

Social Media Performance Analysis

Project Overview

This project analyzes social media performance data across four platforms (Facebook, LinkedIn, Instagram, and X) over a 52-week period. The data is provided in separate Excel files for each platform, requiring consolidation and comprehensive analysis to derive strategic insights.

Data Structure & Sources

Data Files:

- **FACEBOOK.xlsx** - 52 weeks of Facebook performance data
- **X.xlsx** - 52 weeks of X (Twitter) performance data
- **LINKEDIn.xlsx** - 52 weeks of LinkedIn performance data
- **INSTAGRAM.xlsx** - 52 weeks of Instagram performance data

Common Schema Across All Files:

- **Social_Media:** Platform identifier
- **Week:** Week number (1-52)
- **Impressions:** Number of times content was displayed
- **Engagement Rate:** Percentage of audience interacting with content
- **Audience Growth Rate:** Rate of follower growth
- **Response Rate:** Percentage of audience responses to content
- **Post Reach:** Number of unique users who saw the content
- **Likes:** Number of likes received

1. Data Loading & Consolidation

1.1 Data Reading Approach

- Read each platform file individually
- Validate data consistency and structure across files

1.2 Data Merging vs Appending Decision

Choose **Merging or Appending** Then **Answer the Questions:**

- a) Should we merge or append individual platform datasets, and why?
- b) What is the total number of records in the final combined dataset?
- c) How many different social media platforms are included in the analysis?

2. Data Exploration

- Dataset structure and data types
- Statistical summary
- Verify all platforms have 52 weeks of data
- Identify any data quality issues

3. Analytical Questions

Q1: Which platform has the highest average engagement rate?

Q2: Which platform shows the most consistent performance?

Q3: How do all metrics compare across platforms?

4. Visualization Framework

Choose type of plot then answer the Questions:

Q1: Compare average engagement rates across platforms

Q2: Analyze relationship between content visibility and interaction

Q3: Track engagement patterns over time

Q4: Compare audience growth variability

Q5: Evaluate audience responsiveness

Submission:

- A written report explaining the analysis steps and findings (in English Not Arabic) [Printed in Discussions].
- A Python script file containing all codes and results.