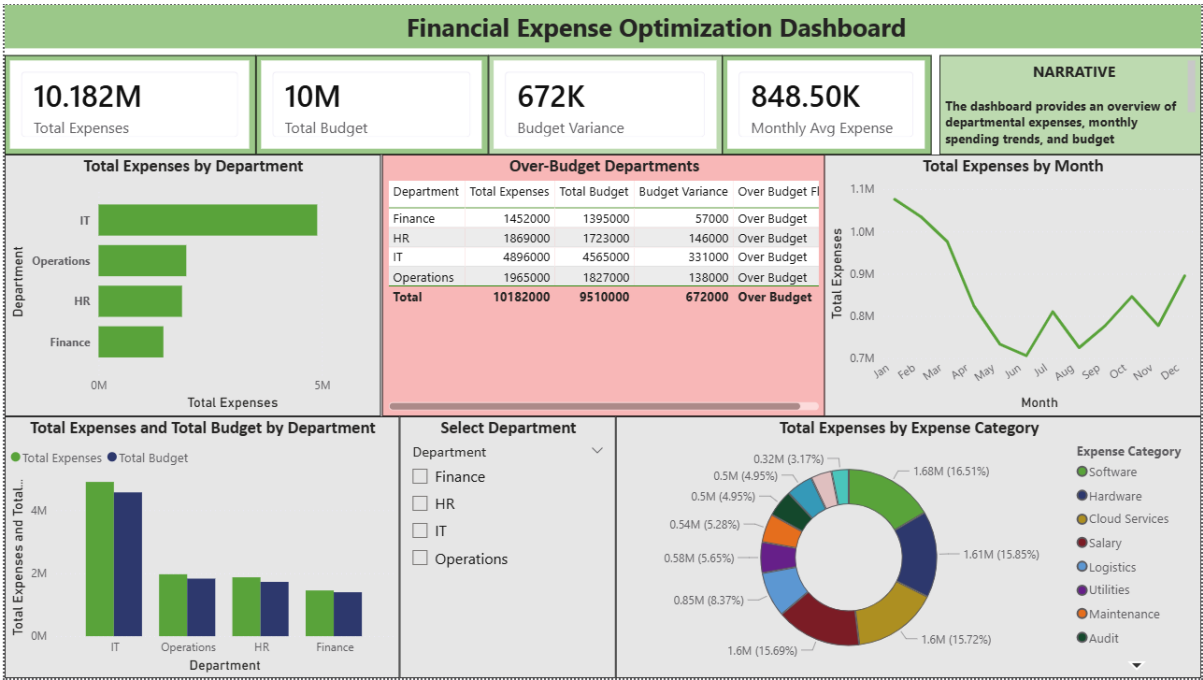**Name:** Sunmathi S

Reg No: 727723EUCB058

Department: Computer Science and Business Systems

Financial Expense Optimization using Power BI.

Financial Expense Optimization Dashboard

10.182M	10M	672K	848.50K
Total Expenses	Total Budget	Budget Variance	Monthly Avg Expense

NARRATIVE

The dashboard provides an overview of departmental expenses, monthly spending trends, and budget

Total Expenses by Department

Over-Budget Departments

Department	Total Expenses	Total Budget	Budget Variance	Over Budget Fl
Finance	1452000	1395000	57000	Over Budget
HR	1869000	1723000	146000	Over Budget
IT	4896000	4565000	331000	Over Budget
Operations	1965000	1827000	138000	Over Budget
Total	**10182000**	**9510000**	**672000**	**Over Budget**

Total Expenses by Month

Total Expenses and Total Budget by Department

Select Department

Department	∨
☐ Finance	
☐ HR	
☐ IT	
☐ Operations	

Total Expenses by Expense Category

Expense Category	
🟢	Software
🔵	Hardware
🟠	Cloud Services
🔴	Salary
🟣	Logistics
🟣	Utilities
🟠	Maintenance
🟢	Audit

0.32M (3.17%)
0.5M (4.95%)
0.5M (4.95%)
0.54M (5.28%)
0.58M (5.65%)
0.85M (8.37%)
1.6M (15.69%)
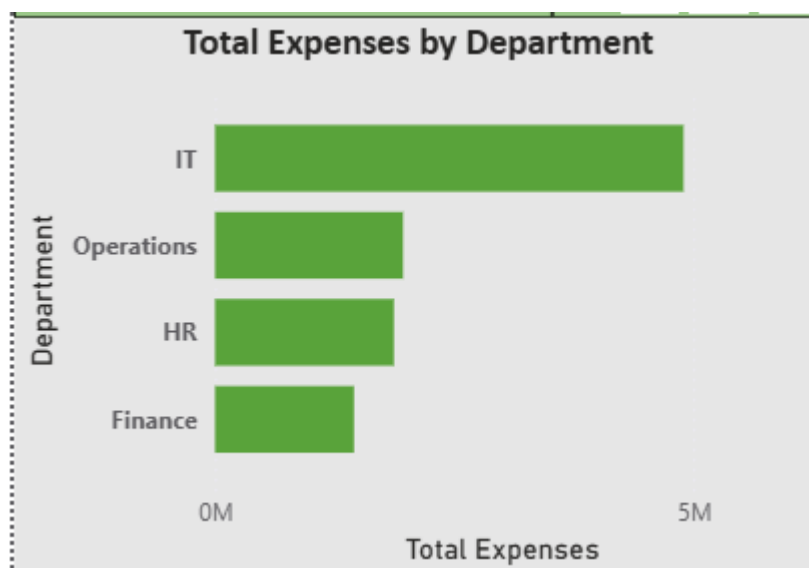1.68M (16.51%)
1.61M (15.85%)
1.6M (15.72%)

Financial Expense Optimization – Questions & Answers

1. **Identify missing or inconsistent expense data**

   Missing and inconsistent expense data were identified using Power Query in Power BI. Key fields such as Amount, Budget, and Department were validated to detect blank values and inconsistencies. Data cleaning ensured accuracy and reliability before performing further analysis.
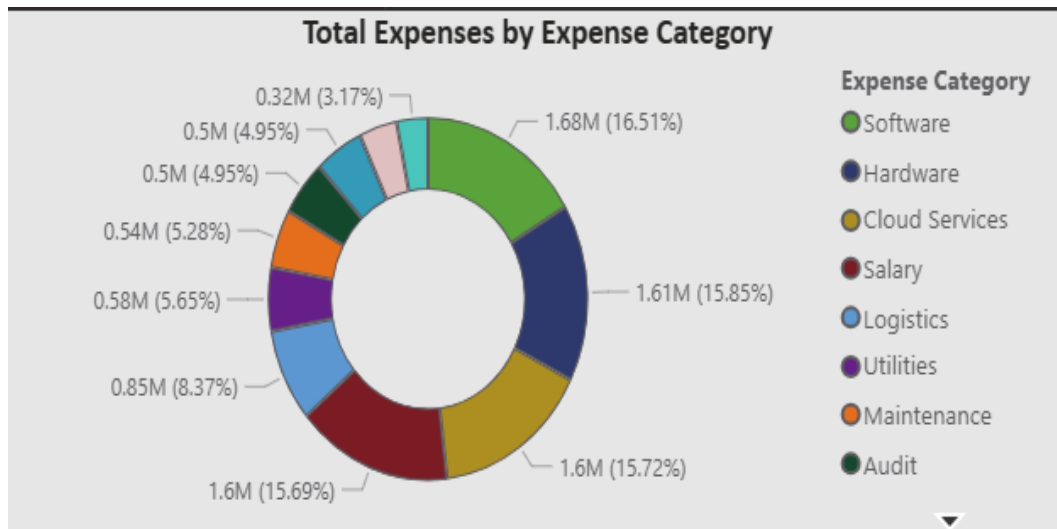
2. **Which departments incur the highest total expenses?**

   Department-wise expense analysis shows that the IT department incurs the highest total expenses, followed by the Operations department. HR and Finance departments have comparatively lower expenses, indicating that technology and operational functions are the primary cost drivers.
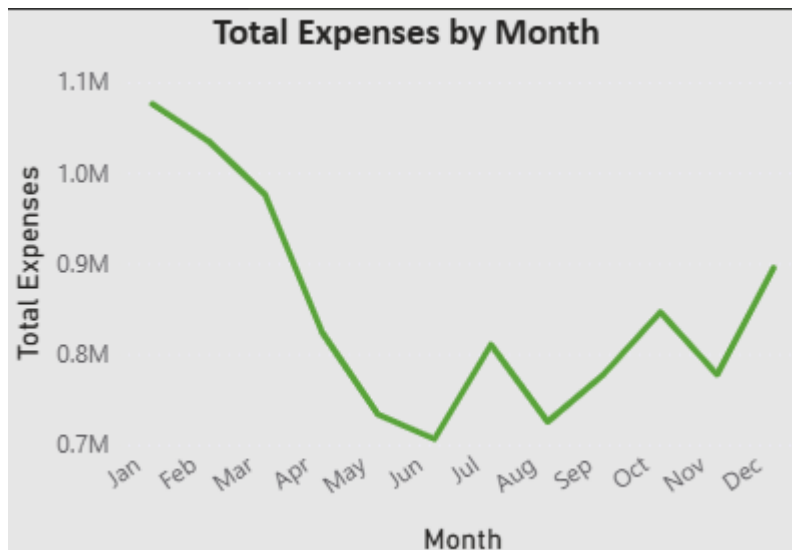

3. **Analyze expense distribution across expense types**

   Expense category analysis indicates that Software, Hardware, Cloud Services, and Salary contribute the most to overall expenses. Technology-related expenses form a significant portion of total spending, highlighting key areas for cost optimization.

Total Expenses by Expense Category

- 0.32M (3.17%)
- 0.5M (4.95%)
- 0.5M (4.95%)
- 0.54M (5.28%)
- 0.58M (5.65%)
- 0.85M (8.37%)
- 1.6M (15.69%)
- 1.6M (15.72%)
- 1.61M (15.85%)
- 1.68M (16.51%)

Expense Category
- Software
- Hardware
- Cloud Services
- Salary
- Logistics
- Utilities
- Maintenance
- Audit

4. **How do monthly expenses trend over time?**

Monthly expense trend analysis reveals variations in spending across different months, with an overall increasing pattern over time. Certain months show higher expenses, indicating peak operational or investment periods. This trend helps in identifying high-spending periods and planning budgets effectively.
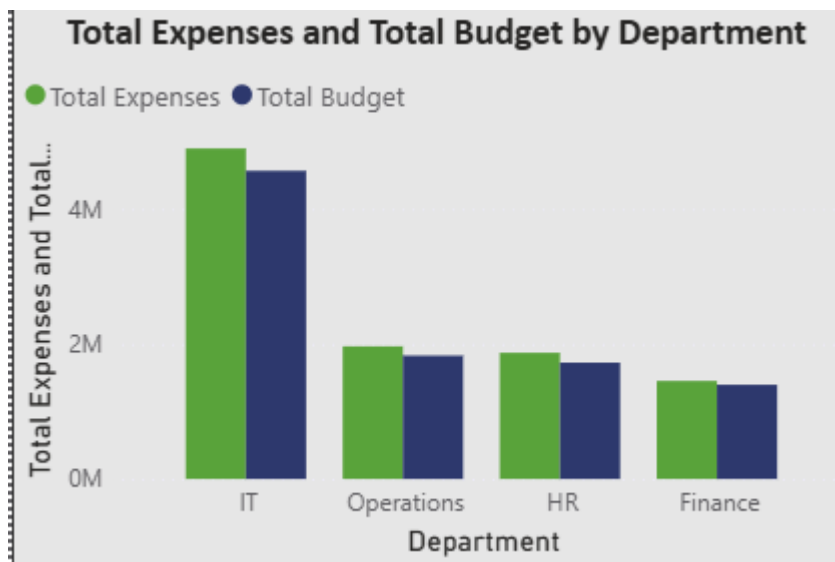

Total Expenses by Month

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

DAX measures were created in Power BI to calculate Total Expenses and Monthly Average Expense. The Total Expenses measure aggregates all expense amounts, while the Monthly Average Expense measure computes the average monthly spending, enabling accurate financial performance analysis.

6. **Compare actual expenses against budget using visuals**

   Actual expenses were compared against budgeted values using clustered column charts and KPI cards. These visuals clearly highlight variances between planned and actual spending, supporting effective budget monitoring.

   Total Expenses and Total Budget by Department

   ● Total Expenses ● Total Budget

   (Clustered column chart: IT, Operations, HR, Finance on the x-axis labeled "Department"; y-axis labeled "Total Expenses and Total..." with markers at 0M, 2M, 4M. IT shows the highest values near 4M+, Operations and HR near 2M, Finance below 2M. Green bars represent Total Expenses and dark blue bars represent Total Budget.)

7. **Identify departments exceeding budget limits**

   Departments exceeding budget limits were identified through budget variance calculations. A positive variance indicates overspending. The analysis shows that IT and Operations departments frequently exceed their allocated budgets.

8. **Design a financial monitoring dashboard**

   A financial monitoring dashboard was designed with KPI summaries at the top, followed by department-wise expense analysis, expense category distribution, monthly trends, and budget comparison visuals. A department slicer was included to enable interactive analysis while maintaining dashboard simplicity.

9. What cost-control actions can be recommended?

Based on the analysis, the following cost-control actions are recommended:

1. Closely monitor IT and Operations expenses due to frequent budget overruns.

2. Control high-cost categories such as software, hardware, and cloud services.

3. Implement monthly budget reviews to detect overspending early.

4. Introduce approval thresholds for high-value expenses.

5. Renegotiate vendor contracts to reduce recurring operational costs.