

The background is a dark blue gradient with a subtle pattern of small white dots. On the left side, there are several overlapping circular elements. A large, semi-circular scale with tick marks and numbers (140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) is visible. Other circles include dashed lines, solid lines, and arrows indicating a clockwise direction.

FINANCIAL ANALYTICS

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Introduction

In this, I perform an in-depth analysis of the financial performance of the top 500 companies in India based on their market capitalization and quarterly sales. The goal is to uncover key metrics, identify significant trends, and establish meaningful relationships between the attributes.

Dataset Overview

The dataset consists of the following columns:

- S.No.:** Serial number of the entry.
- Name:** Name of the company.
- Mar Cap - Crore:** Market capitalization in crores.
- Sales Qtr - Crore:** Quarterly sales in crores.
- Unnamed :** Probably containing data of column 'Sales Qtr- Crore'

| | S.No. | Name | Mar Cap - Crore | Sales Qtr - Crore | Unnamed: 4 |
|---|-------|----------------|-----------------|-------------------|------------|
| 0 | 1 | Reliance Inds. | 583436.72 | 99810.00 | NaN |
| 1 | 2 | TCS | 563709.84 | 30904.00 | NaN |
| 2 | 3 | HDFC Bank | 482953.59 | 20581.27 | NaN |
| 3 | 4 | ITC | 320985.27 | 9772.02 | NaN |
| 4 | 5 | H D F C | 289497.37 | 16840.51 | NaN |

Data Cleaning and Preparation

To ensure accurate analysis, data cleaning steps were performed, including:

- Shifting column unnamed data to column Sales Qtr
- Removing unnecessary columns.
- Checking for missing values and handling them appropriately.
- Converting data types to ensure consistency.

Code:

```
# Shifting the data in the 5th column to the 4th column
data['Sales Qtr - Crore'] = data['Sales Qtr - Crore'].fillna(data['Unnamed: 4'])

# Dropping the 5th column as it is no longer needed
data = data.drop(columns=['Unnamed: 4'])
data.head()

# Checking for missing values
missing_values = data.isnull().sum()
missing_values

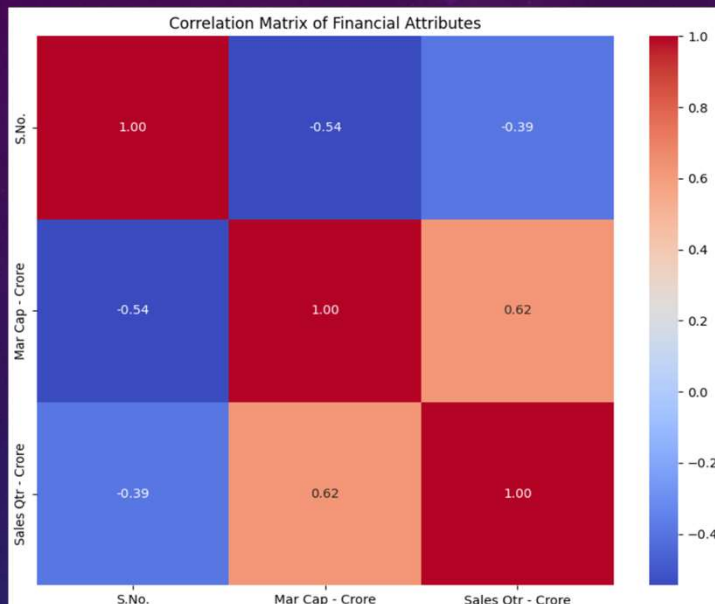
# Converting data types to numeric
data['Mar Cap - Crore'] = pd.to_numeric(data['Mar Cap - Crore'], errors='coerce')
data['Sales Qtr - Crore'] = pd.to_numeric(data['Sales Qtr - Crore'], errors='coerce')

# Removing rows with missing values
data_cleaned = data.dropna()
```


Exploratory Data Analysis

Performed various exploration for the dataset:

Correlation Matrix

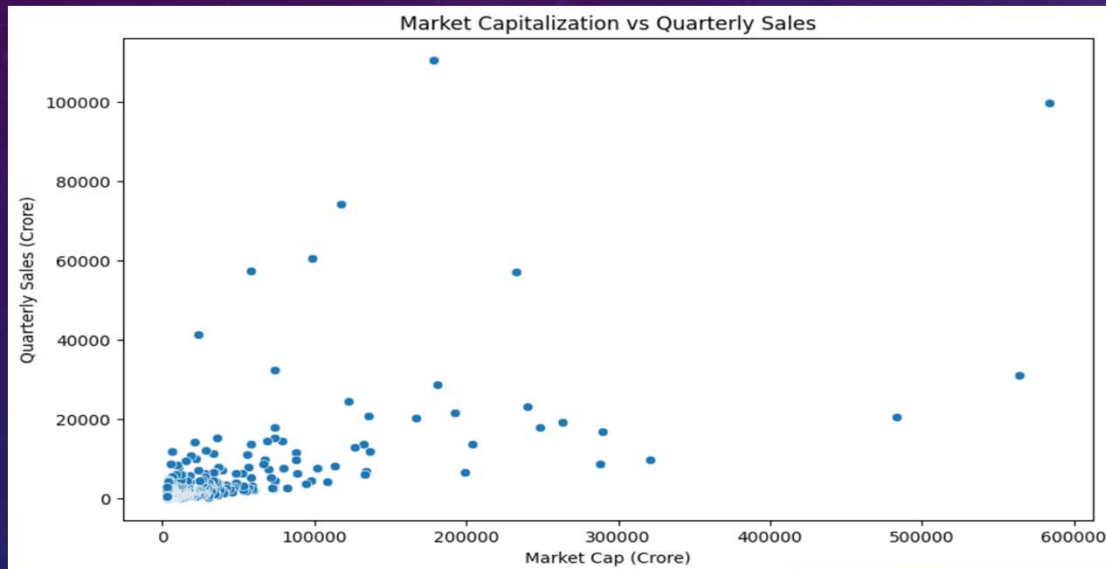


The correlation matrix shows a strong positive correlation (0.6240) between **Market Cap - Crore** and **Sales Qtr - Crore**. This indicates that companies with higher market capitalization tend to have higher quarterly sales.

| | S.No. | Mar Cap - Crore | Sales Qtr - Crore |
|-------------------|-----------|-----------------|-------------------|
| S.No. | 1.000000 | -0.544489 | -0.392156 |
| Mar Cap - Crore | -0.544489 | 1.000000 | 0.624409 |
| Sales Qtr - Crore | -0.392156 | 0.624409 | 1.000000 |

Scatter Plot Analysis:

The scatter plot of **Market Cap** vs. **Quarterly Sales** visually confirms the positive correlation. Companies with larger market caps generally show higher quarterly sales, although there are some outliers with high market caps but relatively lower sales and vice versa.



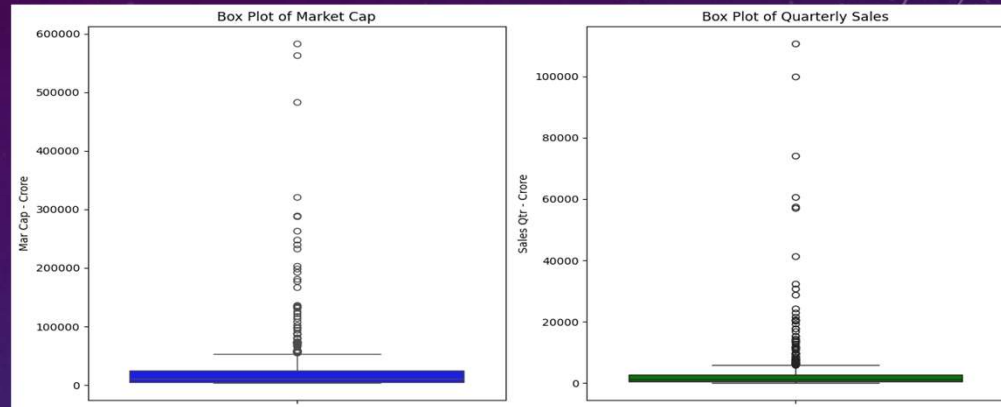
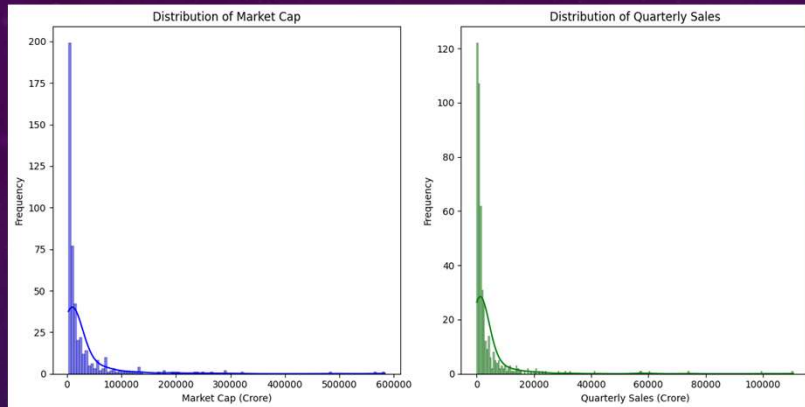
Key Metrics:

Market Cap - Crore:

1. Mean: 28870.97 Crore
2. Standard Deviation: 60557.08 Crore
3. Minimum: 3017.07 Crore
4. Maximum: 583436.72 Crore

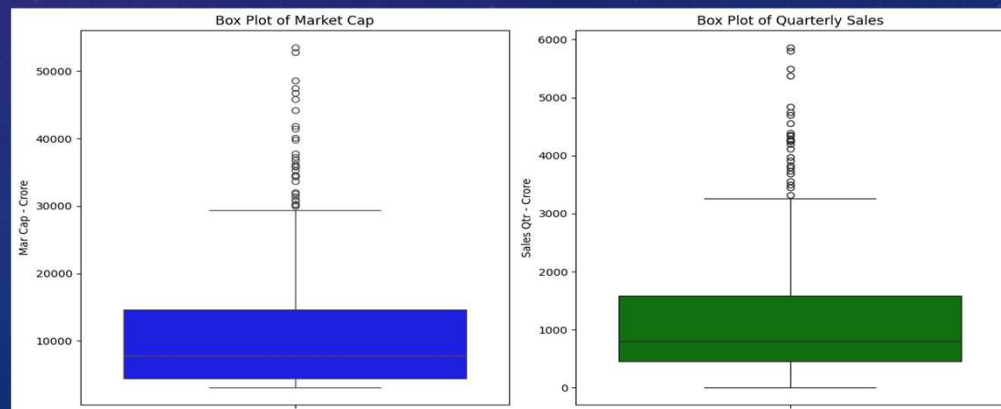
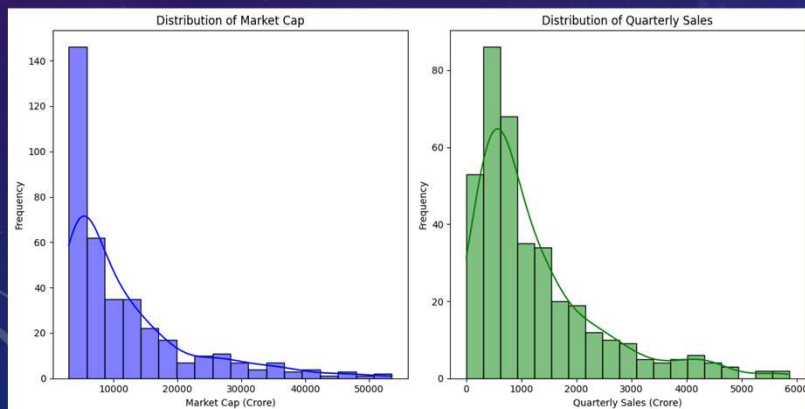
Sales Qtr - Crore:

1. Mean: 3807.79 Crore
2. Standard Deviation: 9989.45 Crore
3. Minimum: 0 Crore
4. Maximum: 110666.93 Crore



Outlier Detection and Removal:

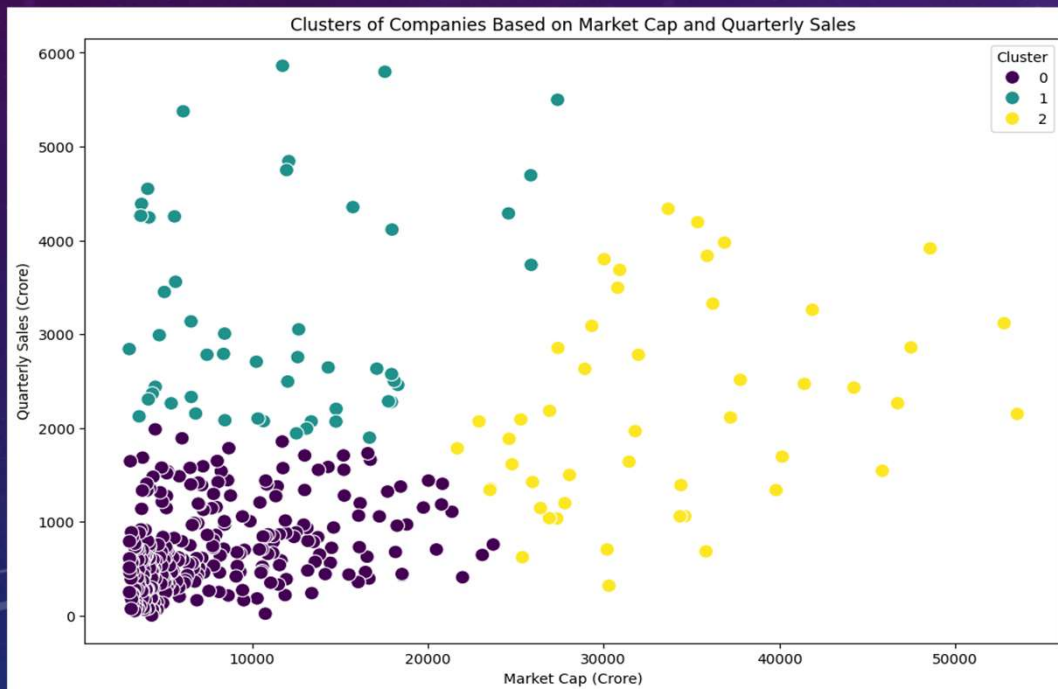
Outliers were identified and removed using the IQR method. This cleaned dataset provides a more reliable basis for further analysis.



Clustering Analysis:

Companies were clustered into 3 distinct groups based on their Market Cap and Quarterly Sales. This helps in identifying distinct patterns and groups among the companies:

- **Cluster 0:** Companies with relatively lower market caps and sales.
- **Cluster 1:** Companies with moderate market caps and sales.
- **Cluster 2:** Companies with high market caps and sales.



Trend Analysis:

The analysis of market cap and quarterly sales over different percentiles reveals the following:

25th Percentile:

1. Market Cap: 4401.66 Crore
2. Quarterly Sales: 460.89 Crore

50th Percentile (Median):

1. Market Cap: 7765.91 Crore
2. Quarterly Sales: 803.68 Crore

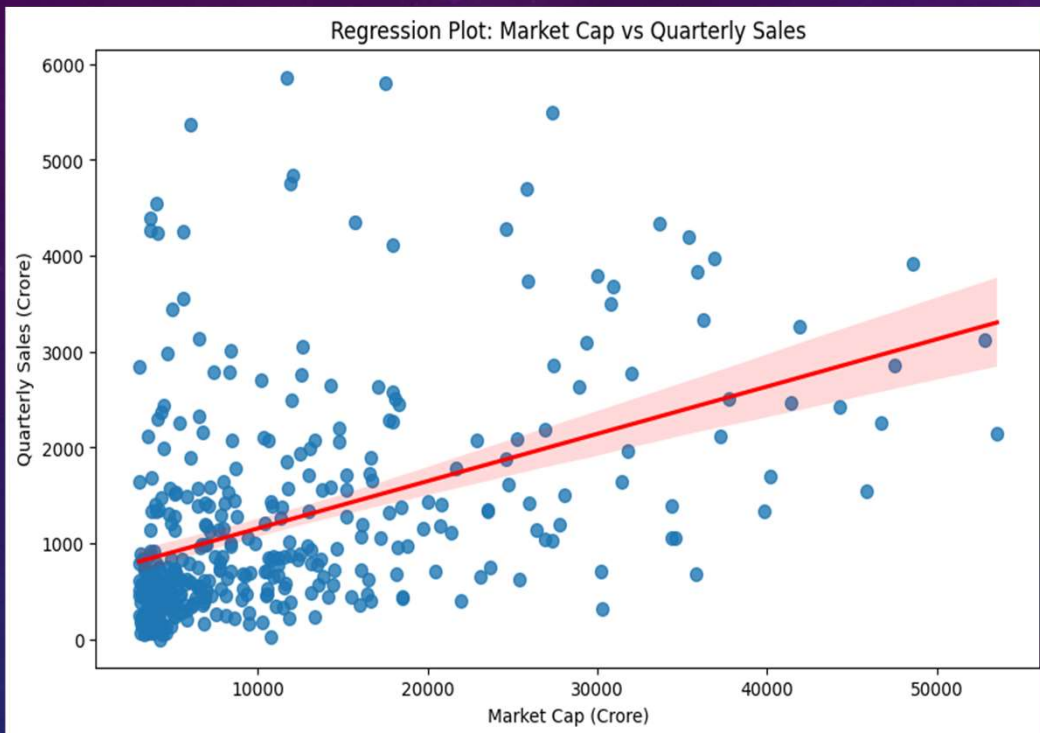
75th Percentile:

1. Market Cap: 14638.57 Crore
2. Quarterly Sales: 1583.95 Crore

These percentile values provide insights for the distribution of market cap and sales, which helps to understand the typical range and identify significant trends among the companies.

Regression Analysis:

The regression plot between Market Cap and Quarterly Sales shows a clear positive linear relationship, indicating that as the market cap increases, the quarterly sales tend to increase as well. The red regression line highlights this trend.



The relationship between Market Cap and Quarterly Sales were calculated using linear regression:

- **Coefficient:** 0.049
- **Intercept:** 660.64

This indicates that for each additional crore in market cap, quarterly sales increase by approximately 0.049 crores, starting from a baseline of 660.64 crores.

Conclusion:

This analysis has revealed a strong positive correlation between market cap and quarterly sales, indicating that companies with higher market caps tend to generate higher sales. Clustering analysis helped in identifying distinct groups of companies based on their financial performance, and advanced visualizations provided deeper insights into the data.

THANK YOU!