Explosives
Firearm
Knife
None
Other
Poison
Visakhapatnam
Varanasi
Surat
Rajkot
Patna
Nagpur
Meerut
Lucknow
Kanpur
Jaipur
Hyderabad
Faridabad
crime Rate
top 10 cities
city vs gender
Sheet6
Sheet8
Sheet9
crime_dataset_india
Dashboard
Ready
Accessibility: Unavailable
Horizontal (Category) Axis Major Gridlines
100%