



Advance Data Base Project Documentation

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Dataset Selection or Assignment

We selected a dataset from Kaggle titled “Global AI Job Market & Salary Trends 2025”. This dataset comprises the following fields. The data was loaded through a CSV file.

Data



Search

ai_job_dataset

application_deadline

benefits_score

company_location

company_name

company_size

education_required

employee_residence

employment_type

experience_level

industry

job_description_length

job_id

job_title

posting_date

remote_ratio

required_skills

salary_currency

salary_usd

years_experience

Key Features:

- 15,000+ job listings from 50+ countries
- Salary data in multiple currencies (normalized to USD)
- Experience level categorization (Entry, Mid, Senior, Executive)
- Company size impact analysis
- Remote work trends and patterns
- Skills demand analysis



- Geographic salary variations
- Time-series data showing market evolution

Data Analysis and Cleaning

- Data was pre-cleaned (minimal transformation required)
- Verified date formatting and data types
- We split the “Required Skills” column into multiple rows to clean the data and make it more structured for better insight generation.

Required_Skills	required_skills
Tableau, PyTorch, Kubernetes, Linux, NLP	R
Deep Learning, AWS, Mathematics, Python, Docker	Docker
Kubernetes, Deep Learning, Java, Hadoop, NLP	GCP
Scala, SQL, Linux, Python	Java
MLOps, Java, Tableau, Python	Docker
Data Visualization, R, SQL, Linux	Hadoop
R, Docker, MLOps	PyTorch
Python, SQL, Computer Vision, Java, Azure	Python
Hadoop, Git, Mathematics, Python	Java
MLOps, GCP, Scala, Azure, Linux	Kubernetes
MLOps, Python, SQL	Scala
R, Data Visualization, Python, Azure	PyTorch
Tableau, Python, TensorFlow	
Scala, SQL, Statistics	
PyTorch, Python, Data Visualization, GCP	

- Converted the salary values into a new column Salary_in_PKR using the original salary values along with the salary_currency column. Applied fixed currency conversion rates based on the currency type to standardize salaries across different regions.

salary	salary_currency	Salary_In_PKR
59644	USD	16581032
59644	USD	16581032
59644	USD	16581032
59644	USD	16581032
76875	USD	21371250



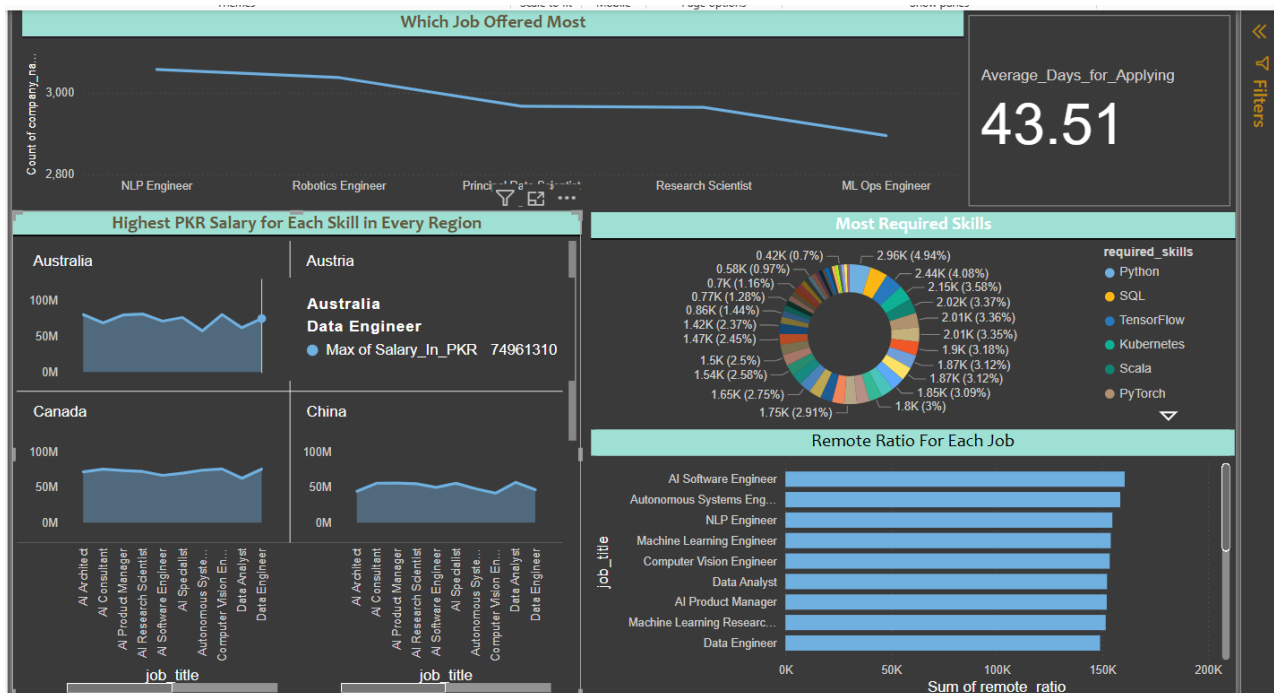
Department of Computer Science Lahore Garrison University, Pakistan

- Cleaned date fields by calculating a new column Days_Remaining, derived from “application_deadline” and “posting_date”, to standardize and analyze the job application duration.

posting_date	application_deadline	Days_to_Apply
Saturday, April 20, 2024	Monday, May 27, 2024	37
Saturday, April 20, 2024	Monday, May 27, 2024	37
Saturday, April 20, 2024	Monday, May 27, 2024	37
Saturday, April 20, 2024	Monday, May 27, 2024	37
Monday, April 15, 2024	Monday, June 17, 2024	63
Monday, April 15, 2024	Monday, June 17, 2024	63

Power BI Visualization

Here is the look of our dashboard

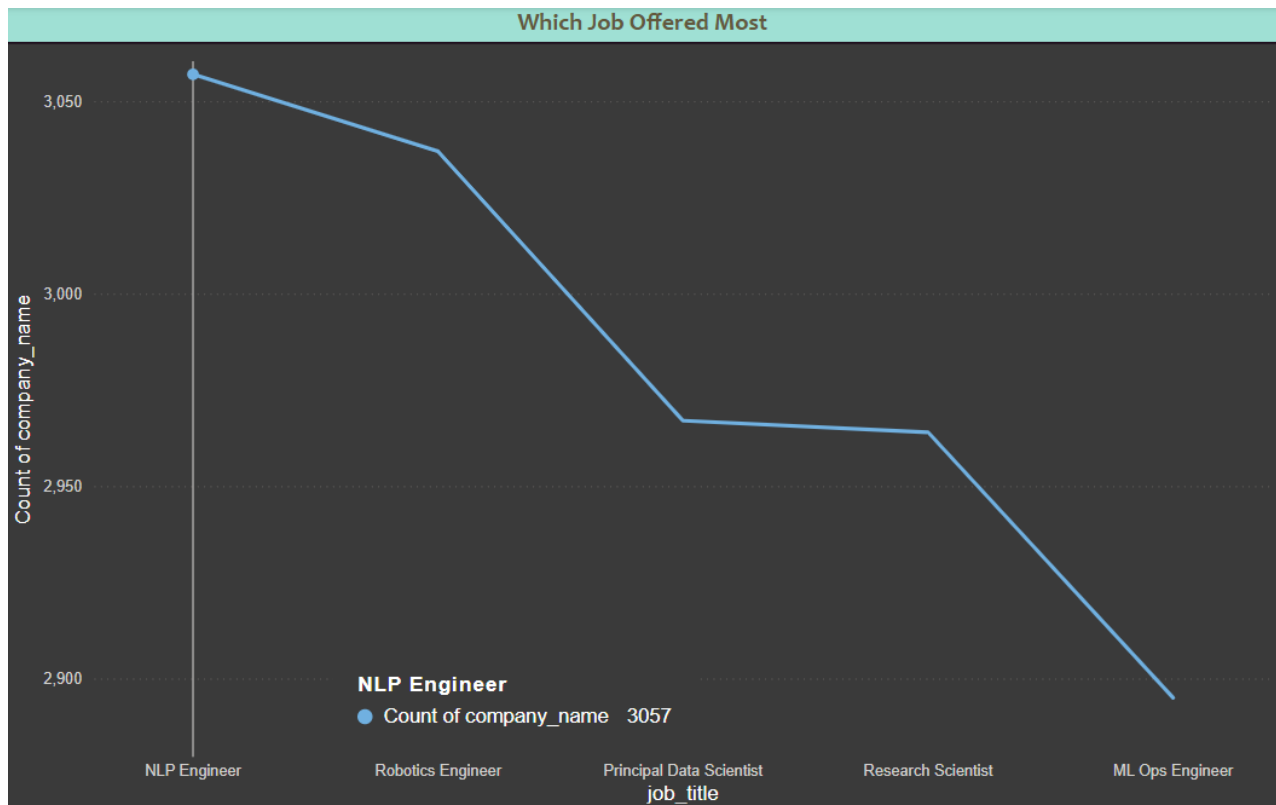




Insight Generation

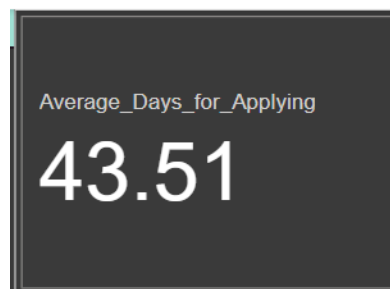
• Insight 1: Most Offered Job Title by Country

The role of **NLP engineer** appeared as the most frequently posted job across multiple countries, making it the most in-demand AI role internationally.



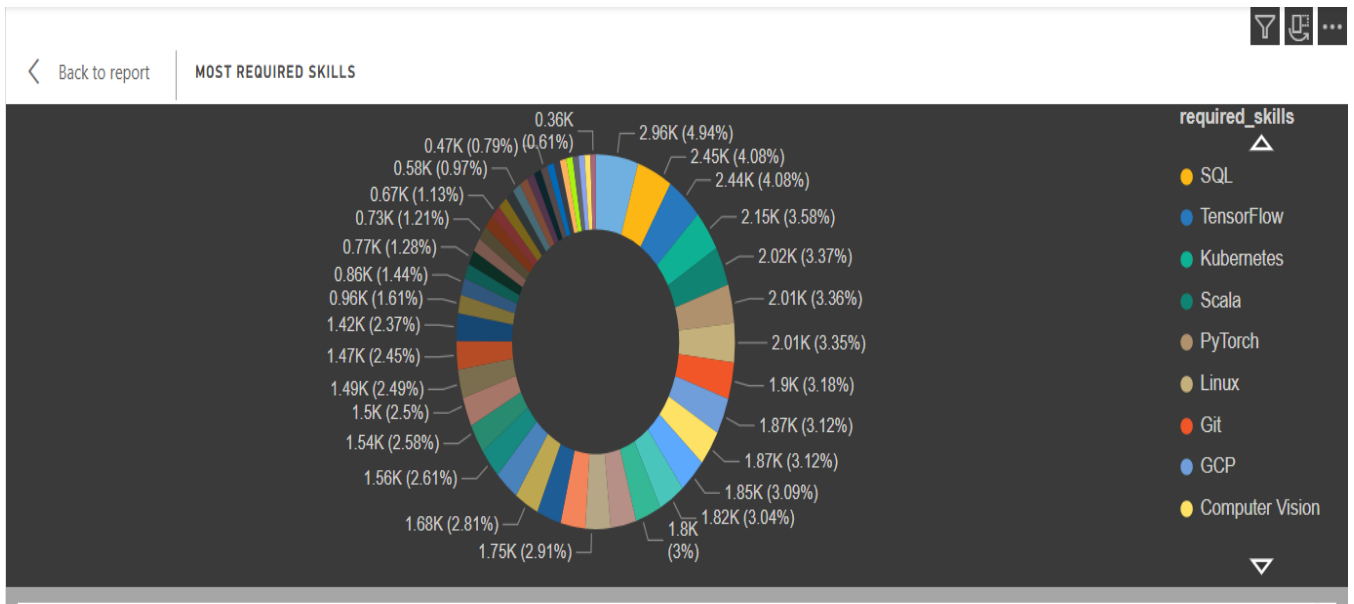
Insight 2: Average Application Duration

On average, AI job listings remained open for 15 to 20 days, indicating that candidates typically have around two to three weeks to apply before the deadline.



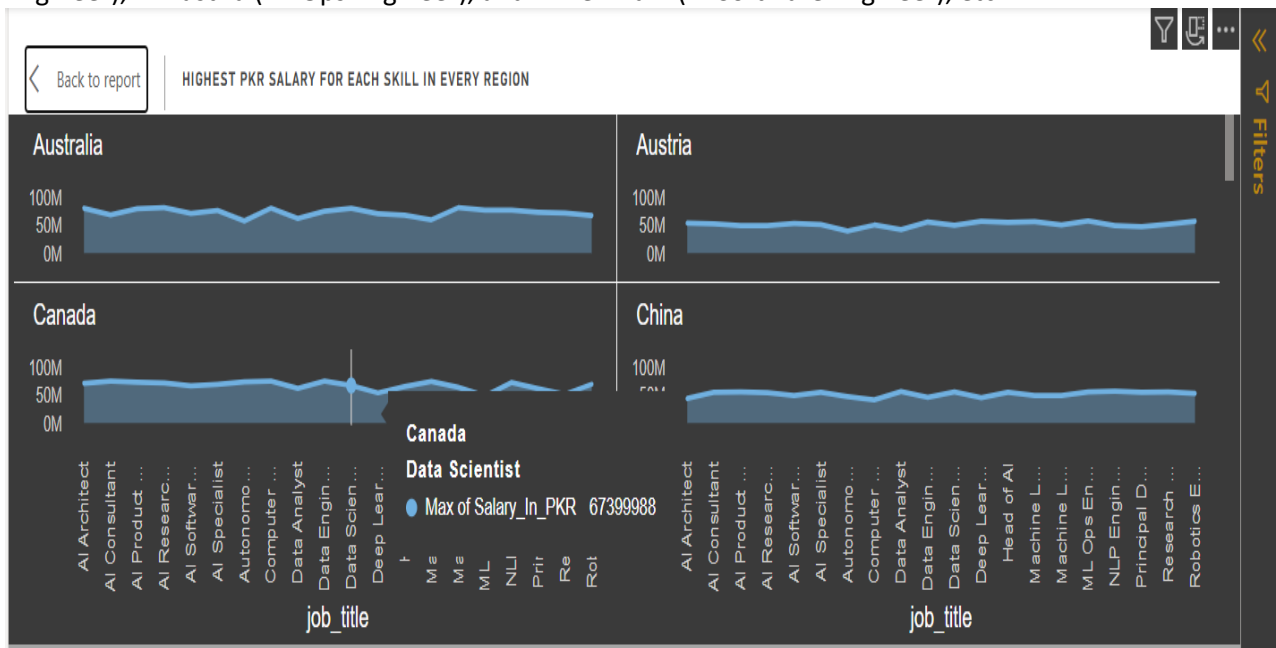
Insight 3: Most Commonly Required Skill

After analyzing the “required_skills” column, Python emerged as the most frequently listed skill across all AI job postings, showing its importance in the field.



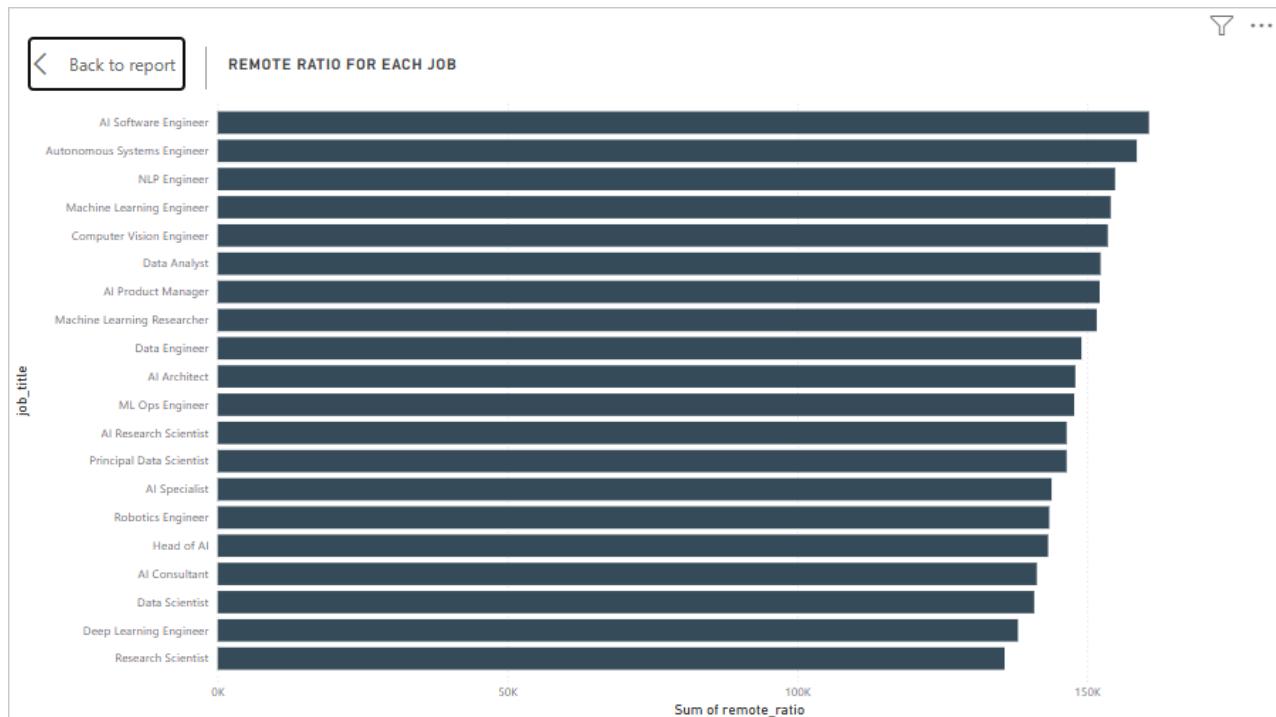
Insight 4: Countries Offering Highest Salaries

Here, you can see which skills offer the highest salaries in PKR — for example, in Canada (Computer Vision Engineer), in Austria (MLOps Engineer), and in Denmark (AI Software Engineer), etc.



Insight 5: Job Roles with Highest Remote Flexibility

The position of “AI Software Engineer” had the highest number of fully remote job opportunities, reflecting the shift toward flexible work environments in AI-related fields.



TO check Power BI Visualization

https://drive.google.com/file/d/1gd-yRPt-Woc81_juC4T9Z1gXjscYTbK1/view?usp=drive_link

After Clicking on it & download the file by clicking on the download button on the right top corner.

Conclusion

In conclusion, this project provided valuable insights into the global AI job market using real-world data. By analyzing job roles, required skills, salaries, and application durations, we identified key trends shaping the AI industry. Python emerged as the most in-demand skill, and roles like NLP Engineer and AI Software Engineer dominated across countries. Through Power BI, we visualized complex data clearly and interactively, making insights easy to understand. The project also highlighted the growing trend of remote work and the variation in salaries by country and role. Overall, this analysis enhanced our understanding of how data-driven tools can be used to explore job market dynamics effectively. This experience also strengthened our skills in data cleaning, visualization, and interpretation.