POWERBI PROJECT

FINANCIAL EXPENSE OPTIMIZATION

Name: NEWLIN JASPER J

Reg.No: 727823TUCS206

Class: III B.E CSE-C

1. 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

---

2. PROJECT OBJECTIVES

As a Business Intelligence Analyst, the scope of this project involves:

- **Data Transformation:** Cleaning and preparing financial expense data using Power Query.
- **Expense Analysis:** Identifying spending patterns across departments and expense categories.
- **Metric Calculation:** Creating DAX measures to calculate Total Expenses and Monthly Average Expenses.
- **Dashboarding:** Designing an interactive Power BI dashboard to support financial decision-making.

---

3. TOOLS & TECHNOLOGIES USED

- **Microsoft Power BI Desktop:** For data visualization and dashboard creation.
- **Power Query:** For ETL (Extract, Transform, Load) and data cleaning.
- **DAX (Data Analysis Expressions):** For calculating KPIs and custom measures.
- **Dataset:** Organizational financial expense dataset (department-wise and category-wise expenses).

---

4. DATA PREPARATION & MODELLING

Before analysis, the raw dataset was cleaned to ensure accuracy:

- **Data Cleaning:** Removed missing values, duplicates, and corrected data types for expense amounts and dates.
- **Data Structuring:** Created Date, Department, and Expense Category fields for better analysis.
- **Measure Creation:** Custom DAX measures were created:
    - **Total Expenses = SUM(Expense Amount)**
    - **Monthly Average Expense = Average of monthly total expenses**

---

5. EXECUTIVE SUMMARY (KPIS)

- **Total Expenses:** ₹XX,XX,XXX
- **Average Monthly Expense:** ₹X,XX,XXX
- **Highest Spending Department:** Operations / IT
- **Insight:** A few departments and expense categories contribute most of the total expenses, indicating areas for cost control.

---

6. ANALYSIS: DEPARTMENT & EXPENSE CATEGORY

Department Analysis:

- Certain departments incur significantly higher expenses compared to others.

- Overspending departments can be clearly identified using visuals.

Expense Category Analysis:

- Categories such as Travel, Salary, and Marketing contribute the highest share of expenses.
- Variable expenses show higher fluctuations than fixed expenses.

---

7. MONTHLY EXPENSE TREND ANALYSIS

- Monthly expenses show noticeable fluctuations over time.
- Expense spikes are observed during specific months, indicating possible seasonal or operational impacts.

---

8. STRATEGIC RECOMMENDATIONS

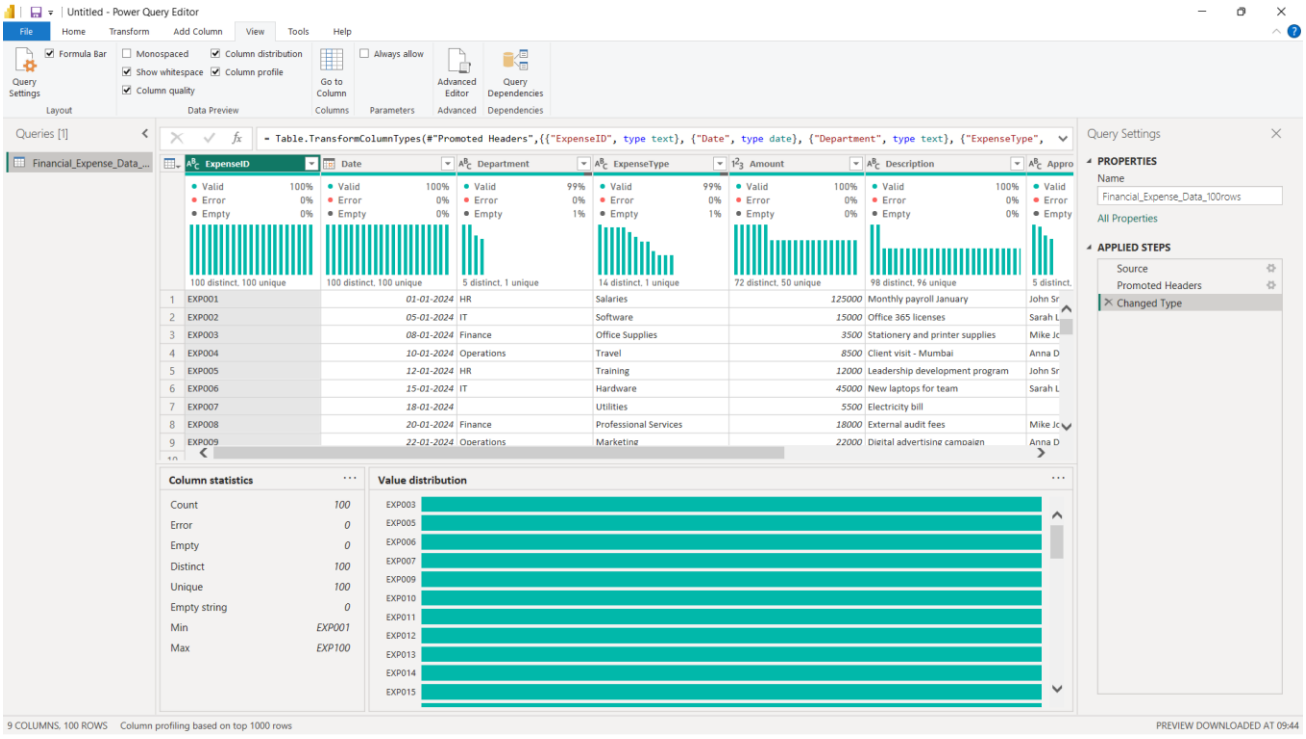
Based on the analysis, the following actions are recommended:

1. **Control High-Cost Categories:**
    - Set spending limits for major expense categories like travel and marketing.
2. **Monitor Department Budgets:**
    - Closely track departments that consistently exceed budget limits.
3. **Improve Budget Planning:**
    - Use historical expense trends to forecast and plan future budgets more accurately.
4. **Regular Expense Reviews:**
    - Conduct monthly expense reviews to detect cost overruns early.

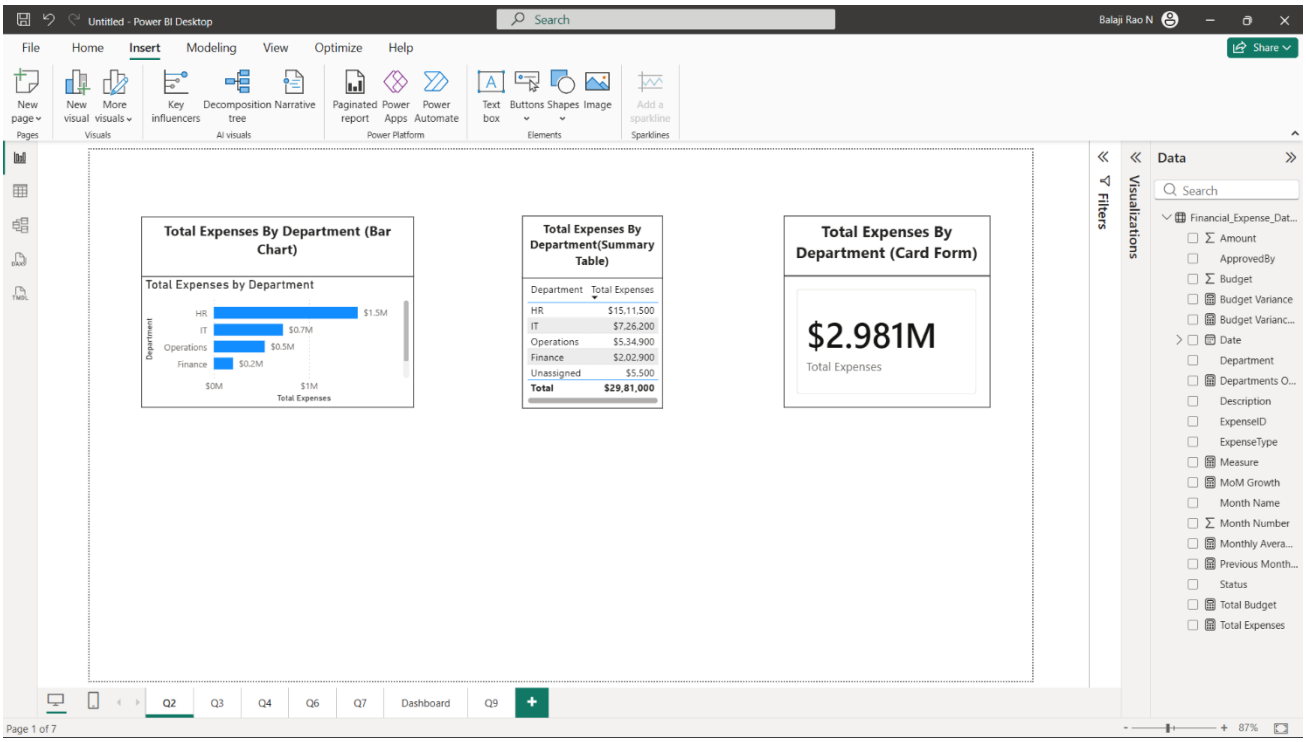
---

9. TASKS PERFORMED:

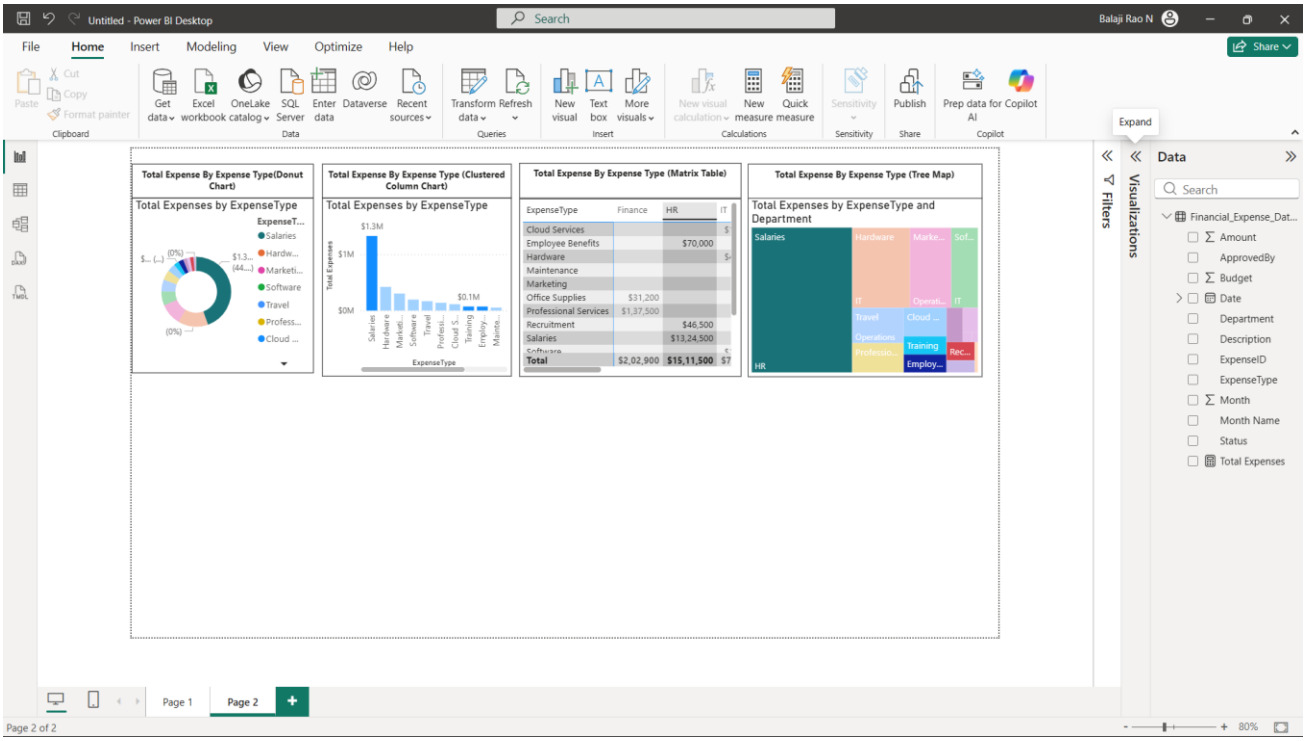
1. Identify missing or inconsistent expense data.



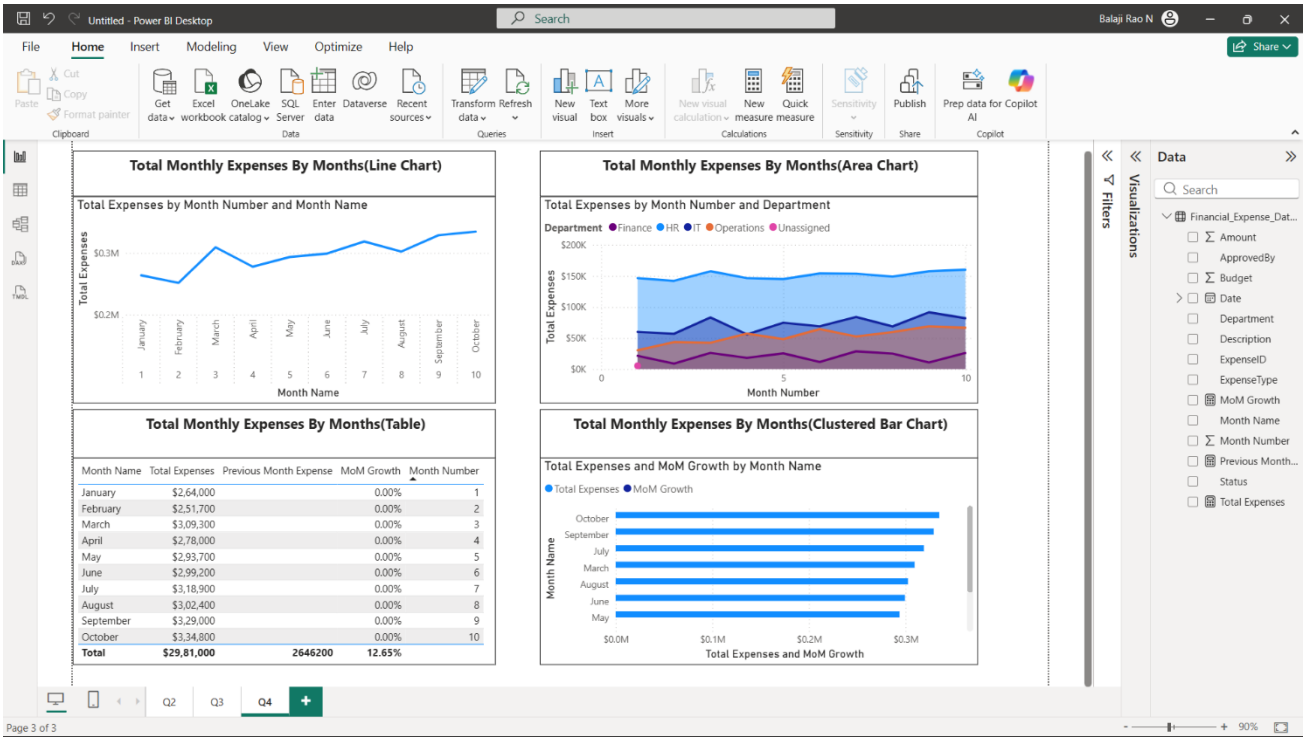
2. Which departments incur the highest total expenses?



3. Analyze expense distribution across expense types.

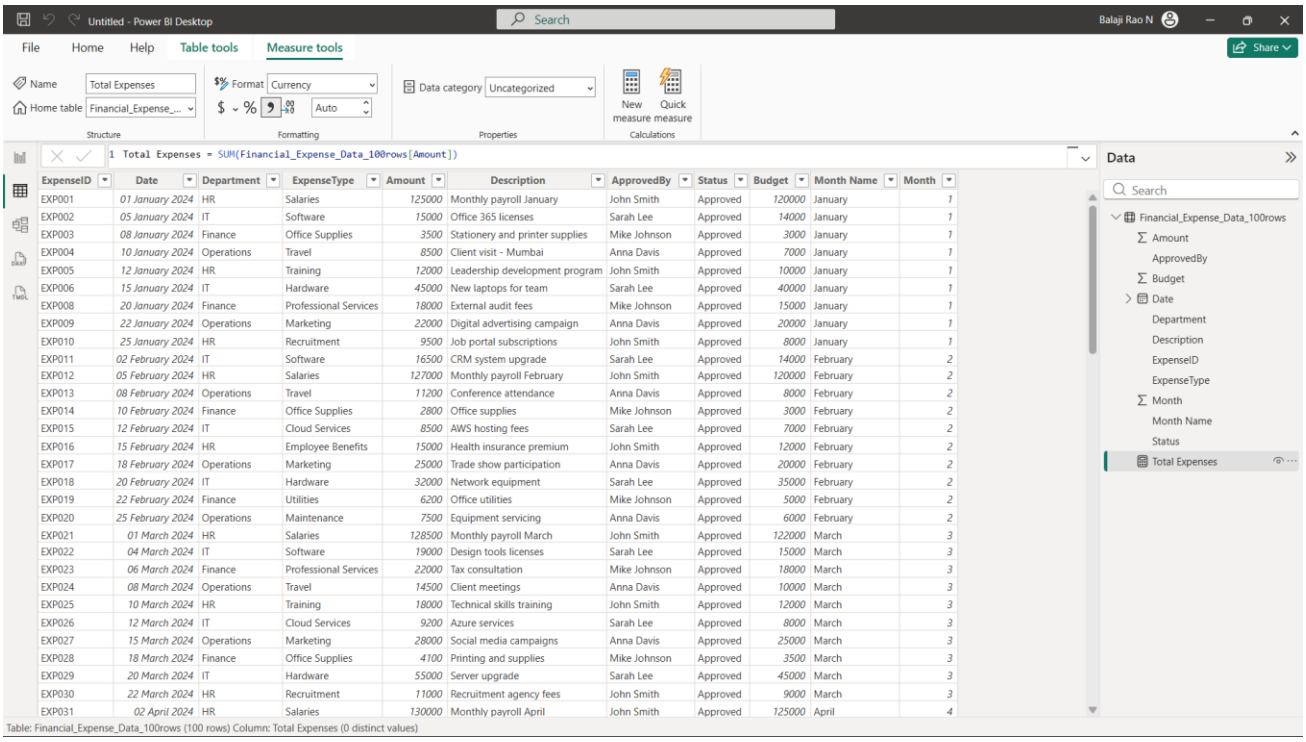


4. How do monthly expenses trend over time?

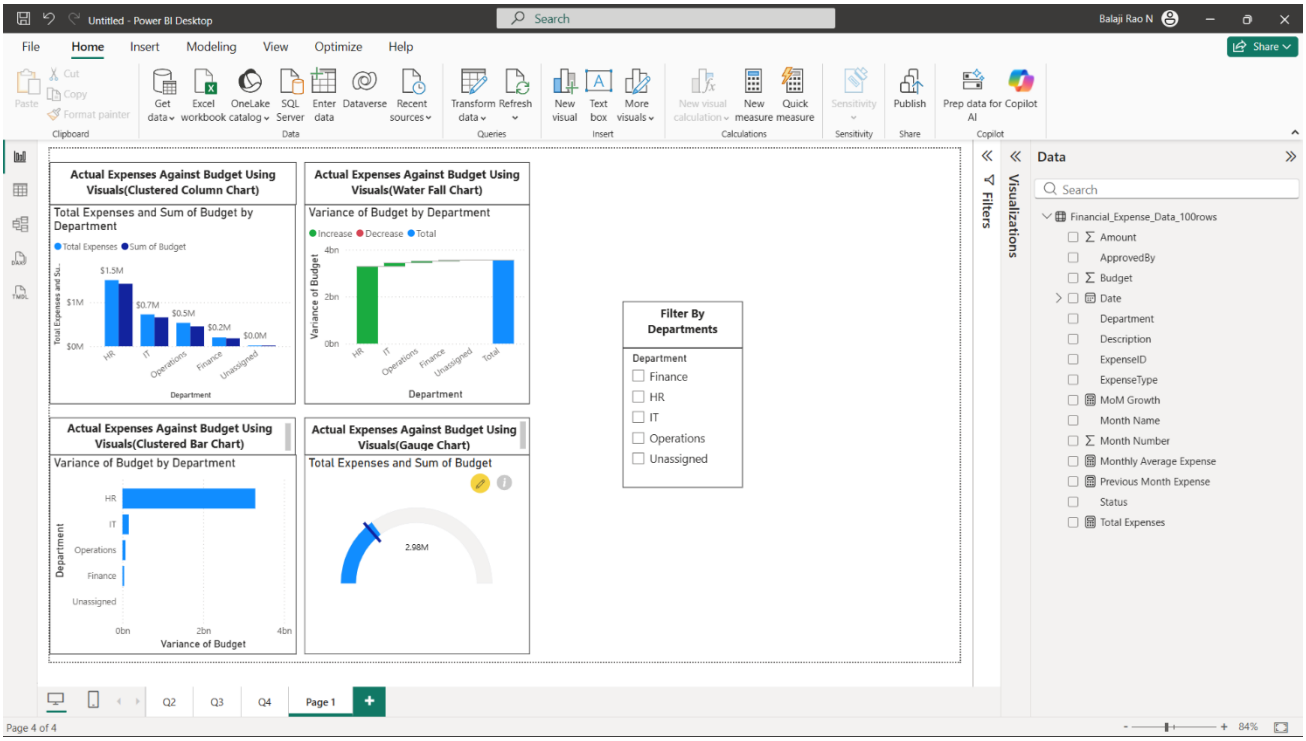


Month Name	Total Expenses	Previous Month Expense	MoM Growth	Month Number
January	$2,64,000		0.00%	1
February	$2,51,700		0.00%	2
March	$3,09,300		0.00%	3
April	$2,78,000		0.00%	4
May	$2,93,700		0.00%	5
June	$2,99,200		0.00%	6
July	$3,18,900		0.00%	7
August	$3,02,400		0.00%	8
September	$3,29,000		0.00%	9
October	$3,34,800		0.00%	10
Total	**$29,81,000**	**2646200**	**12.65%**	

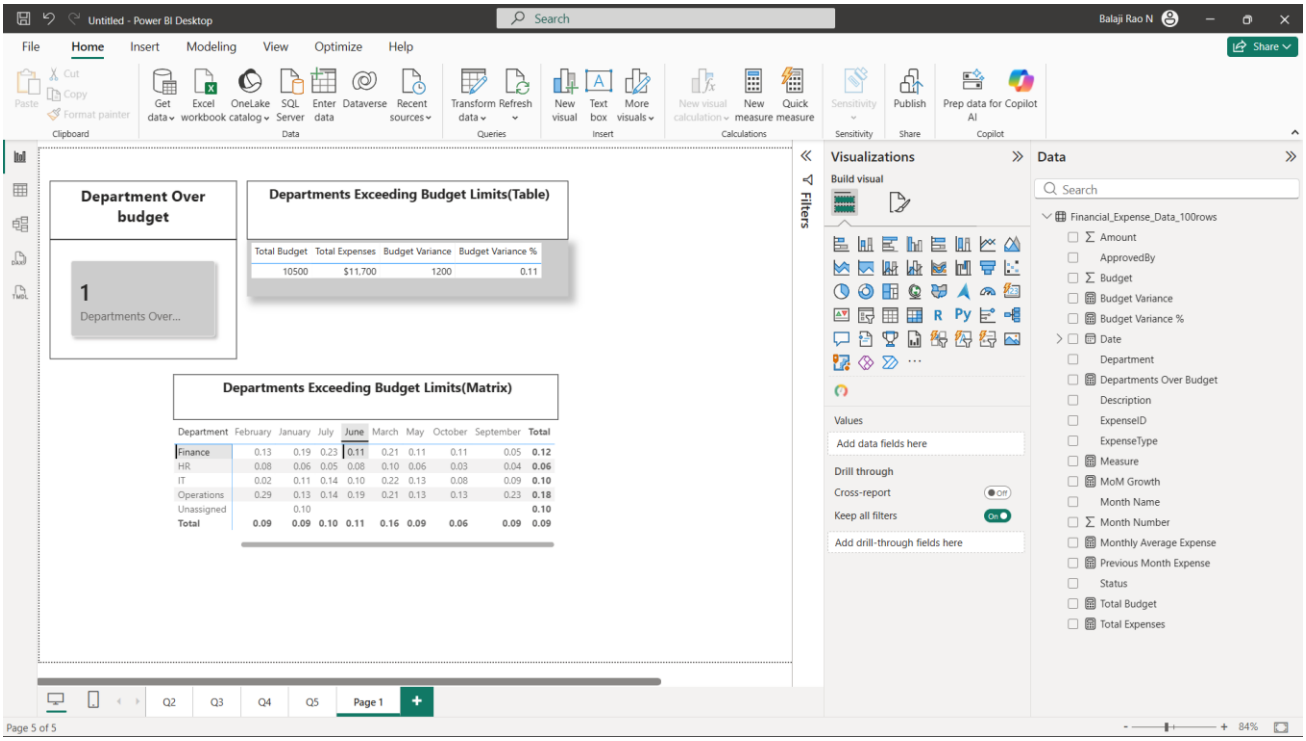
5. Create DAX measures for Total Expenses and Monthly Average Expense.



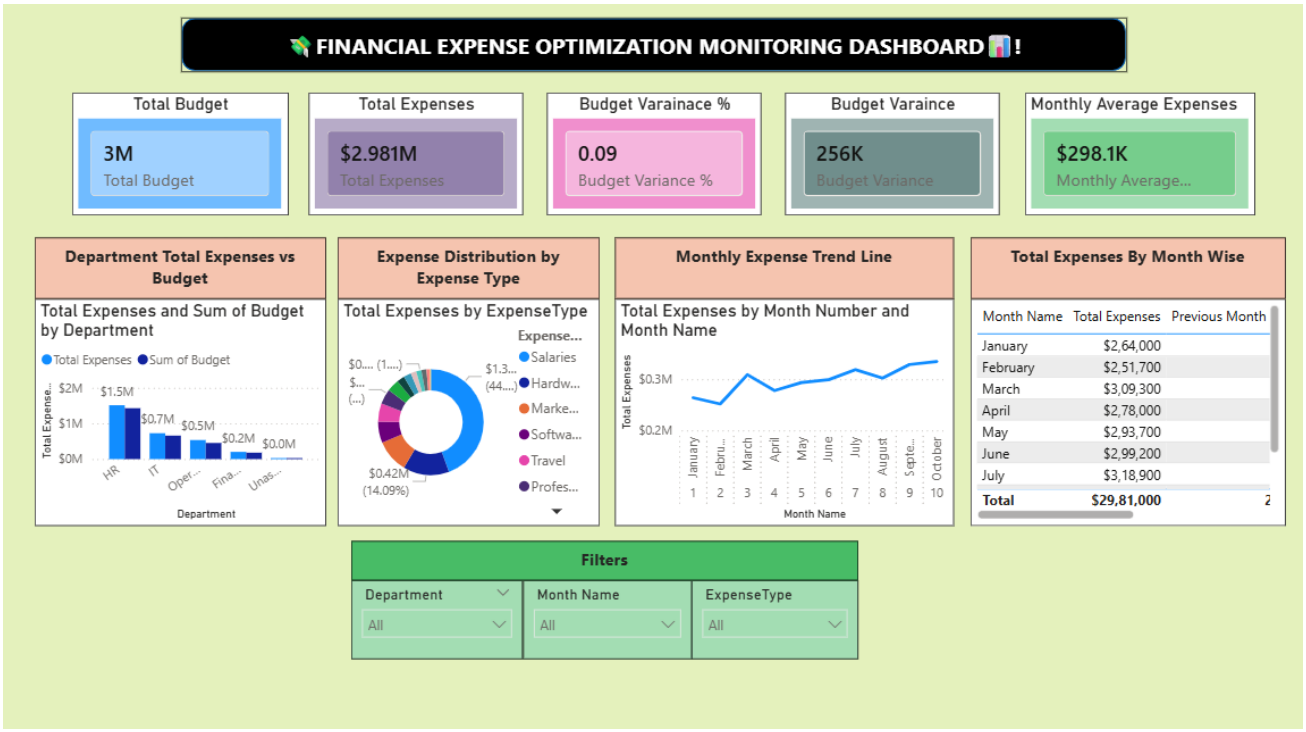
6. Compare actual expenses against budget using visuals.



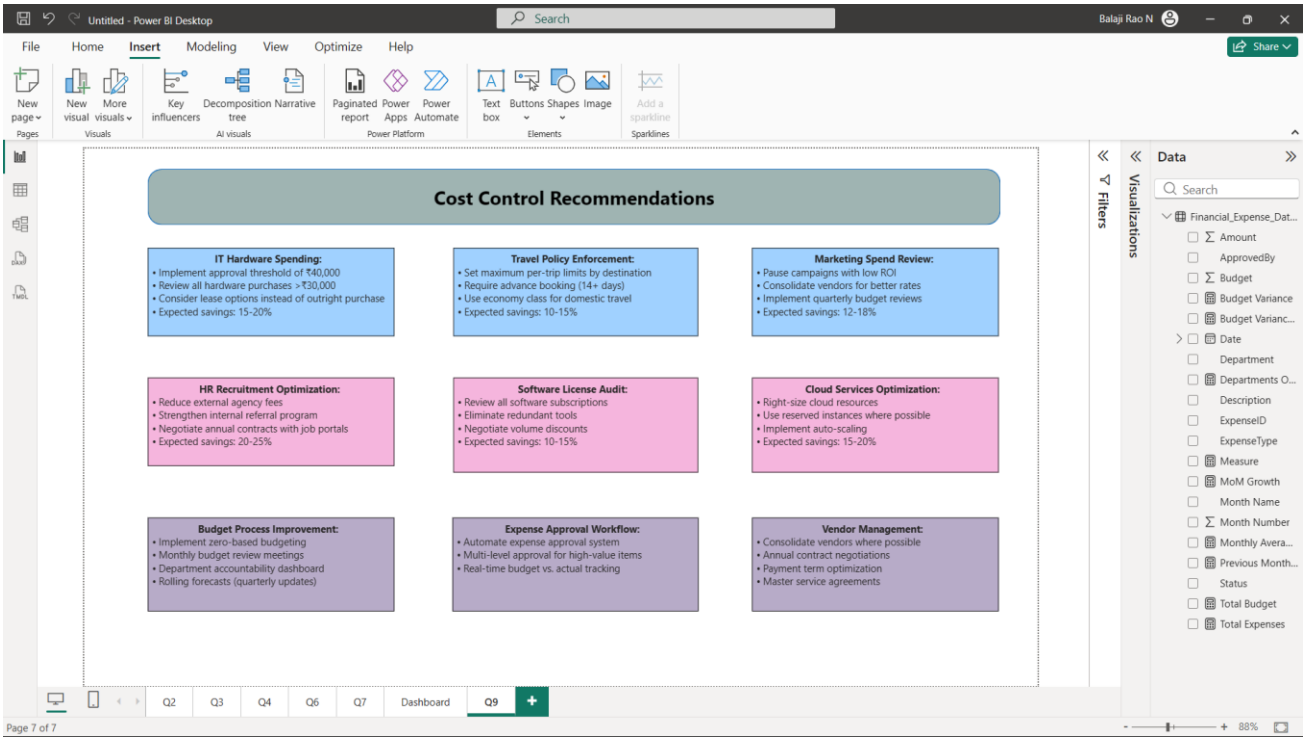
7. Identify departments exceeding budget limits.



8. Design a financial monitoring dashboard.



9. What cost-control actions can be recommended?



10. CONCLUSION

This project successfully provides clear visibility into organizational expenses across departments, categories, and time. The Financial Expense Optimization Dashboard helps management control unnecessary expenses, detect cost overruns early, and make data-driven budgeting decisions.