REPORT ON

FINANCIAL ANALYTICS

DATA ANALYSIS

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Problem Statement

Without analyzing the competition, it is difficult for a business to survive. You are tasked to analyse the competition for the management to provide better results. This data set has information on the market capitalization of the top 500 companies in India.

Serial NumberNameName of CompanyMar Cap – CroreMarket Capitalization in CroresSales Qtr – CroreQuarterly Sale in crores. Find key metrics and factors and show the meaningful relationships between attributes.

Introduction

In today's highly competitive business environment, financial analytics plays a crucial role in helping organizations make informed decisions and stay ahead of the competition. Analysing the performance and financial standing of competitors is essential for businesses to identify market trends, opportunities, and risks. The purpose of this project is to analyse the financial data of the top 500 companies in India by examining key metrics such as market capitalization and quarterly sales.

The dataset provides information on essential financial indicators, including market cap in crores and quarterly sales, which serve as benchmarks for assessing the relative performance of companies. Through this analysis, we aim to uncover meaningful relationships between these attributes, such as how market capitalization correlates with sales performance, and identify patterns that can offer actionable insights for strategic decision-making.

Using data science tools and techniques, we will explore the dataset to derive key insights and develop data visualizations to better understand the relationships between financial metrics. The analysis will provide stakeholders with comprehensive reports on company performance, enabling them to assess competition, identify market leaders, and benchmark their strategies accordingly.

Code Demonstration

```
# Importing Libraries

import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns


# Loading the dataset

fa_data = pd.read_csv('Financial Analytics data.csv')

# Display the first five rows of the data

fa_data.head()

fa_data.shape


# Checking Missing Values

fa_data.isna().sum()


# Dropping rows with missing values

fa_data.dropna()


#New Shape of dataset

fa_data.shape

# Information of the data

fa_data.info()
```

```
# Description of the dataset
fa_data.describe()

# Mean Market Captialization
mean_mar_cap = fa_data['Mar Cap - Crore'].mean()
print(f"{mean_mar_cap:.2f}")

# Mean Quarterly Sales
mean_sales_qtr = fa_data['Sales Qtr - Crore'].mean()
print(f"{mean_sales_qtr:.2f}")

# Top Companies by Market Capitalization
top_market_cap_companies = fa_data.nlargest(10, 'Mar Cap - Crore')
top_market_cap_companies

# Correlation between Market Cap and Quarterly Sales
correlation_market_cap_sales = fa_data['Mar Cap - Crore'].corr(fa_data['Sales Qtr - Crore'])
print(f"{correlation_market_cap_sales:.2f}")
```

```
# Scatter Plot: Market Cap vs. Quarterly Sales
plt.figure(figsize=(8, 5))
sns.scatterplot(x='Mar Cap - Crore', y='Sales Qtr - Crore', data=fa_data, color='purple')
plt.title('Market Cap vs. Quarterly Sales')
plt.xlabel('Market Cap (Crore)')
plt.ylabel('Quarterly Sales (Crore)')
plt.show()

# Correlation Matrix Heatmap
num_fa_data = fa_data.select_dtypes(include=[float, int])
correlation_matrix = num_fa_data.corr()
plt.figure(figsize=(10, 8))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm', fmt='.2f')
plt.title('Correlation Matrix')
plt.show()
```

Analysis Approach

1. Data Loading and Overview

The analysis begins by loading the dataset from the 'Financial Analytics data.csv' file. The initial exploration provides an overview of the dataset, allowing us to understand its structure and content.

```
# Loading the dataset
fa_data = pd.read_csv('Financial Analytics data.csv')
```

[119]:

```
# Display the first five rows of the data
fa_data.head()
```

2. Handling Missing Values

To ensure the quality of the analysis, missing values are handled by dropping rows with any missing data. This step ensures that the subsequent analysis is conducted on a clean dataset.

```
# Checking Missing Values
fa_data.isna().sum()
```

```
# Dropping rows with missing values
fa_data.dropna()

#New Shape of dataset
fa_data.shape
```

3. Mean Metrics Calculation

Key metrics, such as the mean market capitalization and mean quarterly sales, are calculated to provide a central tendency measure for the dataset.

```
# Mean Market Captialization
mean_mar_cap = fa_data['Mar Cap - Crore'].mean()
print(f"{mean_mar_cap:.2f}")
```

```
# Mean Quarterly Sales
mean_sales_qtr = fa_data['Sales Qtr - Crore'].mean()
print(f"{mean_sales_qtr:.2f}")
```

4. Scatter Plot: Market Cap vs. Quarterly Sales

A scatter plot is created to visualize the relationship between market capitalization and quarterly sales. This plot helps identify trends and patterns in the data.

```
# Scatter Plot: Market Cap vs. Quarterly Sales

plt.figure(figsize=(8, 5))
sns.scatterplot(x='Mar Cap - Crore', y='Sales Qtr - Crore', data=fa_data, color='purple')
plt.title('Market Cap vs. Quarterly Sales')
plt.xlabel('Market Cap (Crore)')
plt.ylabel('Quarterly Sales (Crore)')
plt.show()
```

5. Correlation Matrix

A correlation matrix plot is generated to showcase the relationships between different attributes, particularly focusing on the correlation between market capitalization and quarterly sales.

```
# Correlation Matrix Heatmap

num_fa_data = fa_data.select_dtypes(include=[float, int])
correlation_matrix = num_fa_data.corr()

plt.figure(figsize=(10, 8))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm', fmt='.2f')
plt.title('Correlation Matrix')
plt.show()
```

6. Top Companies by Market Capitalization

The analysis includes the identification and display of the top N companies based on market capitalization. This information is valuable for understanding the market leaders.

```
# Top Companies by Market Capitalization
top_market_cap_companies = fa_data.nlargest(10, 'Mar Cap - Crore')
top_market_cap_companies
```

7. Correlation Analysis

The correlation between market capitalization and quarterly sales is quantified and presented, providing insights into the strength and direction of this relationship.

```
# Correlation between Market Cap and Quarterly Sales
correlation_market_cap_sales = fa_data['Mar Cap - Crore'].corr(fa_data['Sales Qtr - Crore'])
print(f"{correlation_market_cap_sales:.2f}")
```

Conclusion

This financial analytics project has provided valuable insights into the performance and competitiveness of the top 500 companies in India by analysing key metrics such as market capitalization and quarterly sales. Through a detailed examination of the dataset, we identified patterns, trends, and correlations that highlight the factors contributing to a company's market position and growth potential.

Our analysis demonstrates how market capitalization serves as a key indicator of a company's value and influence in the market, while quarterly sales provide insight into short-term operational performance. Meaningful relationships between these attributes, such as companies with higher sales often maintaining larger market capitalizations, help in identifying market leaders and underperformers.