

Project 10 : Compensation Analytics (v 1

Objective:

Analyze synthetic HR Compensation dataset to extract key insights: pay distribution, gender pay and bonus allocation.

Business Context:

Compensation & Benefits (C&B) analytics helps HR leaders answer:

- Are we paying fairly across levels, genders, departments?
- How are bonuses distributed?
- Where are the gaps or outliers that need intervention?

This notebook covers:

- 1 . Load & explore dataset
- 2 . Core metrics (Avg/Median CTC)
- 3 . Bonus % analysis
- 4 . Gender pay gap
- 5 . Visuals (CTC by level, gender gap, bonus distribution)
- 6 . Export artifacts

Cloning into 'hr-tech-portfolio'...

remote: Enumerating objects: 1184, done.

remote: Counting objects: 100% (120/120), done.

remote: Compressing objects: 100% (98/98), done.

remote: Total 1184 (delta 75), reused 33 (delta 22), pack-reused 1064 (from 1
Receiving objects: 100% (1184/1184), 11.40 MiB | 28.13 MiB/s, done.

Resolving deltas: 100% (717/717), done.

/content/hr-tech-portfolio/hr-tech-portfolio

✓ Synthetic dataset created at data/employee_compensation_sample.csv

Out[33]:

	EmployeeID	Gender	JobLevel	Department	CTC	Bonus
0	1	Male	3	Finance	1 5 4 7 0 2 1.0	2 8 2 0 5 3
1	2	Female	3	Tech	1 3 5 8 2 9 0.8	1 4 8 0 7 7
2	3	Female	2	Ops	6 6 6 5 7 4.2	1 1 6 1 0 4
3	4	Male	4	Sales	2 0 9 5 6 2 7.0	3 5 2 3 9 4
4	5	Male	3	Ops	1 6 1 2 3 6 3.0	2 3 1 6 3 8

Data Shape: (500, 6)

Out[34]:

	EmployeeID	Gender	JobLevel	Department	CTC	Bonus
0	1	Male	3	Finance	1 5 4 7 0 2 1.0	2 8 2 0 5 3
1	2	Female	3	Tech	1 3 5 8 2 9 0.8	1 4 8 0 7 7
2	3	Female	2	Ops	6 6 6 5 7 4.2	1 1 6 1 0 4
3	4	Male	4	Sales	2 0 9 5 6 2 7.0	3 5 2 3 9 4
4	5	Male	3	Ops	1 6 1 2 3 6 3.0	2 3 1 6 3 8
5	6	Male	1	Sales	2 7 1 5 5 6.0	3 3 7 1 9
6	7	Male	5	HR	3 0 4 0 3 0 5.0	5 9 8 7 3 5
7	8	Female	4	Sales	1 8 2 4 9 2 0.1	1 3 0 9 2 8
8	9	Female	5	Finance	2 7 5 0 9 1 8.4	4 3 6 7 7 2
9	10	Female	3	Tech	1 4 1 9 8 6 0.7	1 1 1 7 1 2

Average CTC: ₹ 12.18 Lakhs
Median CTC: ₹ 8.88 Lakhs

Out[35]:

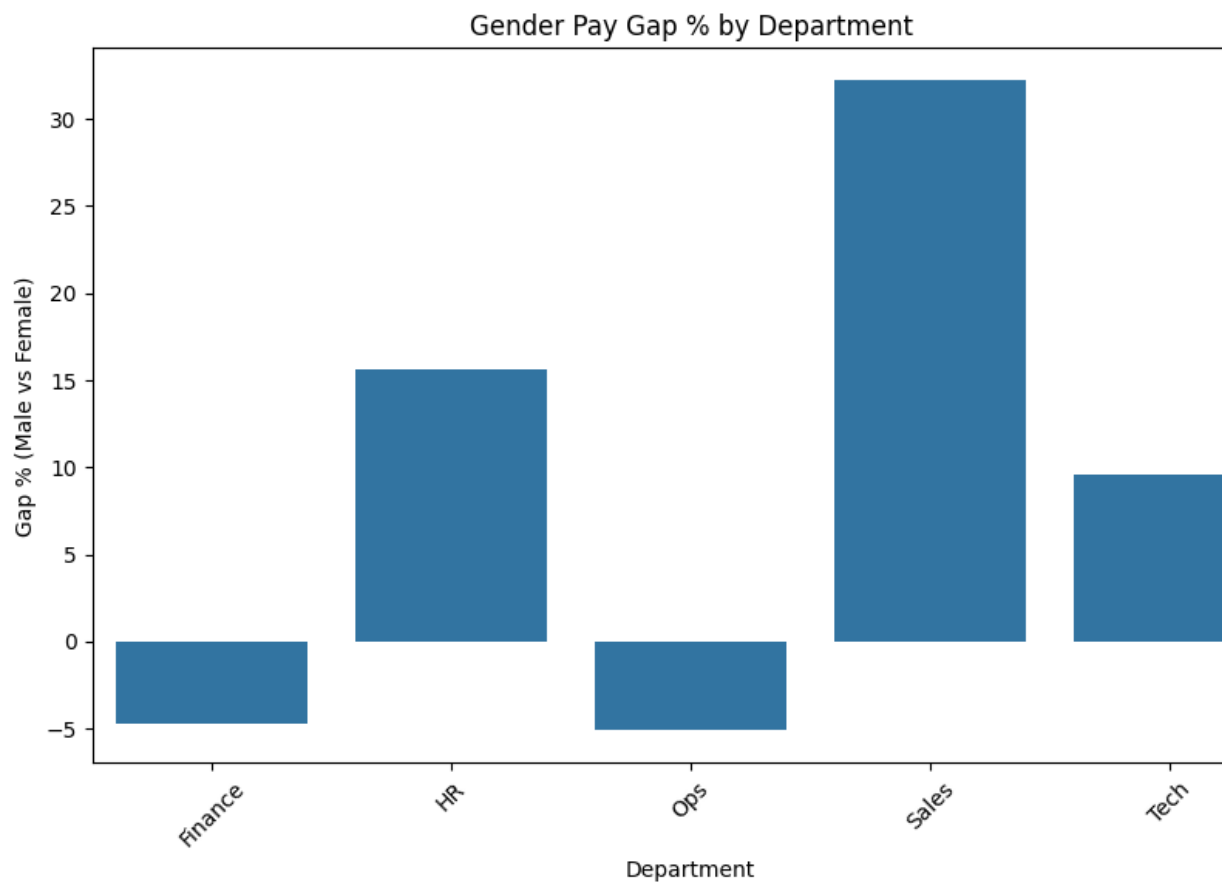
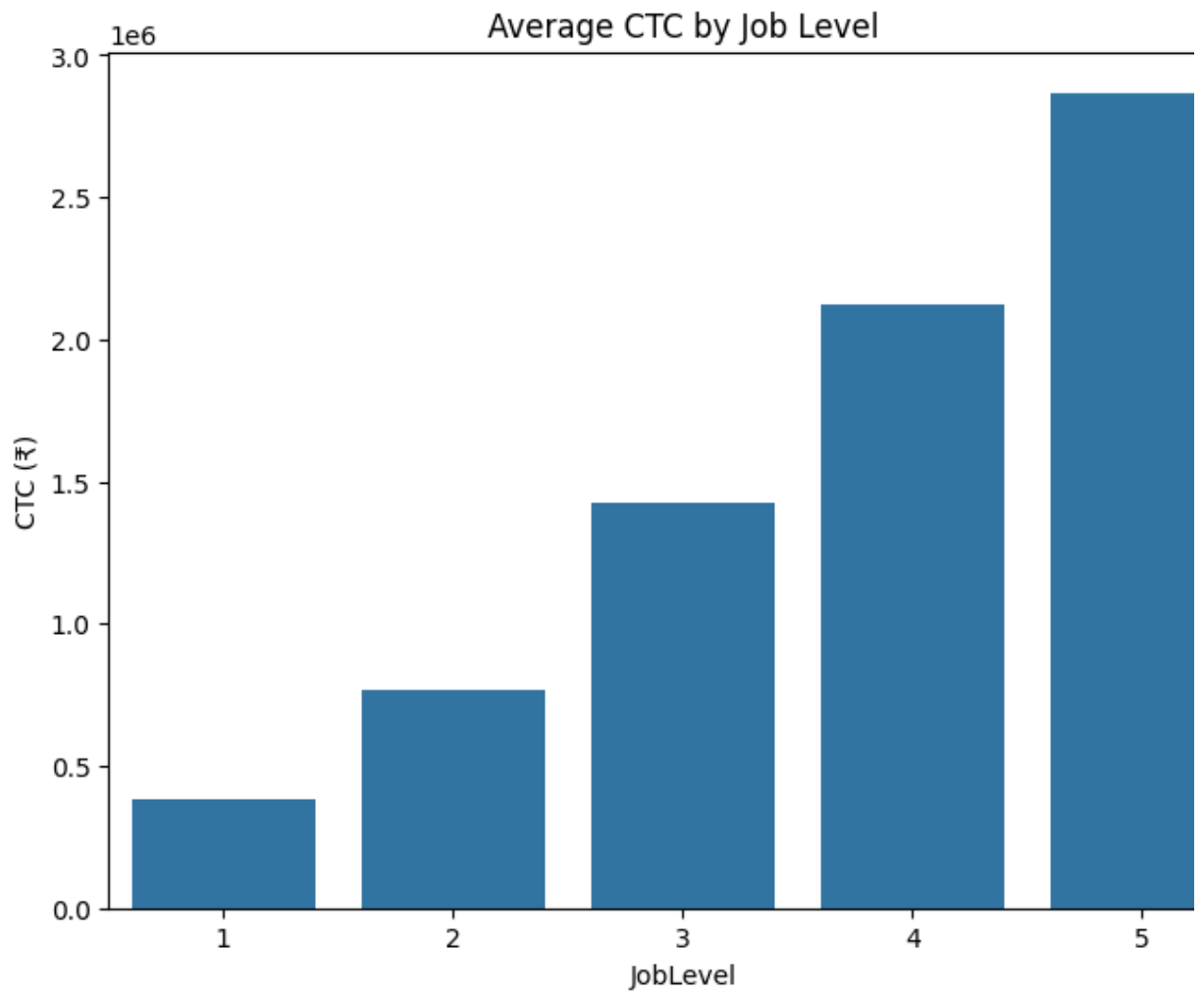
	Department	mean	median
0	Finance	1.102303e+06	833456.00
1	HR	1.315315e+06	997444.00
2	Ops	1.137180e+06	830957.50
3	Sales	1.176311e+06	844169.50
4	Tech	1.360345e+06	1360233.45

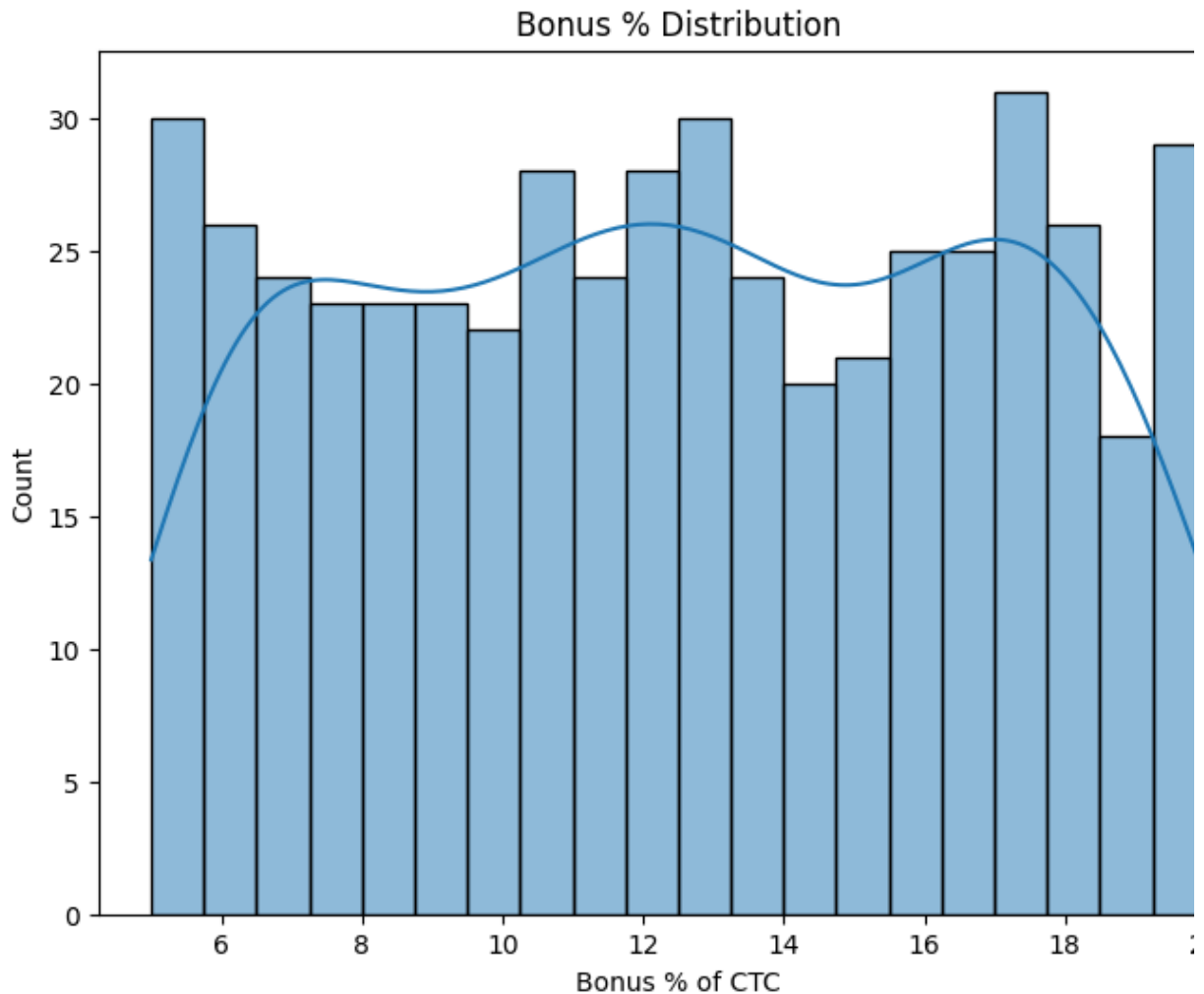
Out[36]:

	EmployeeID	CTC	Bonus	Bonus %
434	435	380464.0	76076	19.995584
106	107	742650.0	148204	19.956103
483	484	310128.3	61845	19.941747
409	410	1010006.0	201222	19.922852
153	154	1444729.0	287156	19.876115

Out[37]:

	Gender	Department	Female	Male
0	Finance	1.128955e+06	1.078214e+06	-4.7060
1	HR	1.177926e+06	1.396499e+06	15.6515
2	Ops	1.176087e+06	1.119096e+06	-5.0925
3	Sales	9.392308e+05	1.385500e+06	32.2099
4	Tech	1.285262e+06	1.421261e+06	9.5688





✅ Artifacts generated:

- data/Comp_Analytics_Processed.csv
- images/comp_ctc_by_joblevel.png
- images/comp_gender_gap.png
- images/comp_bonus_dist.png

Enter your GitHub token:

Enumerating objects: 12, done.

Counting objects: 100% (12/12), done.

Delta compression using up to 2 threads

Compressing objects: 100% (9/9), done.

Writing objects: 100% (9/9), 72.00 KiB | 12.00 MiB/s, done.

Total 9 (delta 3), reused 0 (delta 0), pack-reused 0

remote: Resolving deltas: 100% (3/3), completed with 3 local objects.

To https://github.com/AMBOT-pixel96/hr-tech-portfolio.git

e15ff22..7bbf8f8 main -> main

✅ Conclusions

- **Average CTC:** X Lakhs, **Median CTC:** Y Lakhs
- **By Level:** Pay rises steadily with seniority.
- **By Gender:** Gap of Z% in Dept A (highest disparity).
- **Bonuses:** Top 10 % employees capture ~__% of total bonus pool.

📄 Notebook: [Compensation_Analytics_V 1 .ipynb](#)