Market Trend Analysis of Data Roles in the U.S.

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Project Goal & Dataset Summary

Project Goal:

To analyse U.S. job listings to explore trends in data-related roles - including job titles, locations, salaries, company types, and technical skill requirements.

Key Dataset Facts:

📅 Data Period: 2024
🌎 38 U.S. states represented
📝 Total Listings: 465
👔 264 job titles (e.g. Data Analyst, Machine Learning Engineer)
🏢 9 company types (e.g. Public, Private, Government)
🛠️ 5 core skills: Python, R, Spark, AWS, Excel

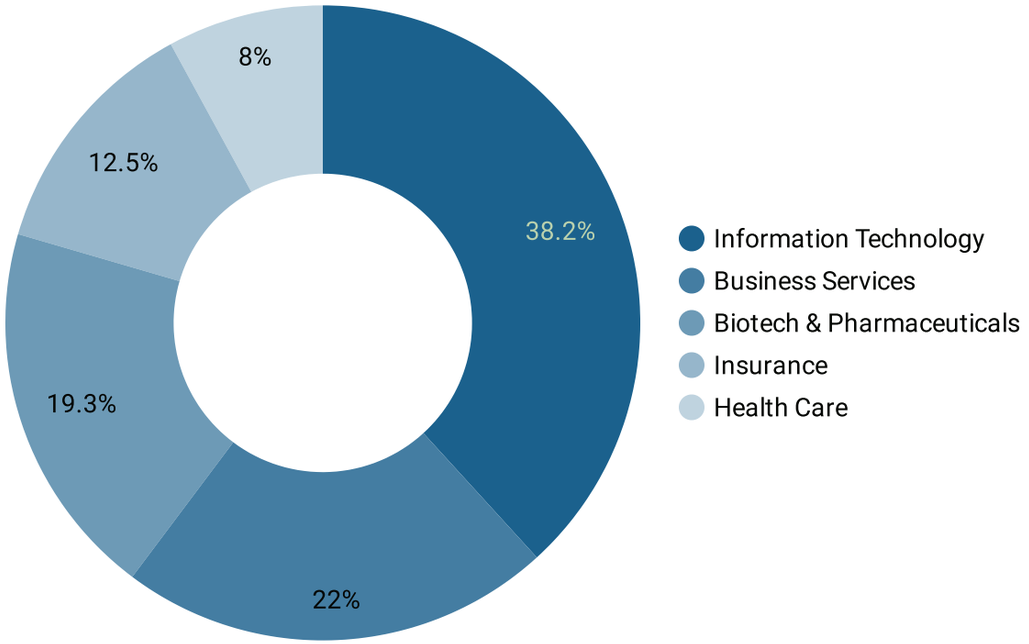
What type of roles are out there available to me & where?

Data Roles & Skill Demand in 2024

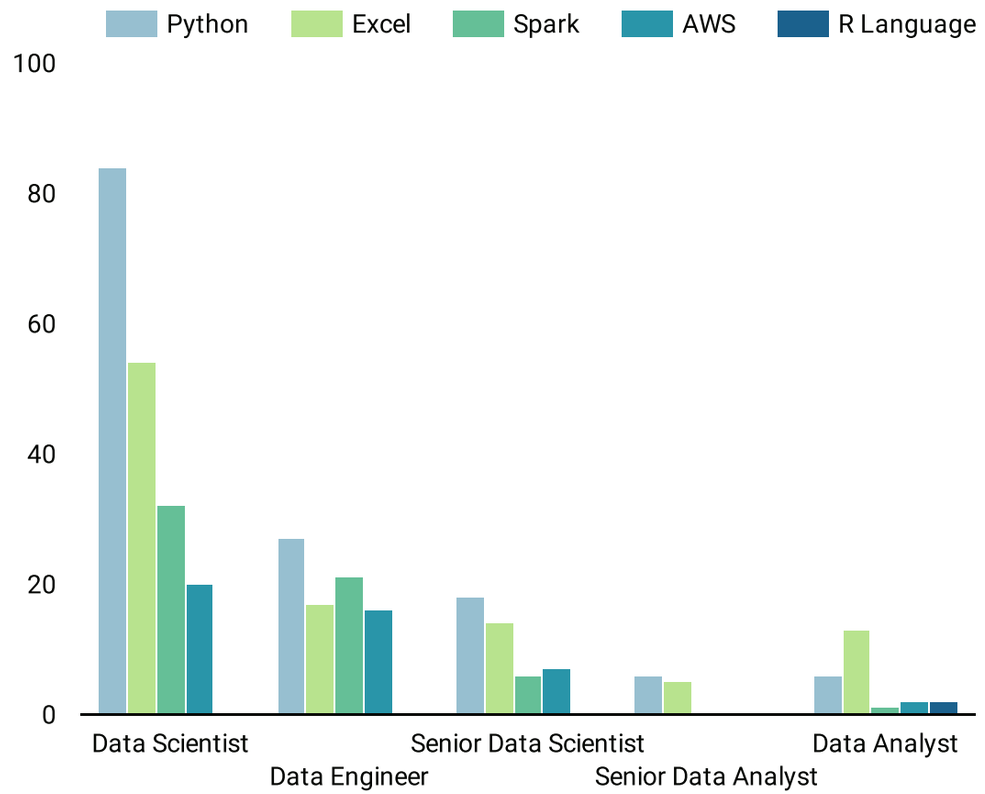
Python and Excel emerged as the **most in-demand skill set**, appearing in almost every employment role. In contrast, skills such as **Spark and AWS** were more prevalent in positions such as **senior data scientist, senior data analyst, and data analyst**.

Total Jobs	Python	Excel	Spark	AWS	R Language
465	261	249	113	111	2

Top 5 Data Roles by Sector and Industry in the US in 2024



Skill Demand by Top 5 Job Titles



Data Roles Available & Where

- **Tech hubs** (California, New York) offer **high availability of data roles**, while Alaska, Rhode Island, South Carolina offers a very low availability of data roles.
- **Emerging markets** (Texas, Pennsylvania, North Carolina) see rising demand in **finance, healthcare, manufacturing**.
- **Top states for data roles:** California, Massachusetts, New York, Virginia, Maryland, Illinois.

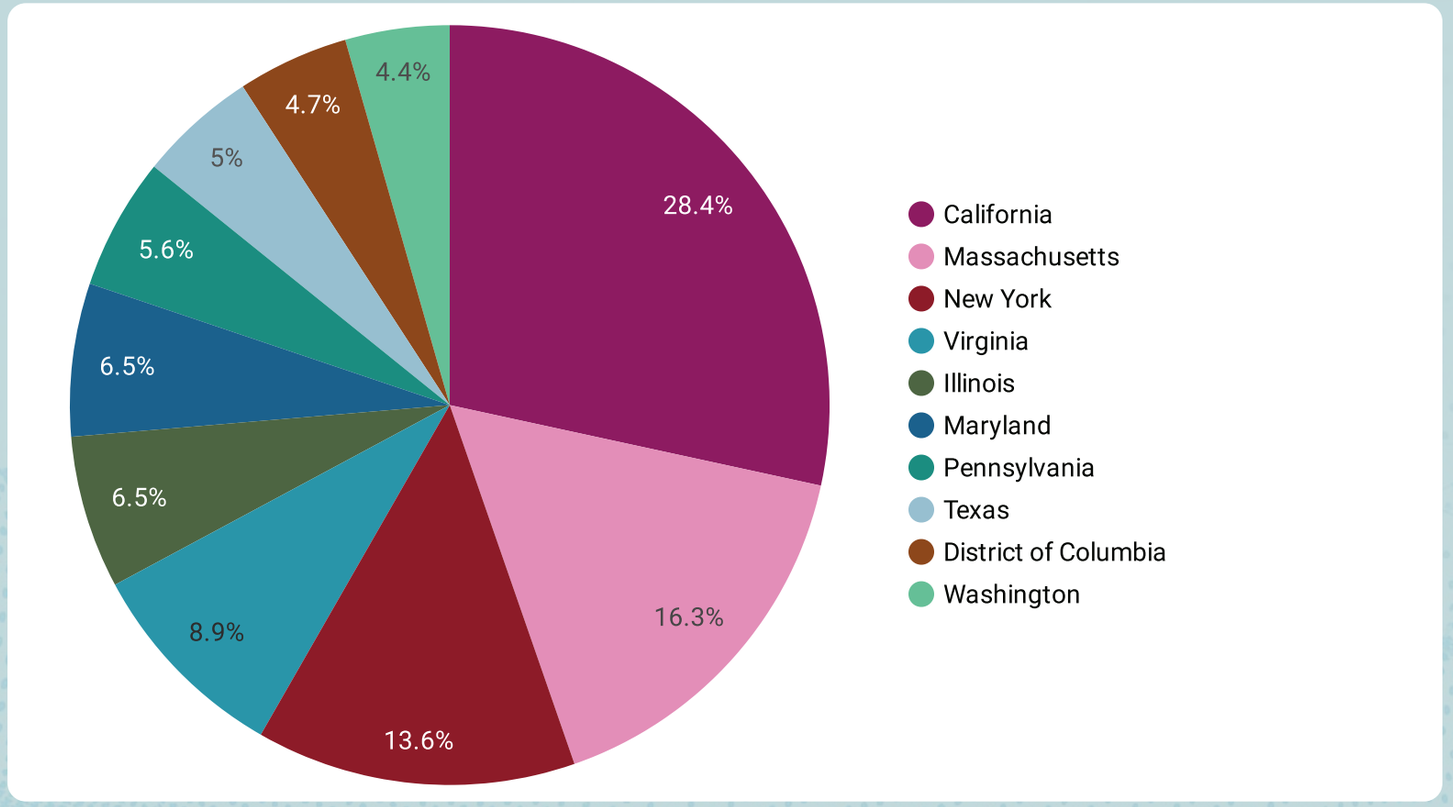
Number of States

38

Number of Cities

194

Number of Data Roles in States and Cities



State

What skills would I need to have?

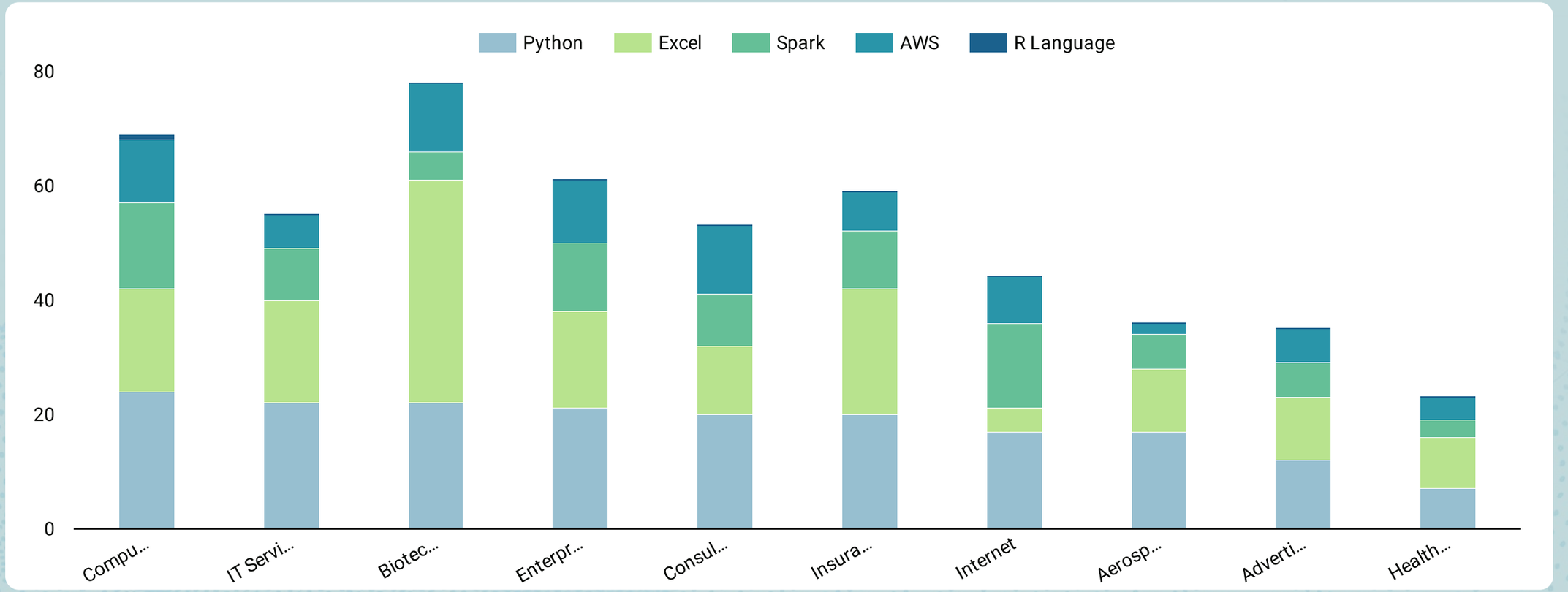
Skill Demand Across Industries & Sector

Industry
59

Sector
24

- **Python, Excel, AWS, and Spark are the most in-demand** skills across top industries, reflecting their core role in data tasks.
- Sectors like **IT, Business Services, Biotech, Insurance, and Aerospace hire the most** for data roles — with the same key tools in demand.
- **R** remains the **least requested** skill overall.

Skill Demand by Industry and Sector



Skill Demand & Region

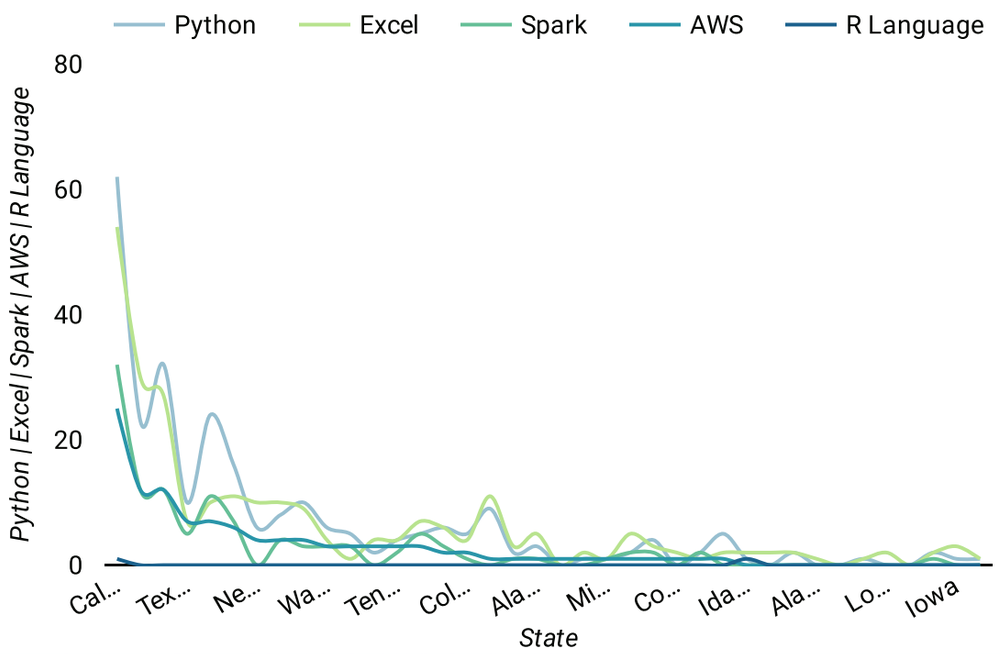
Excel is the **top skill** required in data roles across the U.S., followed by **Python, AWS, Spark** and then **R has the lowest demand**, mainly used in cities like San Mateo, California (statistical modeling, clinical analysis) and Meridian, Idaho (public health, agriculture).

Number of States	Number of Cities	Skill Sets
38	194	5

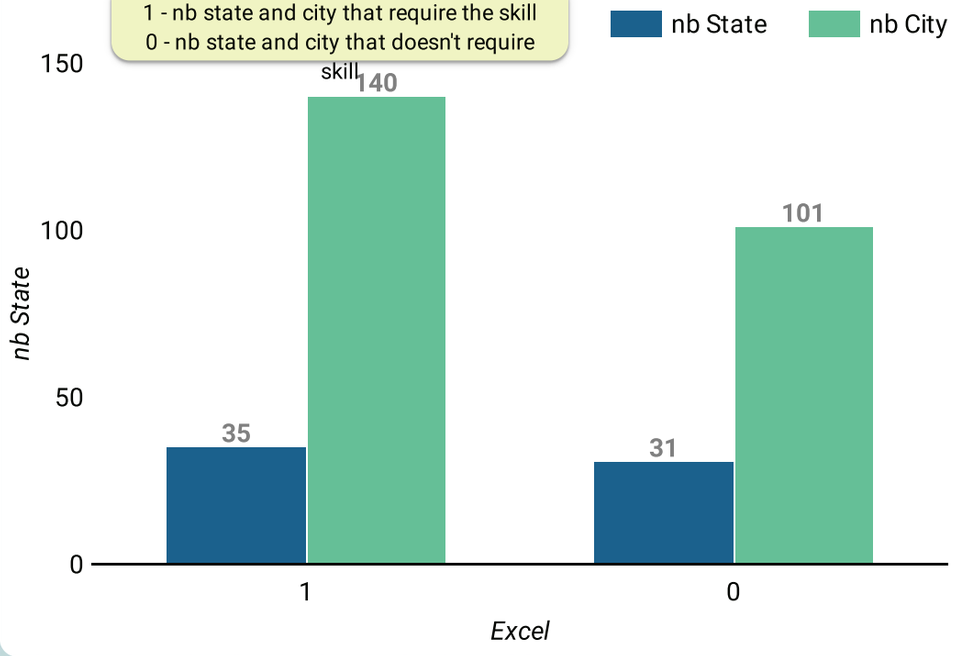
State

City

Analysis of Skill Set Required By State and City



Number of States and Cities That Require a Specific Skill Set



What is the salary like and what could influence my pay?

Location & Regions Salary Difference

State
38

City
194

Average Salary
$100.6k

Average salary range from **$123.96k to $27.5k** across the US states and **$184.5k to $15.5k** across US cities

States such as **California, Illinois, Massachusetts** offer high salaries due to high cost of living.

Delaware offers lower pay due to tech companies being few, hence low tech demand.

Job Title | State | City

Analysis of Average Salary and Data Roles Within an US State and ...

	State	Average Salary
1.	California	$123.96
2.	Illinois	$112.3
3.	Alaska	$107.5
4.	District of Columbia	$104.56
5.	Michigan	$104.5
6.	Massachusetts	$103.58
7.	New Jersey	$102.35
8.	New York	$100.01
9.	Rhode Island	$100
10.	North Carolina	$99.18
11.	Maryland	$98.95
12.	Virginia	$97.67

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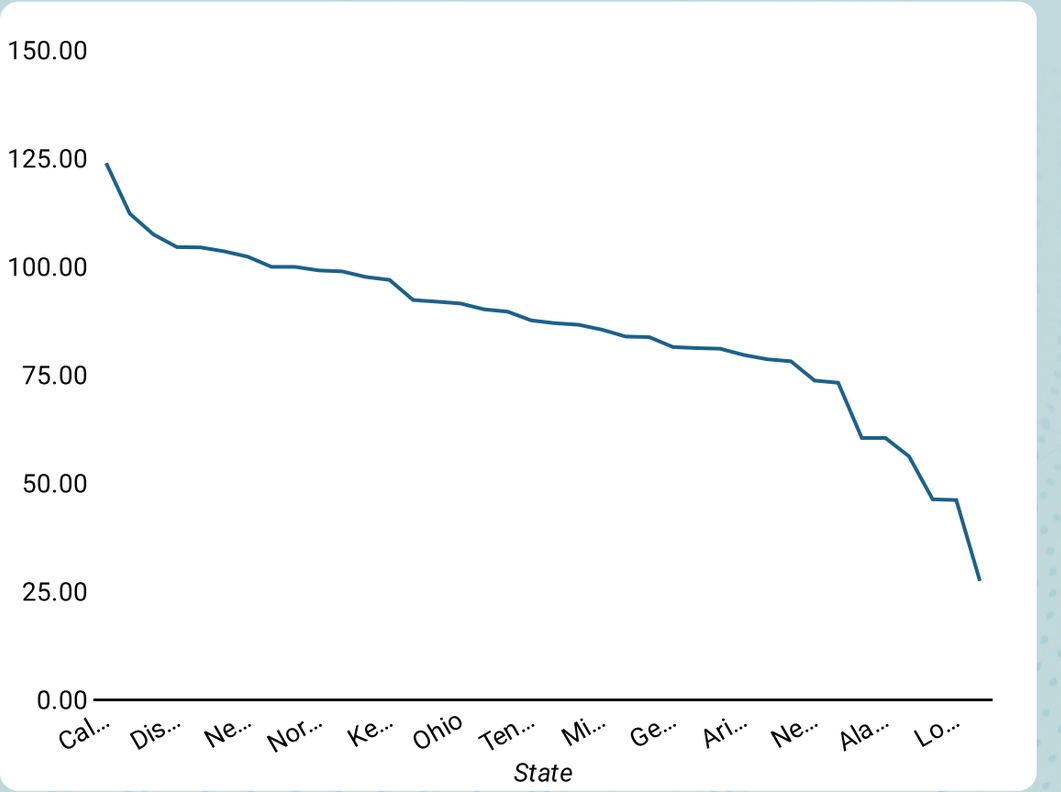
Average Salary by Data Role, US State and City



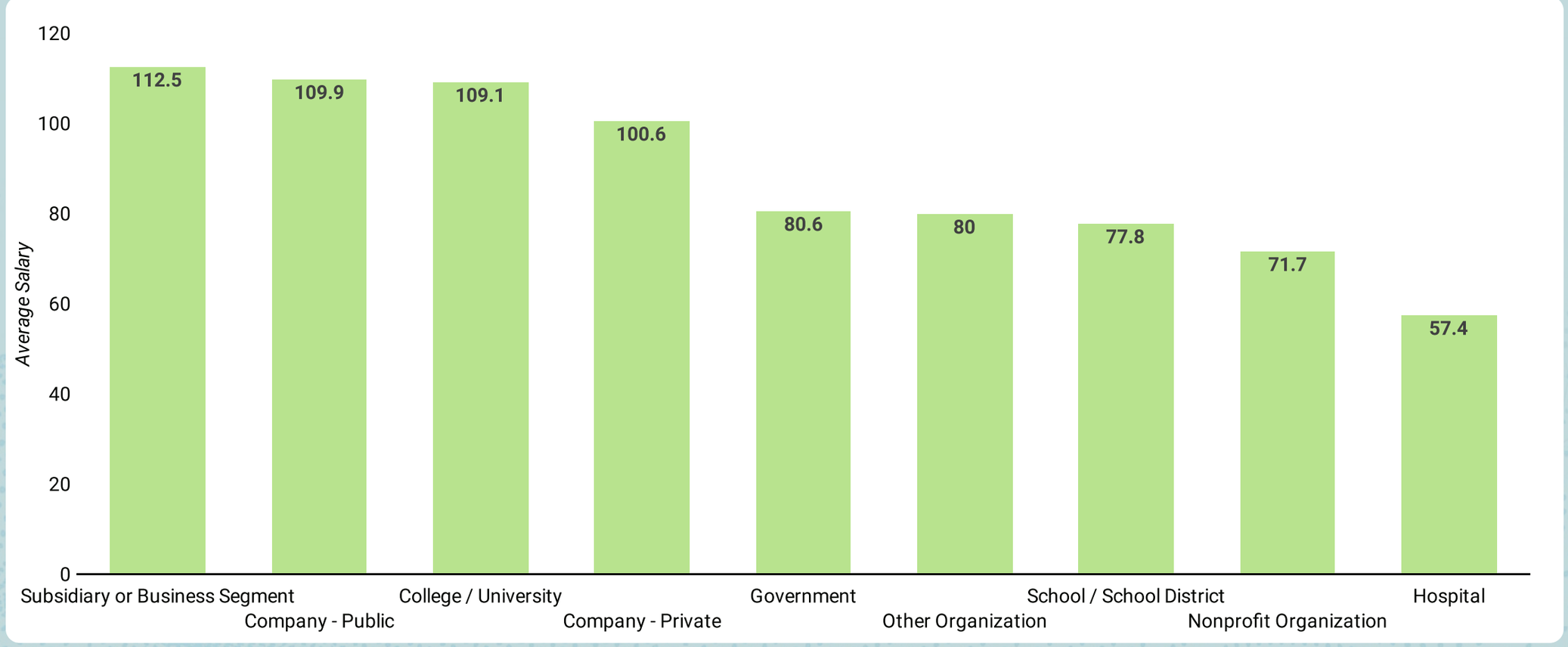
Type of Ownership VS Salary

Type of Companies
9

Top Paying Company Type: Subsidiary

Average Salary
$112.5k

Public and subsidiary companies offer the **highest average salaries** (over $110k), while non-profit, hospital, and school organisations offer the lowest. This suggests a clear link between ownership structure and compensation levels in data-related roles.



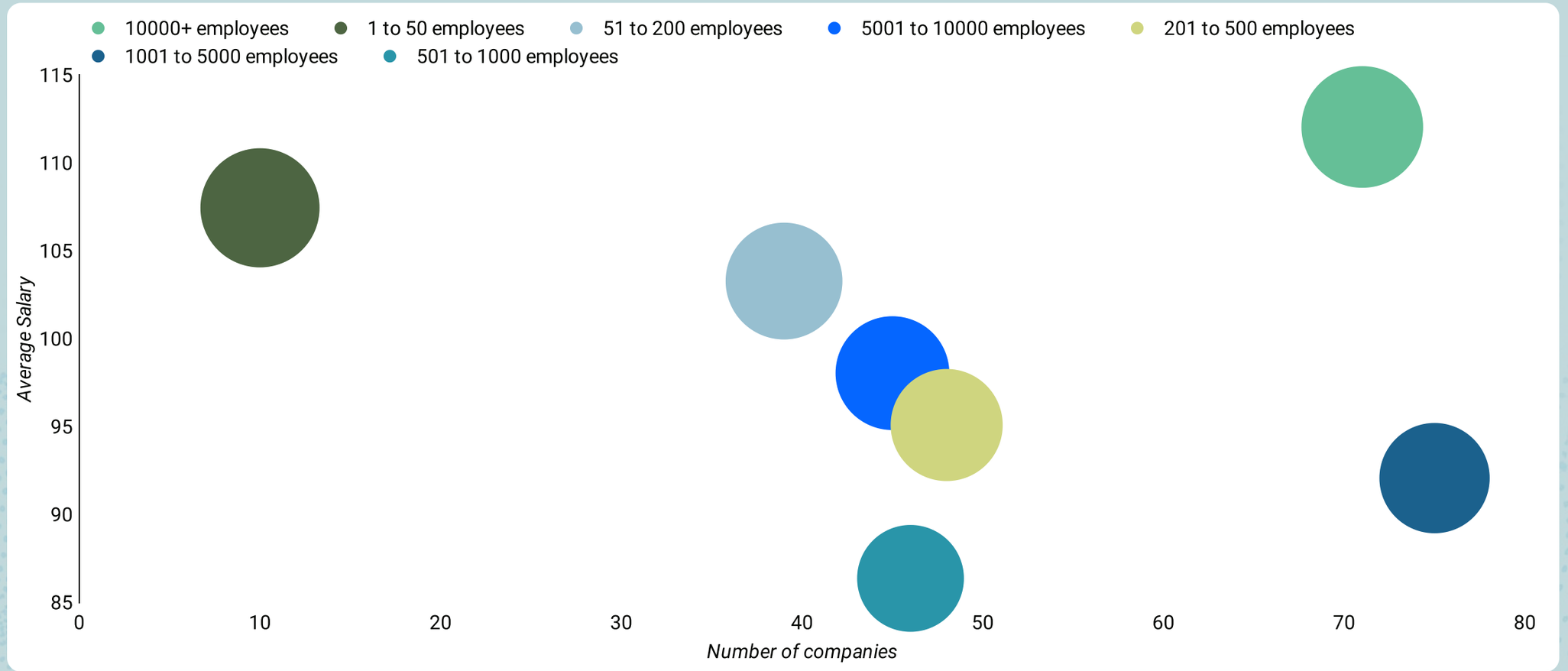
Company Size, Revenue VS Salary

Number of Company Size Categories
7

Number of Revenue Categories
12

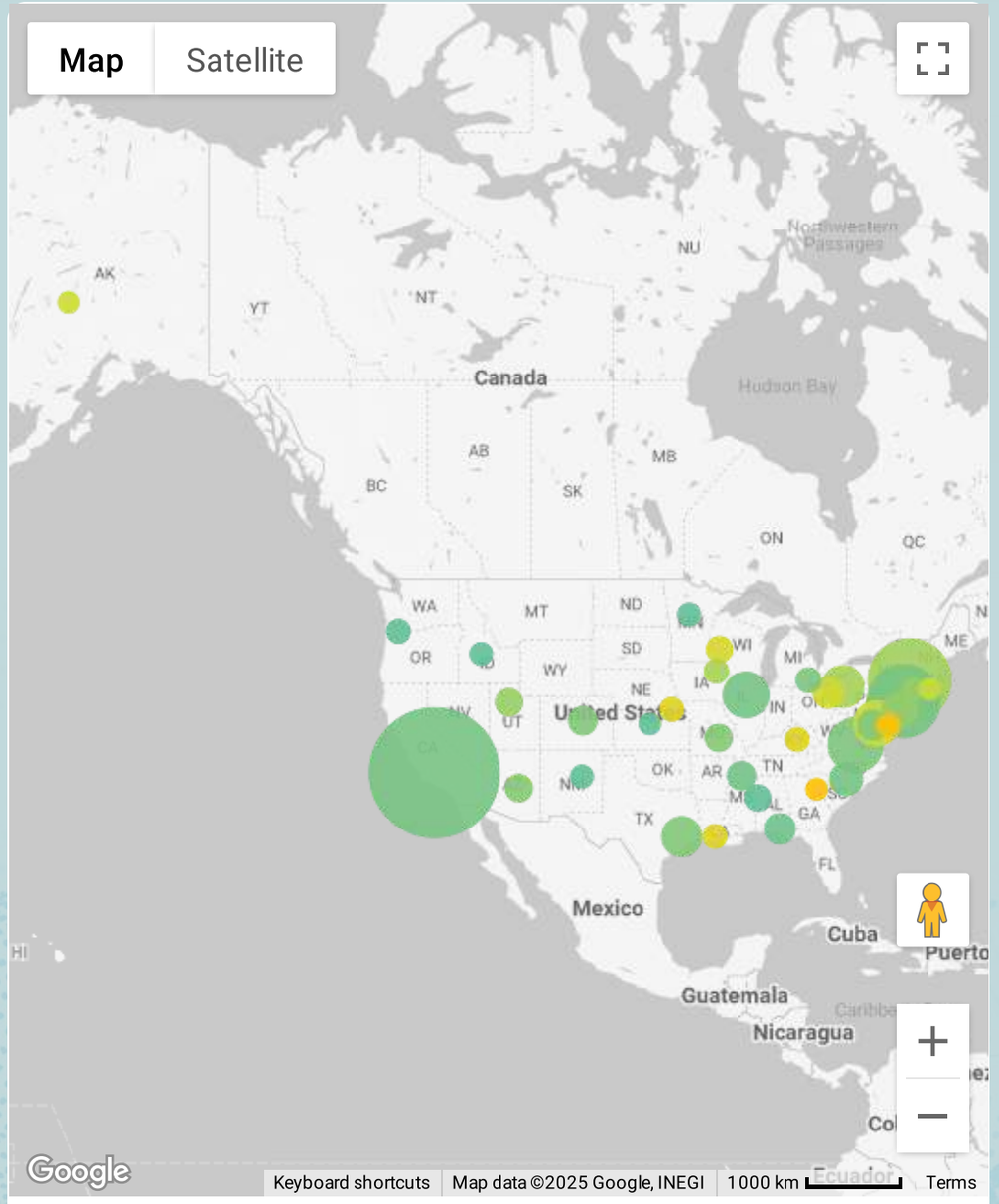
The **largest and the smallest** companies offer the **highest salary**.

Mid-revenue and largest revenue companies pay the **most**.



Technical Tool Stacking & Salary Impact

Average Number of Tools Required and Job Volume by State



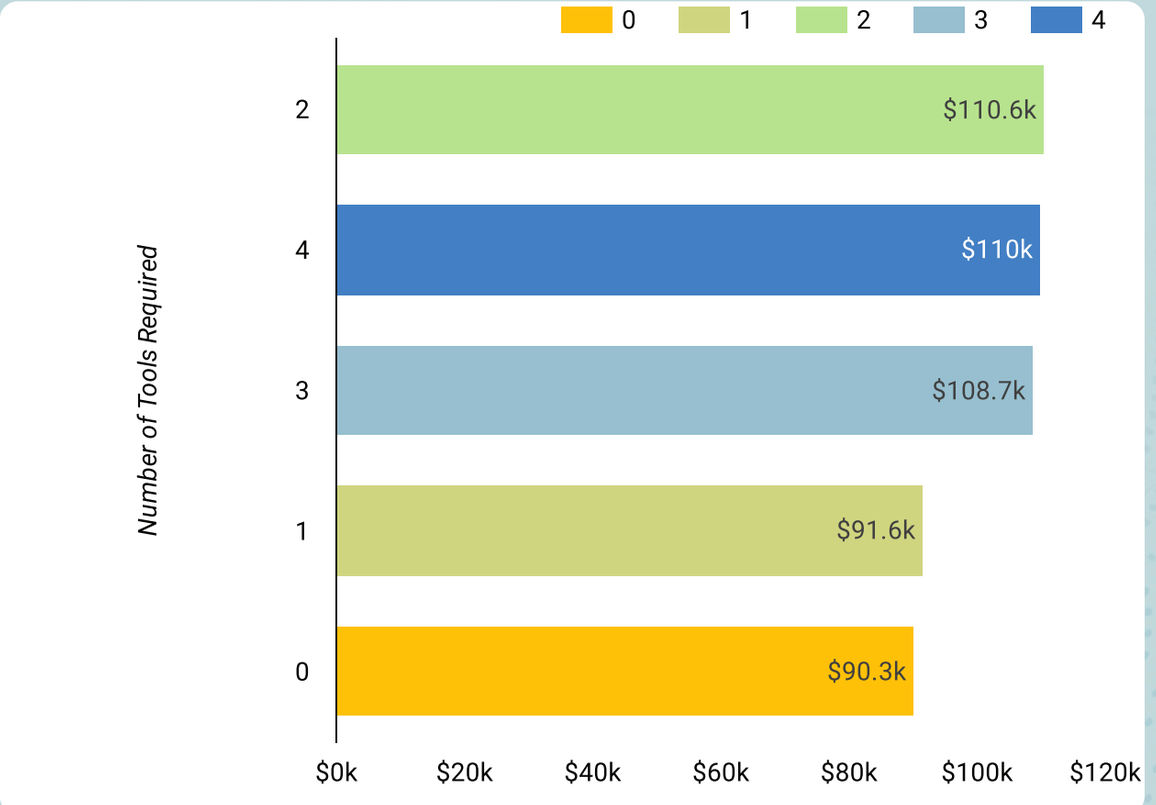
Average Number of Tools Required 0 2

Number of Tools Required

Tool Count that Pays the Most
2

Building expertise in **2 – 3 core technical skills**, especially in cloud and big data, can **maximise salary** potential without the need for excessive tool stacking.

Average Salary by Tool Count and Top 10 Combinations



Conclusion

Key Insights:

🛠️ **Skills in demand:** Python, Excel, AWS, and Spark lead to higher compensation
🌍 **Location plays a major role:** Major cities offer better-paying roles than smaller markets
🏢 **Ownership structure matters:** Subsidiaries and public companies offer the highest salaries
💼 **Company size impacts pay:** Large and small companies pay the highest
💰 **Revenue isn't always proportional:** Mid-revenue companies pay more than large corporations
🧰 **Technical tool stacking is critical:** Roles requiring 2 - 4 tools

Key Takeaway for Job Seekers:

Build a versatile set of skills and target public firms or mid-revenue companies in high-paying cities to get the maximum salary possible.


Good Luck
with your job search