Financial Performance & Variance Analysis

Project Overview

This project analyzes financial budget vs actual performance to identify overspending trends, cost variances, and high-risk departments.

Using SQL, Python, and Power BI, the project delivers actionable insights into financial efficiency and cost control.

Objectives

- Analyze budget vs actual spending
- Identify overspending departments
- Monitor variance trends over time
- Provide interactive financial insights
- Support data-driven cost decisions

Tools & Technologies

- SQL (MySQL) – Data querying & KPI calculation
- Python (Pandas, Matplotlib) – EDA
- Power BI – Dashboard visualization
- Excel/CSV – Data source

Dataset Description

The dataset contains financial records including:

- Budget Amount
- Actual Amount

- Variance
- Department
- Category
- Region
- Year & Month

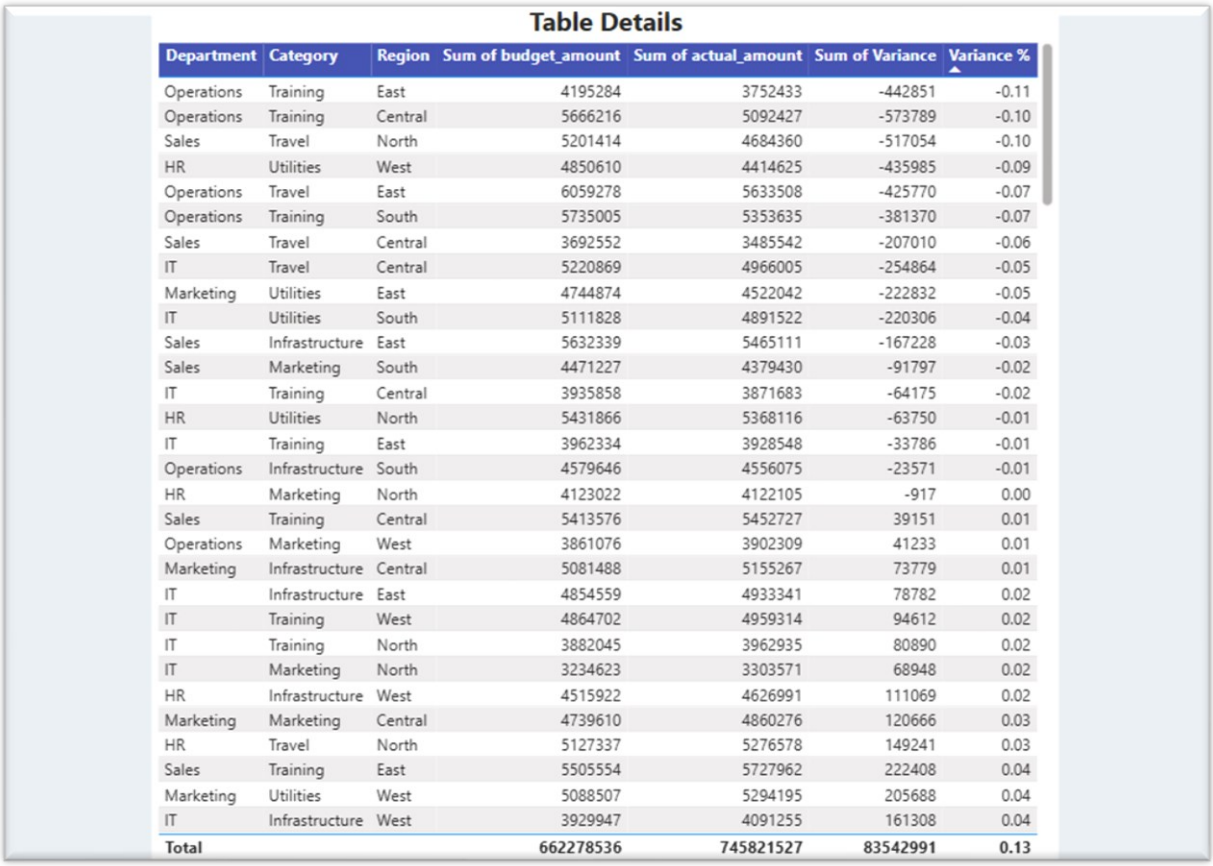


Table Details

Department	Category	Region	Sum of budget_amount	Sum of actual_amount	Sum of Variance	Variance %
Operations	Training	East	4195284	3752433	-442851	-0.11
Operations	Training	Central	5666216	5092427	-573789	-0.10
Sales	Travel	North	5201414	4684360	-517054	-0.10
HR	Utilities	West	4850610	4414625	-435985	-0.09
Operations	Travel	East	6059278	5633508	-425770	-0.07
Operations	Training	South	5735005	5353635	-381370	-0.07
Sales	Travel	Central	3692552	3485542	-207010	-0.06
IT	Travel	Central	5220869	4966005	-254864	-0.05
Marketing	Utilities	East	4744874	4522042	-222832	-0.05
IT	Utilities	South	5111828	4891522	-220306	-0.04
Sales	Infrastructure	East	5632339	5465111	-167228	-0.03
Sales	Marketing	South	4471227	4379430	-91797	-0.02
IT	Training	Central	3935858	3871683	-64175	-0.02
HR	Utilities	North	5431866	5368116	-63750	-0.01
IT	Training	East	3962334	3928548	-33786	-0.01
Operations	Infrastructure	South	4579646	4556075	-23571	-0.01
HR	Marketing	North	4123022	4122105	-917	0.00
Sales	Training	Central	5413576	5452727	39151	0.01
Operations	Marketing	West	3861076	3902309	41233	0.01
Marketing	Infrastructure	Central	5081488	5155267	73779	0.01
IT	Infrastructure	East	4854559	4933341	78782	0.02
IT	Training	West	4864702	4959314	94612	0.02
IT	Training	North	3882045	3962935	80890	0.02
IT	Marketing	North	3234623	3303571	68948	0.02
HR	Infrastructure	West	4515922	4626991	111069	0.02
Marketing	Marketing	Central	4739610	4860276	120666	0.03
HR	Travel	North	5127337	5276578	149241	0.03
Sales	Training	East	5505554	5727962	222408	0.04
Marketing	Utilities	West	5088507	5294195	205688	0.04
IT	Infrastructure	West	3929947	4091255	161308	0.04
Total			**662278536**	**745821527**	**83542991**	**0.13**

SQL Analysis

Used SQL to derive key financial insights.

Key Queries Performed

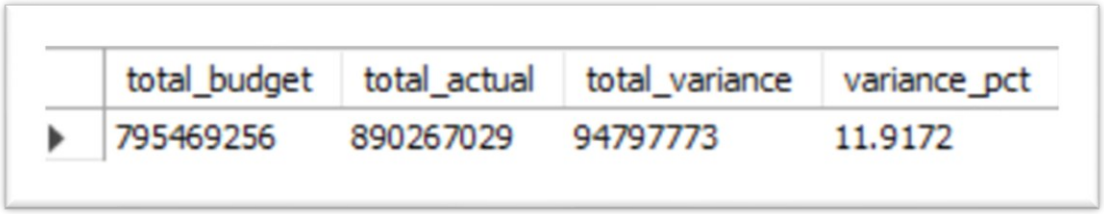
- Total Budget vs Actual
- Variance % calculation
- Category-wise spending

- Department ranking by variance
- Running monthly totals

1. KPI Calculation

Insight

This query evaluates the company's overall financial performance by comparing total budget, total actual spending, and variance percentage. It helps understand whether the organization is overspending or saving overall.

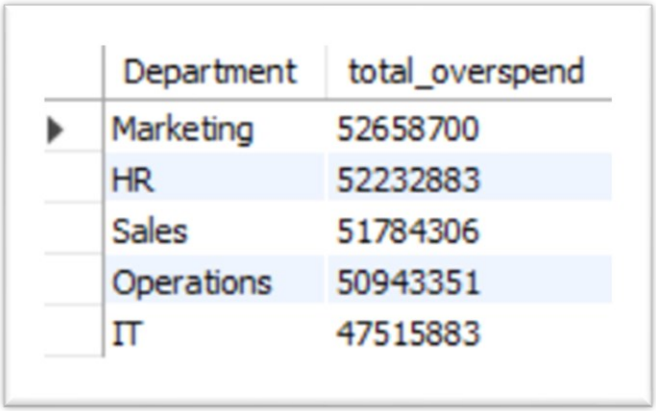


total_budget	total_actual	total_variance	variance_pct
795469256	890267029	94797773	11.9172

2. Top Risky Departments

Insight

This query highlights departments contributing most to overspending. It helps decision-makers prioritize budget control in high-risk departments.

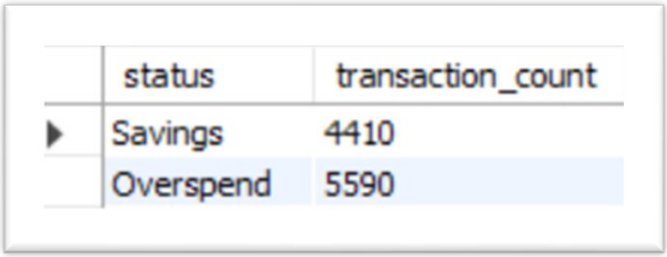


Department	total_overspend
Marketing	52658700
HR	52232883
Sales	51784306
Operations	50943351
IT	47515883

3. Overspend vs Savings

Insight

This query categorizes transactions as overspend or savings. It provides a quick view of financial discipline across records.



status	transaction_count
Savings	4410
Overspend	5590

Python EDA

Performed exploratory data analysis to:

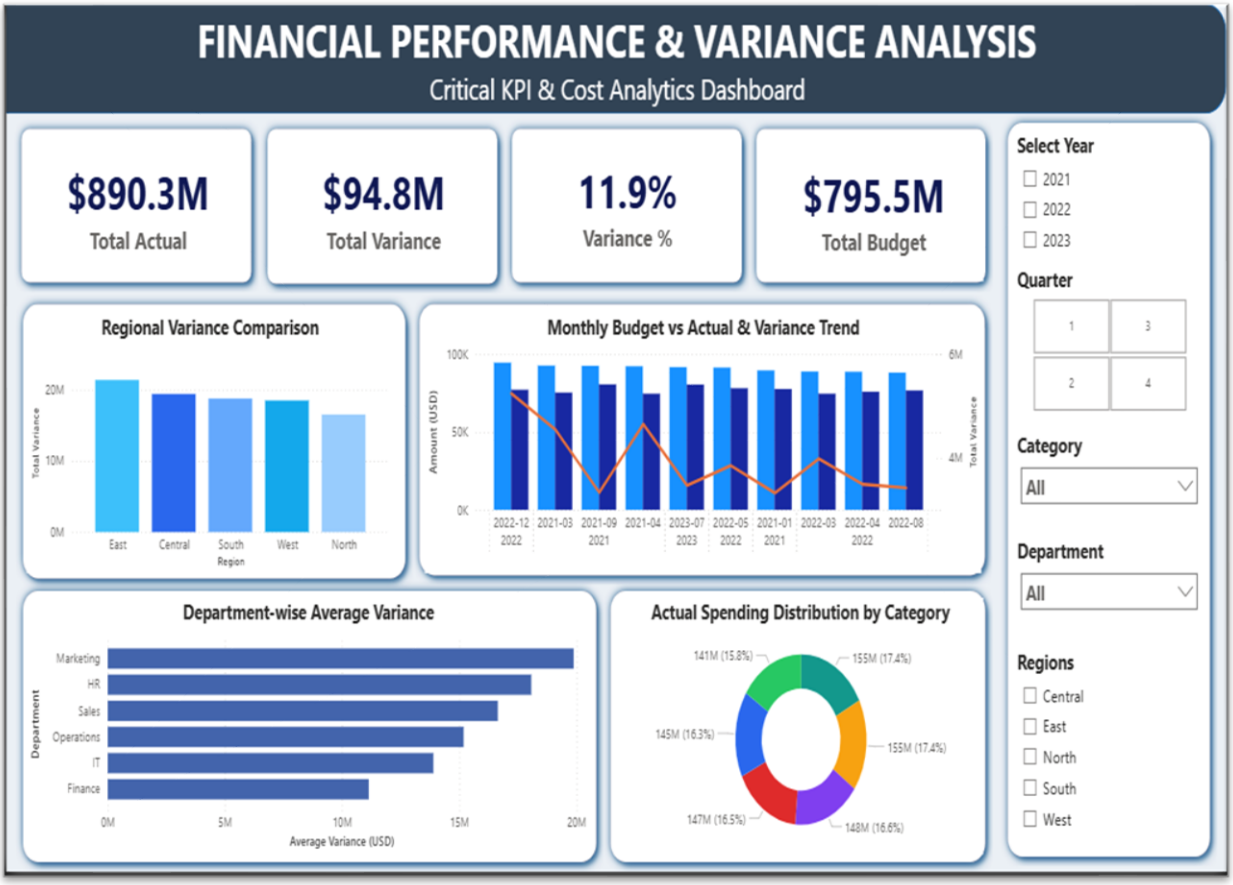
- Understand spending patterns
- Check variance distribution
- Identify outliers

Power BI Dashboard

Designed an interactive dashboard to monitor financial performance.

Dashboard Features

- KPI Cards (Budget, Actual, Variance %, Total Variance)
- Regional variance comparison
- Monthly trend analysis
- Department-wise variance
- Spending distribution by category
- Slicers for Year, Quarter, Category, Region



Key Insights

Example:

- Marketing & HR showed highest overspending
- Variance spikes observed in specific months
- Certain categories contribute major cost share
- Regional variance differences highlight budgeting gaps

Business Impact

This analysis helps organizations:

- Improve budget control
- Detect overspending early
- Optimize financial planning
- Support data-driven decisions

Conclusion

The project demonstrates how data analytics can improve financial monitoring and cost control.

By combining SQL, Python, and Power BI, actionable financial insights were generated for better decision-making.