✅ Executive Summary: AI Job Market Explorer Project

This exploratory data analysis (EDA) project explore trends in AI job market using real-world job posting data it analyse **salary trends**, **job types**, **education impact**, **remote work**, and **industry-specific job roles** using Python libraries such as Pandas, Matplotlib, and Seaborn.

◆ 1. Dataset Overview and Cleaning

- Unused columns like `salary_currency`, `job_id`, and `company_name` were removed.

- Missing values were checked and managed.

- `posting_date` and `application_deadline` columns were converted to datetime format for better analysis.

◆ 2. Job Type & Employment Distribution

- **Full-time jobs** make up the majority: **~86%** of all listings.

- Other types:

    ○ Freelance: ~6%

    ○ Contract: ~5%

    ○ Part-time: ~3%

Conclusion: Full-time roles not only dominate in quantity but also offer the **highest average salaries**.

◆ 3. Salary by Experience Level

Experience Level	Average Salary (USD)
Entry (EN)	~$65,000
Mid (MI)	~$84,000
Senior (SE)	~$112,000
Executive (EX)	**~$138,000**

Conclusion: Salary increases consistently with experience. Executives earn over **2x** compared to entry-level employees.

◆ 4. Remote Work Insights

- **100% Remote roles** account for **~36.5%** of all jobs (4920 listings).

- On average, remote jobs offer **$1,000 more** in salary compared to non-remote roles.

Conclusion: Remote work is **both common and better-paying**, showing its rising demand in AI roles.

◆ 5. Top 5 Countries for AI Jobs

Most job listings are concentrated in:

1. United States

2. United Kingdom

3. Germany

4. Canada

5. India

Conclusion: These five countries together contribute a **significant majority** of listings.

◆ 6. Education vs Salary

Education Level	Avg Salary (USD)
Ph.D.	**Highest**
Master's Degree	High
Bachelor's Degree	Medium
High School / Diploma	Lowest

Cunclusion: Higher education leads to better salaries, with Ph.D. holders earning the most.

◆ 7. Company Size & Benefits

Company Size	Avg Benefit Score
Large	Highest
Medium	Moderate
Small	Lowest

Conclusion: Larger organizations provide better benefit packages on average.

◆ 8. Industry-wise Job Titles

- Job titles vary significantly across industries.

- Mode (most frequent) job titles are different for sectors like Finance, Healthcare, and IT.

◆ 9. Most In-Demand Skills

Top 10 most frequently required skills (from `required_skills` column):

- Python
- Machine Learning
- SQL
- Deep Learning
- NLP
- Data Analysis
- TensorFlow
- PyTorch
- AWS
- Big Data

◆ 10. High-Salary Jobs

Jobs offering over **$150,000** mostly include titles like:

- AI Engineer
- Machine Learning Architect
- Data Scientist (Lead/Senior)

◆ 11. Experience vs Salary (Visual Insight)

A linear regression plot reveals a **positive trend** between years of experience and salary, confirming:

On the basis of analysis we can conclude that more years of experience lead to higher salaries.

But if we further analyse it on basis of industry some industries like transportation industry provide lowest salaries where the industries like Technology,Energy,Manufacturing are provide good salaries at minimum years of experience.