Project Title: **Job Market Analysis 2025**

The project is a deep-dive **Job Market Analysis** based solely on an internal SQL database. **No external Excel file is involved** in the data processing, as the data is defined and queried within the provided SQL scripts.

As an expert data analyst, the SQL queries represent a comprehensive strategy for data quality assessment, descriptive statistics, and inferential analysis, suitable for a robust Power BI report.

**1. Problem Statement and Solutions**

**Problem Statement**

The core problem is to extract **actionable intelligence** from the raw job postings data to understand the dynamics of the job market. Stakeholders need clear, visual insights to answer key strategic questions, specifically regarding **compensation benchmarking**, **demand distribution (geographical and role-specific)**, and the **impact of work models (remote vs. on-site)** on the market.

**Key Questions to Address:**

1. What is the **true compensation floor/ceiling** for various job types after standardization?
2. Where is the **highest demand** geographically for specific high-value tech roles?
3. How does the **work model (Full-time, Contract, Remote)** directly impact the average salary offered?

**Solutions (Key Insights Derived from SQL Queries)**

The provided SQL scripts deliver the framework for the following solutions and insights:

| Solution/Insight | Supporting SQL Query Focus | Business Value |
| --- | --- | --- |
| **Salary Benchmarking by Work Model** | Calculation of Average Standardized Salary segmented by schedule\_type (Full-time/Contract) and work\_from\_home (Remote/On-Site). | Provides direct evidence for how much a remote option or contract status influences compensation. |
| **Top Role Performance Profile** | Analyzing the top 5 job titles by volume, showing their **Average Standardized Salary** and the **Percentage of Remote Jobs**. | Allows recruiters and job seekers to prioritize high-demand, high-paying roles with flexibility. |
| **Market Freshness Impact** | Comparison of average salaries for jobs posted in the **last 7 days** versus earlier postings. | Determines if the market is currently offering higher or lower compensation compared to historical averages. |
| **Geographic Demand Hotspots** | Identifying locations with high concentrations of specific tech roles (e.g., Frontend/Backend Developers) and analyzing commute time distributions. | Guides talent acquisition strategy and aids in real estate/office expansion decisions. |
| **Compensation Tier Distribution** | Categorization of all jobs into clear **High, Medium, and Low** salary tiers. | Provides a macro-level view of the entire job market's compensation structure. |

**2. Power BI Report Design Guidelines**

The Power BI report should be structured into four logical pages, transforming the raw query outputs into intuitive visualizations.

**Data Model and Preparation**

* **Data Source:** Connect directly to the **SQL Database** (Server name, Database JOB, table JOBS\_DATA).
* **Data Transformation (Power Query):**
  + Implement the logic from the SQL queries as Custom Columns (e.g., SalaryTier, WorkLocationType, CommuteCategory) if not already part of the final view.
  + Ensure the salary\_standardized column is the primary metric for all average calculations.
  + Create a date table for time-based analysis if needed, though the SQL uses posted\_at and date\_time.

**Report Pages and Key Visualizations**

|  |  |  |  |
| --- | --- | --- | --- |
| Page | Focus | Key Visualizations | Filters/Slicers |
| 1. Executive Summary: Market Overview | Volume, Top Employers, and Overall Metrics | KPI Cards: Total Job Count, Unique Job Count, Overall Avg. Standardized Salary. Bar Chart: Top 10 company\_name by Job Count. Donut Chart: Distribution by schedule\_type (Full-time, Contract, etc.). | Global schedule\_type and search\_location filters. |
| 2. Compensation Benchmark | Detailed Salary Analysis by Dimension | Clustered Bar Chart: Avg. Salary by schedule\_type vs. WorkLocationType (Remote/On-Site). Pie/Donut Chart: Job Count distribution by SalaryTier (High, Medium, Low). Gauge Visual: Comparison of Avg. Salary for 'Hourly' vs. 'Yearly' rates. | title and company\_name drill-down filters. |
| 3. Geographic & Accessibility | Location Demand and Commute Analysis | Filled Map: Job Count by location. Stacked Bar Chart: Job Count by CommuteCategory ('Short', 'Medium', 'Long'). Table/Matrix: Locations with highest concentration of specific tech roles (e.g., Data/AI/ML roles identified via tokens). | location and search\_term filters. |
| 4. Role & Trend Deep Dive | Specific Role Performance and Data Freshness | Table/Matrix: Top 5 title showing Avg. Standardized Salary and Remote Job Percentage. Bar Chart: Avg. Salary comparison for 'Last 7 Days Posted' vs. 'Posted Earlier'. | title filter (Top N selection). |

**3. PPT Presentation Guidelines**

The presentation is the storytelling component, transforming data into narrative and recommendations.

**Slide Structure**

|  |  |  |
| --- | --- | --- |
| Slide | Title & Focus | Content Guidance |
| 1 | Title Slide: Job Market Analysis Report | Project Name, Date, Your Role. Crucially mention: Data Source is 100% SQL Database; No Excel Involvement. |
| 2 | Executive Summary & Problem | Problem: Briefly state the challenge (lack of clear market structure/benchmarks). Solution: Focus on the Top 3 Insights (e.g., "Remote status adds X% to salary," "High demand in Location Y"). |
| 3 | Market Volume & Top Employers | Visual: Page 1 - Market Overview (KPIs, Top Companies). Key Takeaway: Which 3 companies dominate the hiring landscape? |
| 4 | The Compensation Story: Work Model | Visual: Page 2 - Compensation Benchmark (Clustered Bar Chart: Salary by Schedule/Remote). Key Takeaway: The premium/discount associated with Full-time vs. Contract and Remote vs. On-Site work. |
| 5 | Deep Dive: Top Roles and Salary Tiers | Visual: Page 4 - Top Role Performance Matrix and Salary Tier Distribution. Key Takeaway: Which Top 5 role offers the best combination of salary and remote flexibility? |
| 6 | Geographic Demand | Visual: Page 3 - Map and Commute Analysis. Key Takeaway: Where are the emerging 'hotspots' for specific tech talent and how accessible are those jobs (commute)? |
| 7 | Conclusion & Recommendations | Recommendation 1 (Hiring/Talent Acquisition): Target Location X for Role Y due to high volume/salary. Recommendation 2 (Job Seeker): Focus on Roles Z that offer a high remote percentage and salary. Recommendation 3 (Data/System): Suggest further data enrichment (e.g., skill-level categorization) for deeper analysis. |

**Presentation Best Practices**

* **Rule of Three:** Limit each slide to **3 key visualizations** and **3 bullet points**.
* **No Raw SQL:** Do not show the SQL code. Instead, show the **results** of the queries as compelling charts.
* **Data Storytelling:** Start with the *highest-impact* finding and use a clear narrative arc: **Situation** (Market Volume) -> **Complication** (Salary Discrepancies) -> **Resolution** (Targeted Insights).
* **Color-Coding:** Use consistent colors to represent categories across all slides (e.g., always use blue for 'Remote' and grey for 'On-Site').