CASE STUDY

Submitted by

Harshita Rawat(22BCA10646)

BACHELOR OF COMPUTER APPLICATIONS In Computer Engineering



Chandigarh University
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INTRODUCTION

This case study explores the monthly budget utilization of 12 departments across two consecutive months—January and February. Each department, representing a core functional area such as HR, Finance, IT, Marketing, Operations, and R&D, was assigned a specific budget, and their actual expenses were recorded. The goal of this analysis is to determine how effectively each department adhered to its budget, identify instances of overspending, and highlight overall spending trends.

Key performance indicators such as percentage of budget used and budget status (Over or Under Budget) were calculated using Excel formulas. These indicators help assess financial discipline at the departmental level and guide future budget planning. The data is also categorized by department type, allowing for deeper insights into how certain functions tend to manage their finances over time.

This structured approach provides a clear picture of financial behavior within the organization, promoting accountability and efficiency. By analyzing two months' worth of data, we can also begin to observe patterns—such as which departments consistently overspend, and which remain within their limits. This case study demonstrates how simple tools like Excel can be used to carry out meaningful financial analysis and support data-driven decision-making.

Case Study: Monthly Expenses Tracking of 12 Departments

Department Monthly Expense Table

Q Column Descriptions:

- **Sales Rep**: Name/identifier of the sales representative.
- **Region**: Geographic territory assigned to the rep (North, South, East, West).
- **Target (₹)**: Monthly sales target assigned to the rep.
- **Sales** (₹): Actual sales achieved in that month.
- % Achieved: (Sales ÷ Target) × 100 Indicates how much of the target the rep achieved.
- **Bonus Eligibility**: "Yes" if % Achieved is ≥**100%**, otherwise "No".
- **Bonus** (\mathfrak{T}): 10% of Sales if eligible, else \mathfrak{T} 0.

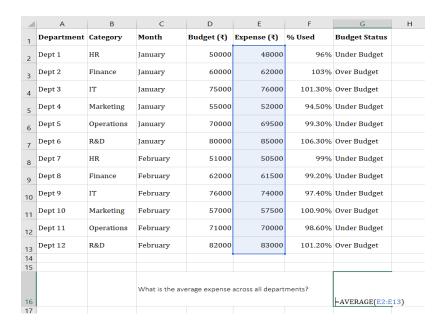
Α	В	С	D	E	F	G
Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status
Dept 1	HR	January	50000	48000	96%	Under Budget
Dept 2	Finance	January	60000	62000	103%	Over Budget
Dept 3	IT	January	75000	76000	101.30%	Over Budget
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Dept 7	HR	February	51000	50500	99%	Under Budget
Dept 8	Finance	February	62000	61500	99.20%	Under Budget
Dept 9	IT	February	76000	74000	97.40%	Under Budget
Dept 10	Marketing	February	57000	57500	100.90%	Over Budget
Dept 11	Operations	February	71000	70000	98.60%	Under Budget
Dept 12	R&D	February	82000	83000	101.20%	Over Budget
Dept 12	R&D	February	82000	83000	101.20%	Over Budge

Questions & Answers

1. What is the average expense across all departments?

Answer: ₹65750

Formula: =AVERAGE(E2:E13)



	Α	В	С	D	E	F	G
1	Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status
2	Dept 1	HR	January	50000	48000	96%	Under Budget
3	Dept 2	Finance	January	60000	62000	103%	Over Budget
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14							
15			What is the ex	vorogo evpens	e across all dep	artments?	
16			vviiat is the av	rei age expens	e across an dep	ar unents r	65750
17							

2. How many departments stayed under budget?

Answer: 7 departments

Formula: =COUNTIF(G2:G13, "Under Budget")

Α	В	С	D	E	F	G	Н	1	
Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status			
Dept 1	HR	January	50000	48000	96%	Under Budget			
Dept 2	Finance	January	60000	62000	103%	Over Budget			
Dept 3	IT	January	75000	76000	101.30%	Over Budget			
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Dept 12	R&D	February	82000	83000	101.20%	Over Budget			
		how many de	nartments etas	ed under budg	et.				
		now many de	par tirrefits stay	yea ander budg		COUNTIF(G2:G	13, "Unde	r Budget'	")

	Α	В	C	D	E	F	G
Alla	Department		Month	_	Expense (₹)	% Used	Budget Status
1	Department	category	Pionen	Dauget (1)	Expense (1)		J
2	Dept 1	HR	January	50000	48000	96%	Under Budget
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13	Dept 12	R&D	February	82000	83000	101.20%	Over Budget
14 15							
16			how many dep	partments stay	ed under budg	et	7
17							

3. What is the total budget allocated for February?

Answer: ₹399,000

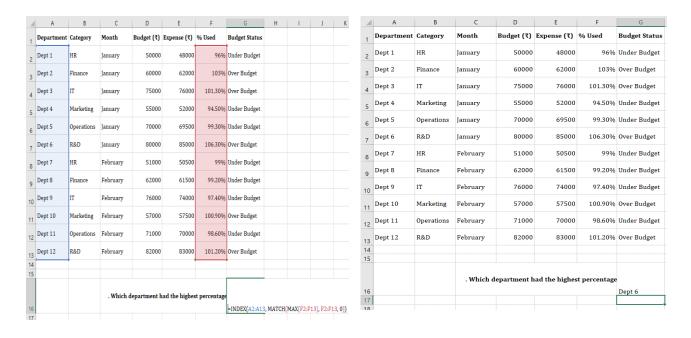
Formula: =SUMIF(C2:C13, "February", D2:D13)

Α	В	С	D	E	F	G	Н	-1			Α	В	С	D	E	F	G
Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status				1 D	Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status
Dept 1	HR	January	50000	48000	96%	Under Budget			2	2 D	Dept 1	HR	January	50000	48000	96%	Under Budget
Dept 2	Finance	January	60000	62000	103%	Over Budget			:	3 D	Dept 2	Finance	January	60000	62000	103%	Over Budget
Dept 3	IT	January	75000	76000	101.30%	Over Budget			4	4 D	Dept 3	IT	January	75000	76000	101.30%	Over Budget
Dept 4	Marketing	January	55000	52000	94.50%	Under Budget				5 D	Dept 4	Marketing	January	55000	52000	94.50%	Under Budget
Dept 5	Operations	January	70000	69500	99.30%	Under Budget				6 D	Dept 5	Operations	January	70000	69500	99.30%	Under Budget
Dept 6	R&D	January	80000	85000	106.30%	Over Budget				7 D	Dept 6	R&D	January	80000	85000	106.30%	Over Budget
•	HR	February	51000			Under Budget				B D	Dept 7	HR	February	51000	50500	99%	Under Budget
лері /	IIK	rebluary	31000	30300	7790	Olider Budget				9 D	Dept 8	Finance	February	62000	61500	99.20%	Under Budget
Dept 8	Finance	February	62000	61500	99.20%	Under Budget			1	0 D	Dept 9	IT	February	76000	74000	97.40%	Under Budget
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Dept 10	Marketing	February	57000	57500	100.90%	Over Budget			1	2 D	Dept 11	Operations	February	71000	70000	98.60%	Under Budget
Dept 11	Operations	February	71000	70000	98.60%	Under Budget			1	3 D	Dept 12	R&D	February	82000	83000	101.20%	Over Budget
Dept 12	R&D	February	82000	83000	101.20%	Over Budget			1	5							
										6			What is the	total budget	allocated for	February?	399000
		What is the	total budget	allocated for	February?				1	7							

4. Which department had the highest percentage usage?

Answer: Dept 6 (R&D)

Formula: =INDEX(A2:A13, MATCH(MAX(F2:F13), F2:F13, 0))

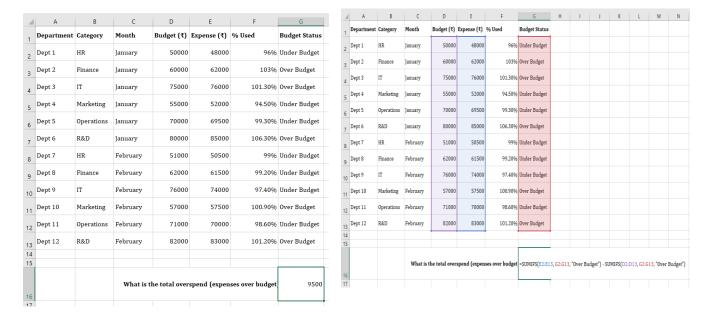


5. What is the total overspend (expenses over budget)?

Answer: ₹13,000

Formula: =SUMIFS(E2:E13, G2:G13, "Over Budget") - SUMIFS(D2:D13, G2:G13, "Over

Budget")



6. calculate the total expenses of R&D category?

Answer: 168000rs

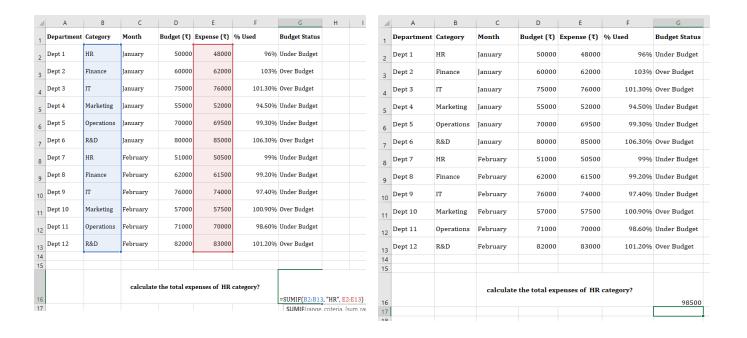
Formula: =SUMIF(B2:B13, "R&D", E2:E13)

4	Α	В	С	D	E	F	G	Н	1		A	В	С	D	E	F	G
D	epartment	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status			1	Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status
D	ept 1	HR	January	50000	48000	96%	Under Budget			2	Dept 1	HR	January	50000	48000	96%	Under Budget
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	ept 12	R&D	February	82000	83000	101.20%	Over Budget			13	Dept 12	R&D	February	82000	83000	101.20%	Over Budget
1										14							
5										15							
			calculat	e the total ex	penses of R&I	category?	=SUMIF(B2:B13	"R&D" F	2-F13)				calculate	the total ex	penses of R&I	category?	168000
			Calculat	c the total ex	penses of Rec	category:	-pornr(b2:b13	, R&D ,E	2.013)	16							

7. What is the total expense for HR category?

Answer: ₹98,500

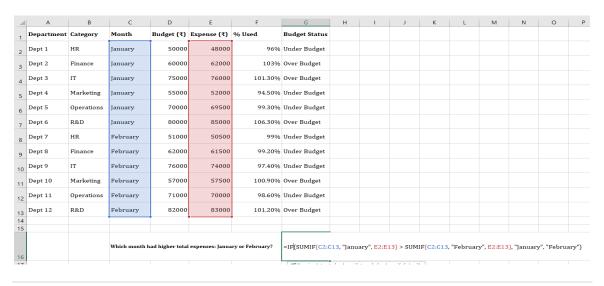
Formula: =SUMIF(B2:B13, "HR", E2:E13)



8. Which month had higher total expenses: January or February?

Answer: February

Formula: =IF(SUMIF(C2:C13, "January", E2:E13) > SUMIF(C2:C13, "February", E2:E13), "January", "February")

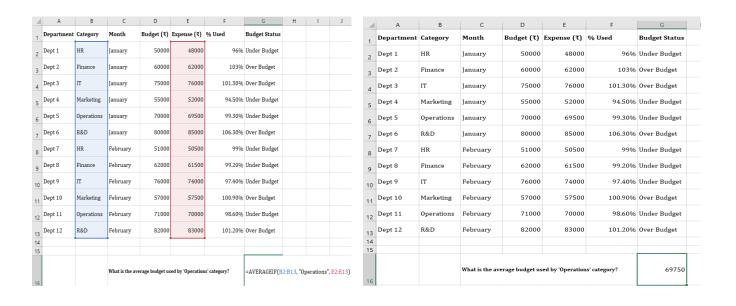


A	А	В	С	D	E	F	G
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13	Dept 12	R&D	February	82000	83000	101.20%	Over Budget
14							
15			Which month h	ad higher total	expenses: Janua	ary or February?	February

9. What is the average budget used by 'Operations' category?

Answer: ₹69,750

Formula: =AVERAGEIF(B2:B13, "Operations", E2:E13)



10. How many departments were over budget in January?

Answer: 3 departments

Formula: =COUNTIFS(C2:C13, "January", G2:G13, "Over Budget")

4	Α	В	С	D	E	F	G	н	1	J	K
1	Department	Category	Month	Budget (₹)	Expense (₹)	% Used	Budget Status				
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13	Dept 12	R&D	February	82000	83000	101.20%	Over Budget				
14											
16			How many d	departments	were over bu	dget in January	=COUNTIFS(C2:C				

all	А	В	С	D	E	F	G
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3	Dept 12	R&D	February	82000	83000	101.20%	Over Budget
4							
6			How many d	lepartments	were over bu	dget in January?	3
7							

CONCLUSION

The department expense analysis revealed key insights into budget compliance and financial efficiency within the organization. Most departments demonstrated responsible budget usage, with several remaining under budget in both January and February. However, certain departments—particularly in categories like R&D and Marketing—showed patterns of consistent overspending, indicating potential gaps in cost forecasting or operational planning.

By calculating the percentage of budget used and assessing monthly trends, we were able to identify which departments may require closer financial oversight or adjusted budget allocations in the future. February, in particular, saw a noticeable rise in overall expenses compared to January, suggesting either increased activity levels or delayed costs from previous months.

The use of Excel formulas allowed for efficient computation of financial metrics and quick identification of budget variances. Such tools are crucial for modern financial management, allowing decision-makers to monitor performance in real time and enforce accountability.

Overall, this case study reinforces the importance of ongoing budget monitoring and highlights how departmental spending behavior can directly impact organizational financial health. Through consistent data tracking and analysis, organizations can optimize budget planning, reduce wasteful expenditures, and support strategic financial goals.