

## **SEMESTER 6 – PROFESSIONAL ELECTIVE COURSE**

**Project Title : Financial Expense Optimization**

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## **EDA Using Power BI**

### **Project Title: Financial Expense Optimization**

#### **Problem Statement**

A mid-size enterprise tracks expenses across departments such as HR, IT, Finance, and Operations. Despite stable revenue, operational costs are rising, causing profit margins to shrink.

Finance leadership wants better visibility into:

- Department-wise expense distribution
- Monthly spending patterns
- Expense categories contributing to overspending

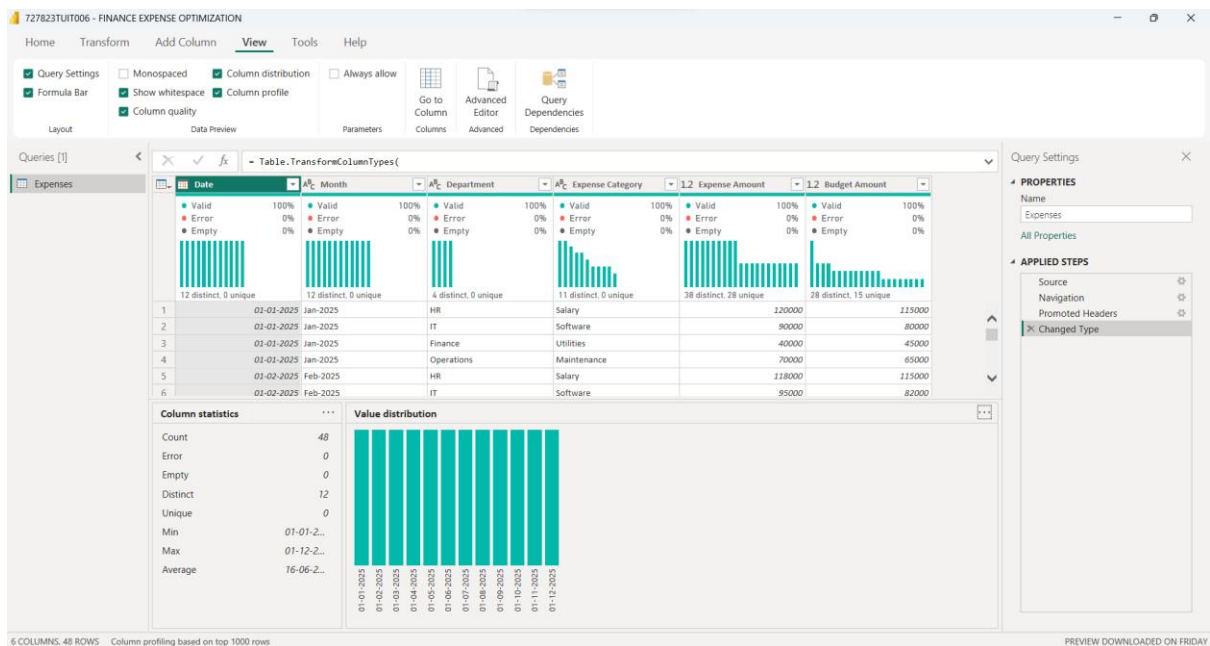
Your role is to prepare a financial monitoring dashboard that helps management:

- Control unnecessary expenses
- Detect cost overruns early
- Support budgeting decisions

#### **Questions:**

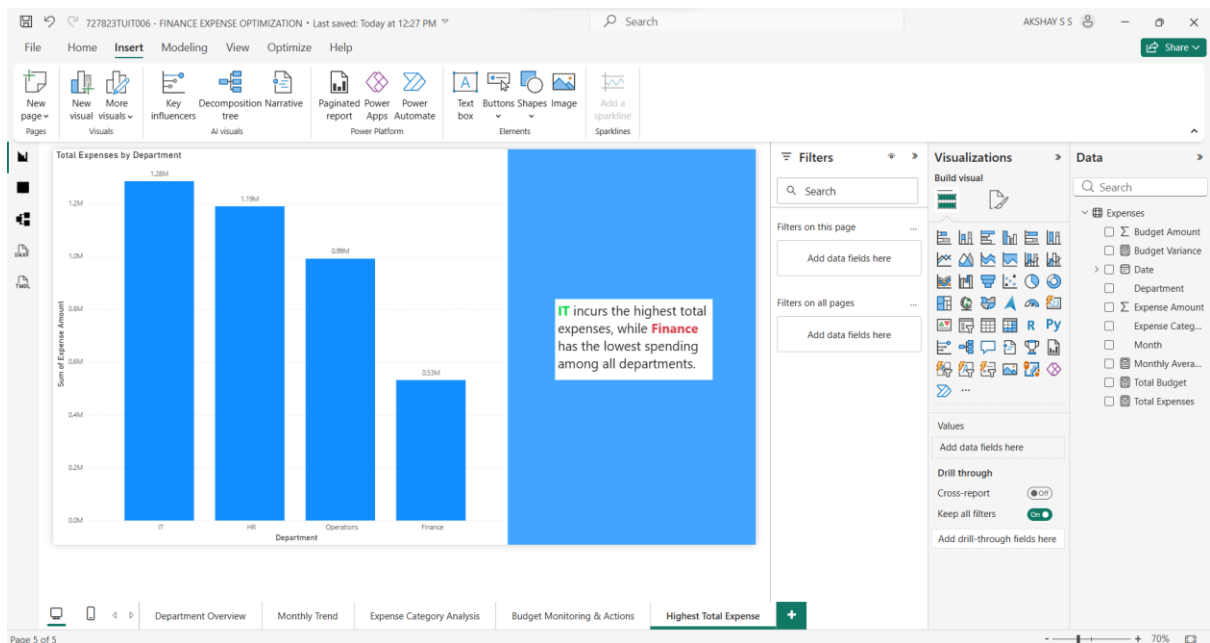
- Identify missing or inconsistent expense data.
- Which departments incur the highest total expenses?
- Analyze expense distribution across expense types.
- How do monthly expenses trend over time?
- Create DAX measures for Total Expenses and Monthly Average Expense.
- Compare actual expenses against budget using visuals.
- Identify departments exceeding budget limits.
- Design a financial monitoring dashboard.
- What cost-control actions can be recommended?

## Identify missing or inconsistent expense data.



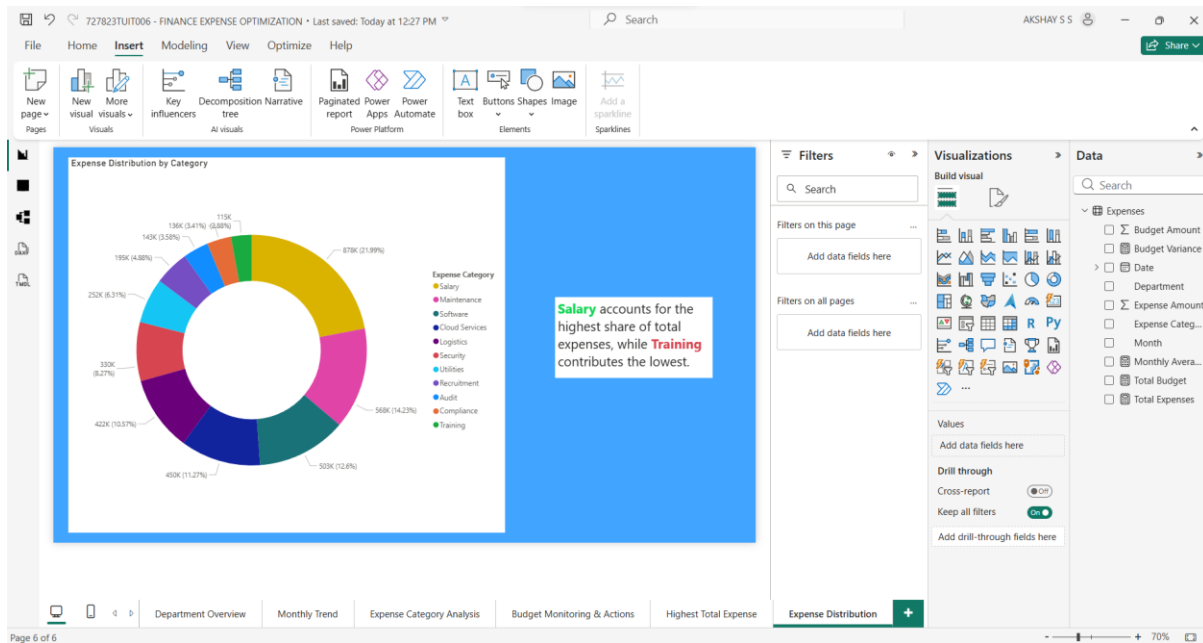
- No missing or inconsistent expense data was found in the dataset.

## Which departments incur the highest total expenses?



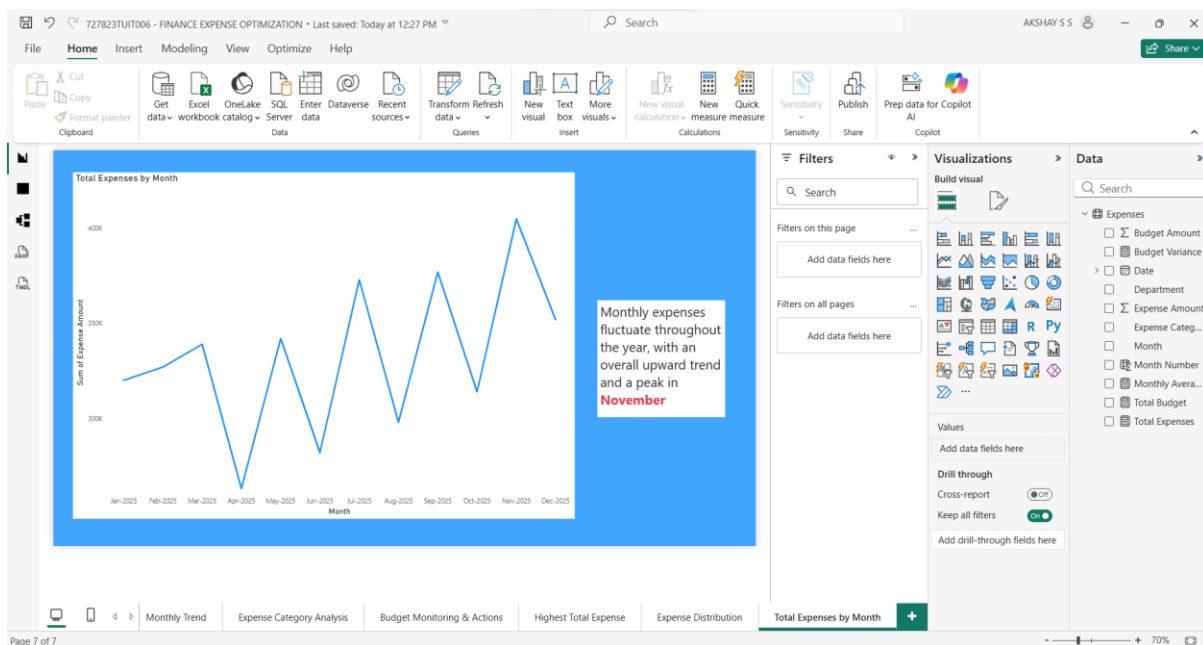
- IT department generates the highest total expenses

## Analyze expense distribution across expense types.



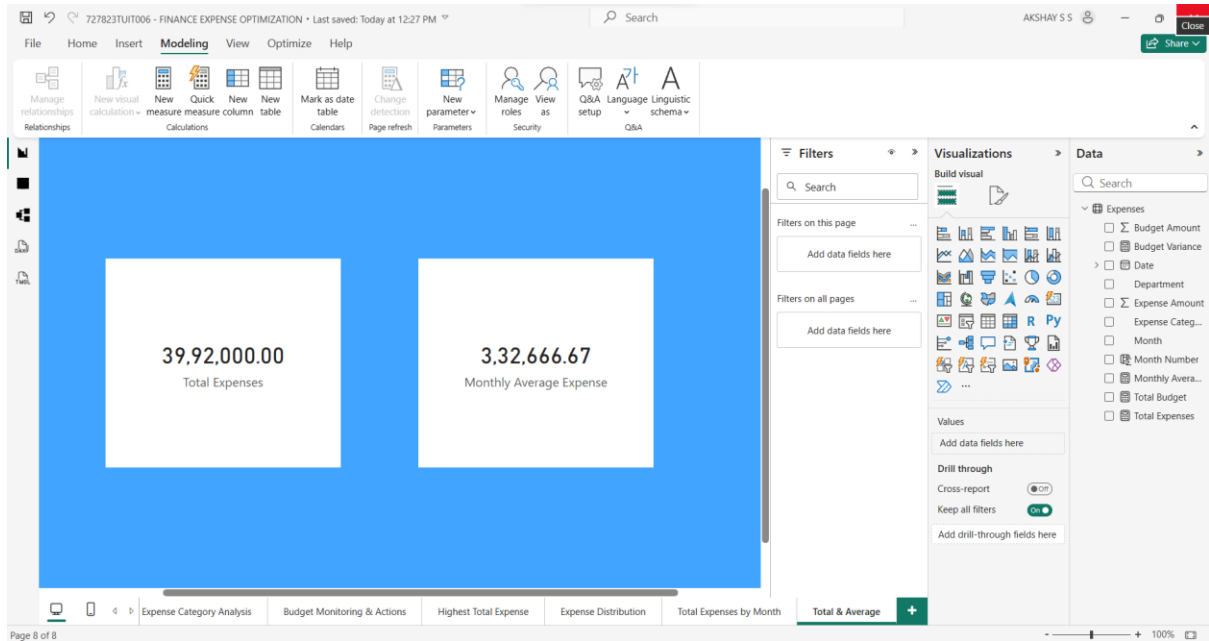
- A major portion of expenses is driven by Salary costs, whereas Training expenses remain minimal.

## How do monthly expenses trend over time



- The analysis shows fluctuating monthly expenses with a general increasing trend, reaching the highest level in November.

## Create DAX measures for Total Expenses and Monthly Average Expense



1 Total Expenses =  
2 SUM ( Expenses[Expense Amount] )

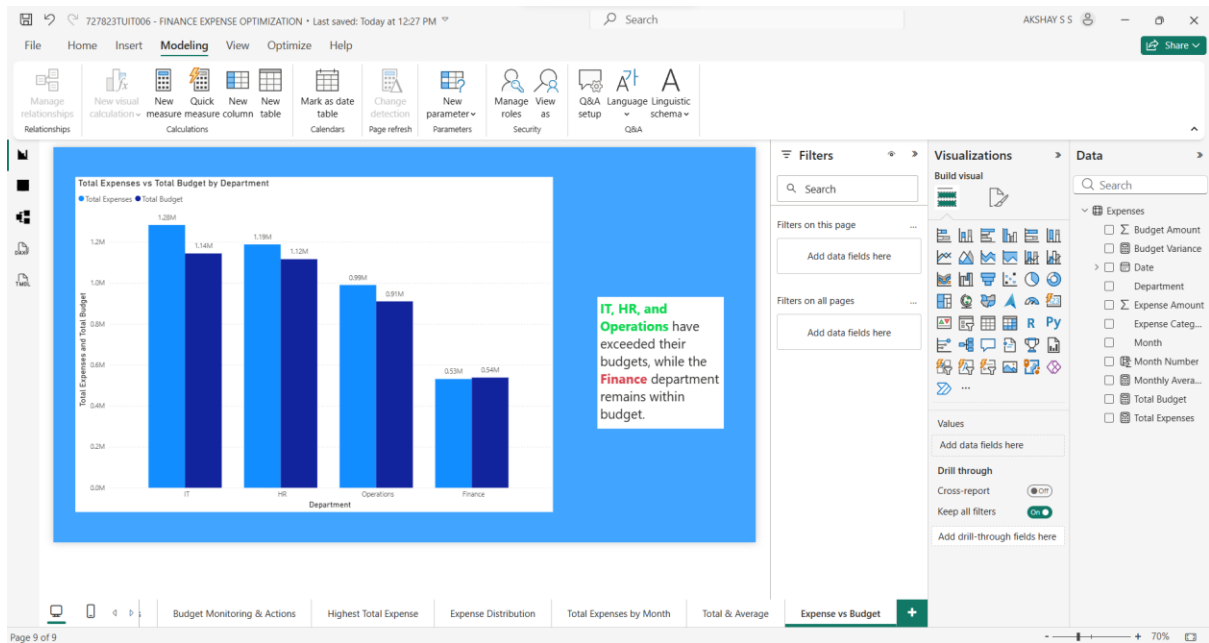
Date	Month	Department	Expense Category	Expense Amount	Budget Amount	Month Number
01 January 2025	Jan-2025	HR	Salary	₹ 1,20,000.00	₹ 1,15,000	1
01 January 2025	Jan-2025	IT	Software	₹ 90,000.00	₹ 80,000	1
01 January 2025	Jan-2025	Finance	Utilities	₹ 40,000.00	₹ 45,000	1
01 January 2025	Jan-2025	Operations	Maintenance	₹ 70,000.00	₹ 65,000	1
01 February 2025	Feb-2025	HR	Salary	₹ 1,18,000.00	₹ 1,15,000	2
01 February 2025	Feb-2025	IT	Software	₹ 95,000.00	₹ 82,000	2
01 February 2025	Feb-2025	Finance	Utilities	₹ 42,000.00	₹ 45,000	2
01 February 2025	Feb-2025	Operations	Maintenance	₹ 72,000.00	₹ 68,000	2

1 Monthly Average Expense =  
2 AVERAGEX (  
3 | VALUES ( Expenses[Month] ),  
4 | [Total Expenses]  
5 )

Date	Month	Department	Expense Category	Expense Amount	Budget Amount	Month Number
01 January 2025	Jan-2025	HR	Salary	₹ 1,20,000.00	₹ 1,15,000	1
01 January 2025	Jan-2025	IT	Software	₹ 90,000.00	₹ 80,000	1
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01 February 2025	Feb-2025	Finance	Utilities	₹ 42,000.00	₹ 45,000	2
01 February 2025	Feb-2025	Operations	Maintenance	₹ 72,000.00	₹ 68,000	2

- Total expenses amount to ₹39.92 lakh, with an average monthly spending of ₹3.33 lakh.

## Compare actual expenses against budget using visuals.



- Actual expenses for IT, HR, Operations are higher than their allocated budgets, whereas Finance spending stays within the planned budget.

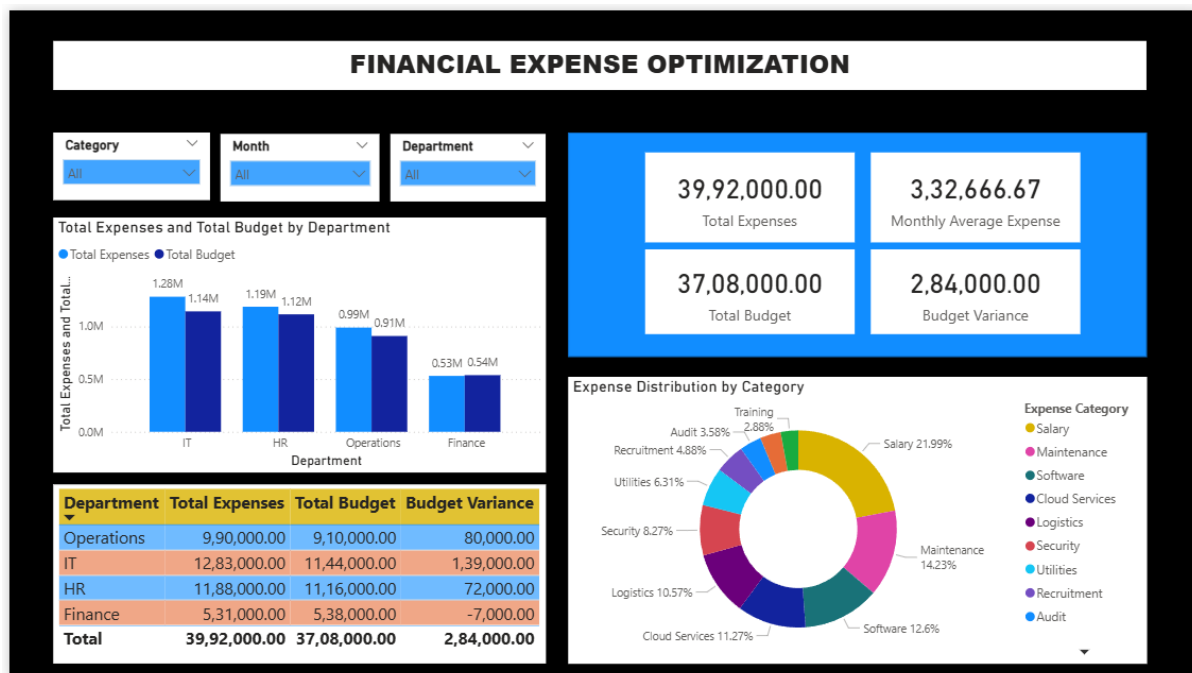
## Identify departments exceeding budget limits.

The table displays the budget variance for each department. The columns are: Department, Total Budget, Total Expenses, and Budget Variance. The Budget Variance column is color-coded: red for over budget and green for under budget.

Department	Total Budget	Total Expenses	Budget Variance
Operations	9,10,000.00	9,90,000.00	80,000.00
IT	11,44,000.00	12,83,000.00	1,39,000.00
HR	11,16,000.00	11,88,000.00	72,000.00
Finance	5,38,000.00	5,31,000.00	-7,000.00
<b>Total</b>	<b>37,08,000.00</b>	<b>39,92,000.00</b>	<b>2,84,000.00</b>

- IT, HR, and Operations are over budget by ₹2.91L combined, while Finance is the only department under budget, saving ₹7K.

## Design a financial monitoring dashboard



### What cost-control actions can be recommended?

- Focus on IT and HR departments, as they incur the highest expenses, and review major cost drivers.
- Reduce salary and maintenance costs, since they contribute the largest share of total expenses.
- Enforce strict budget monitoring for departments exceeding budget limits to prevent overspending.
- Optimize vendor contracts for software, cloud services, and logistics to lower recurring costs.
- Track monthly expense spikes and introduce spending caps during high-expense periods.
- Implement regular budget vs actual reviews using dashboards for early corrective action.

Target high-spending departments and categories while continuously monitoring budget variance to control overall expenses.

## **Conclusion**

The Financial Expense Optimization dashboard provides a comprehensive view of organizational spending by department, category, and time period. The analysis highlights key cost drivers, identifies departments exceeding budget limits, and reveals monthly expense trends. By leveraging interactive Power BI visuals and DAX measures, the organization can effectively monitor expenses, control budget variances, and make data-driven decisions. Overall, this project enables better financial planning, improved cost control, and supports proactive actions to optimize expenses and enhance financial efficiency.