📖 Story: The Compensation Puzzle at TechNova Inc.

TechNova Inc., a growing technology firm with 200 employees, was facing internal murmurs about **unfair salaries**. The HR Director, Aisha, decided it was time to run a detailed **compensation analytics exercise** to assess the pay structure across the company.

🔢 Step 1: Mean Salary

Aisha calculated the **mean (average)** salary across all employees.
It came out to **$78,000 per year**.

> "Looks decent," she thought, "but averages can be misleading."

🔍 Step 2: Median Salary

She then calculated the **median**, the middle value when all salaries are ordered.
The median was only **$65,000**.

> "Interesting. That means half our employees earn less than $65k, despite the average being $78k. There might be a few very high salaries skewing the average."

📌 Step 3: Mode Salary

She checked the **mode**—the most common salary—and found it was **$60,000**.

> "So more people earn $60k than any other amount. That aligns with the median being lower than the mean."

🧮 Step 4: Range

Aisha looked at the **range**: the difference between the highest and lowest salaries.
The lowest salary was **$35,000**, and the highest was **$210,000**.

> "That's a range of $175,000! Quite wide. I need to see if this is due to outliers or structured roles."

📊 Step 5: Quartiles

She divided the salary data into **quartiles**:

- **Q1 (25th percentile)**: $52,000
- **Q2 (Median / 50th percentile)**: $65,000
- **Q3 (75th percentile)**: $92,000

> "That tells me that 25% of employees earn less than $52k, and 75% earn less than $92k. A large cluster is in the lower-mid bracket."

🎯 Step 6: Percentiles

She zoomed into the **90th percentile**—the point below which 90% of the data falls.
It was **$130,000**.

> "So only 10% of employees earn more than $130k. Most of our people fall below that. Maybe those top earners are executives or niche roles."

📉 Step 7: Standard Deviation

Finally, she calculated the **standard deviation** of salaries: **$30,000**.

> "That's high. There's a lot of variability in salaries. We may lack a consistent compensation structure."

💡 Conclusion

Aisha summarized her insights:

- Salaries are **right-skewed** (mean > median), driven by a few high earners.
- Most employees fall within **$52k–$92k**, but some earn far more.
- The **high standard deviation and wide range** indicate uneven compensation.

- The company might need to **review its salary bands**, especially for fairness and retention in lower pay brackets.

She proposed to:

- Introduce **pay bands by job family**,
- Increase **transparency and equity** in raises,
- Use **percentile benchmarks** to align with industry standards.