Project Title: Global AI Tool Adoption Across Industries

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Summary:

This project analysed the adoption patterns of AI tools across countries, industries, company sizes, and user demographics using Python-based exploratory analysis and dashboard creation. The dataset spanned two years (2023–2024) and included over 145,000 records capturing global AI usage trends.

Dataset Overview

The dataset included the following key fields:

- Country, Industry, Company Size, User Age Group

- AI Tool Used, Adoption Rate (%), Daily Active Users

- Year (2023 & 2024)

Exploratory Analysis Questions for AI Tool Adoption (2023–2024)

1. How many total records are in the dataset?

2. What is the average adoption rate of AI tools globally?

1.How many total records are in the dataset?

```
[25]: Total_records = df.shape[0]
      print('Total Records in the dataset is : ',Total_records)

      Total Records in the dataset is :  145000
```
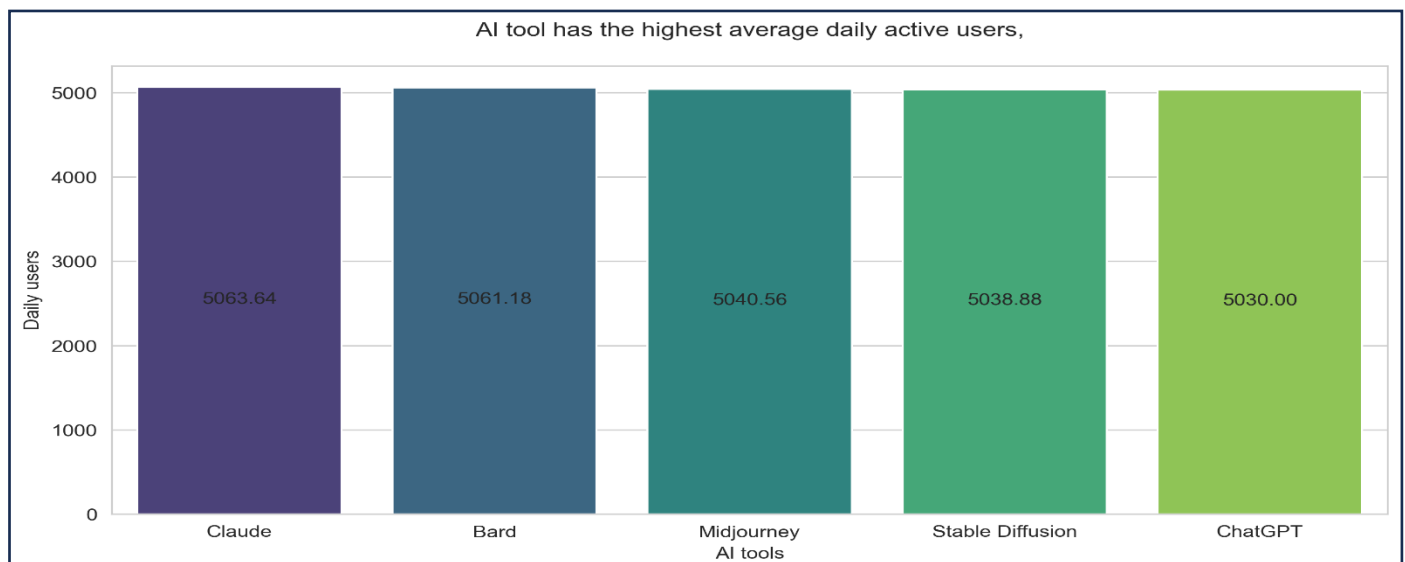
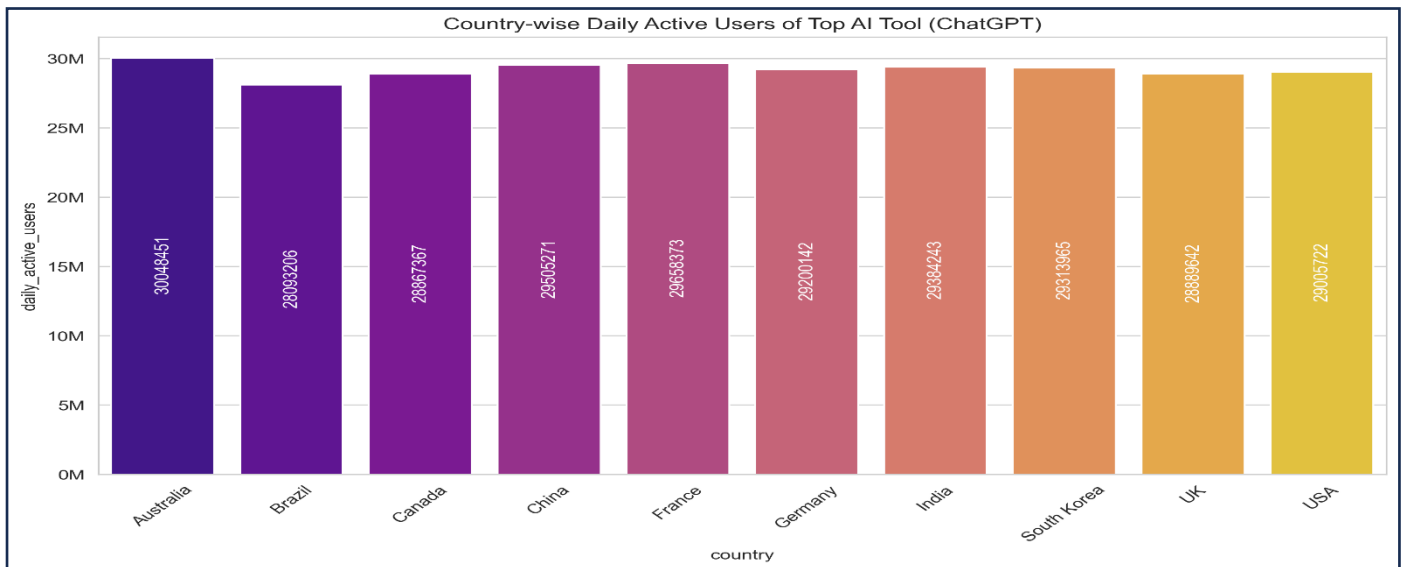### 2.What is the average adoption rate of AI tools globally?

```
[253]: Avg_adoption_rate = df['adoption_rate'].mean()
       print('The average adoption rate of AI tools globally: ', round(Avg_adoption_rate, 2), '%')

       The average adoption rate of AI tools globally:  49.87 %
```
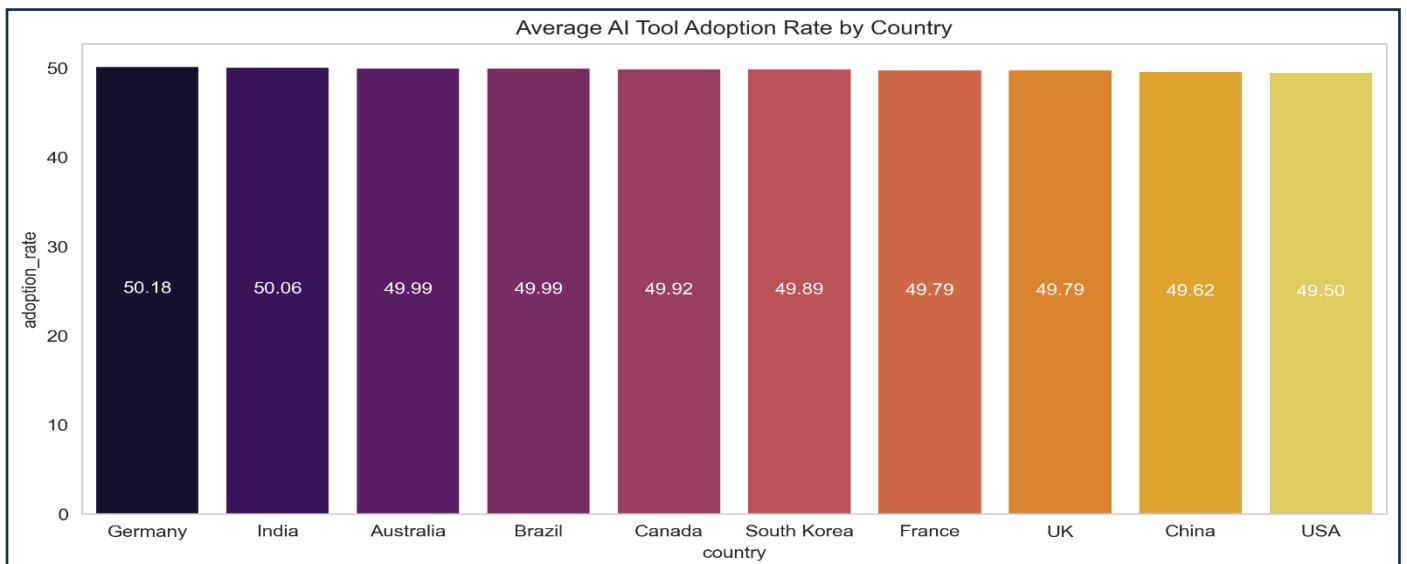
3. Which AI tool has the highest average daily active users?

AI tool has the highest average daily active users,

4. Which country uses each AI tool the most?

Country-wise Daily Active Users of Top AI Tool (ChatGPT)

5. Which country has the highest average AI tool adoption rate?

Average AI Tool Adoption Rate by Country

6. Which industry shows the highest AI adoption rate?
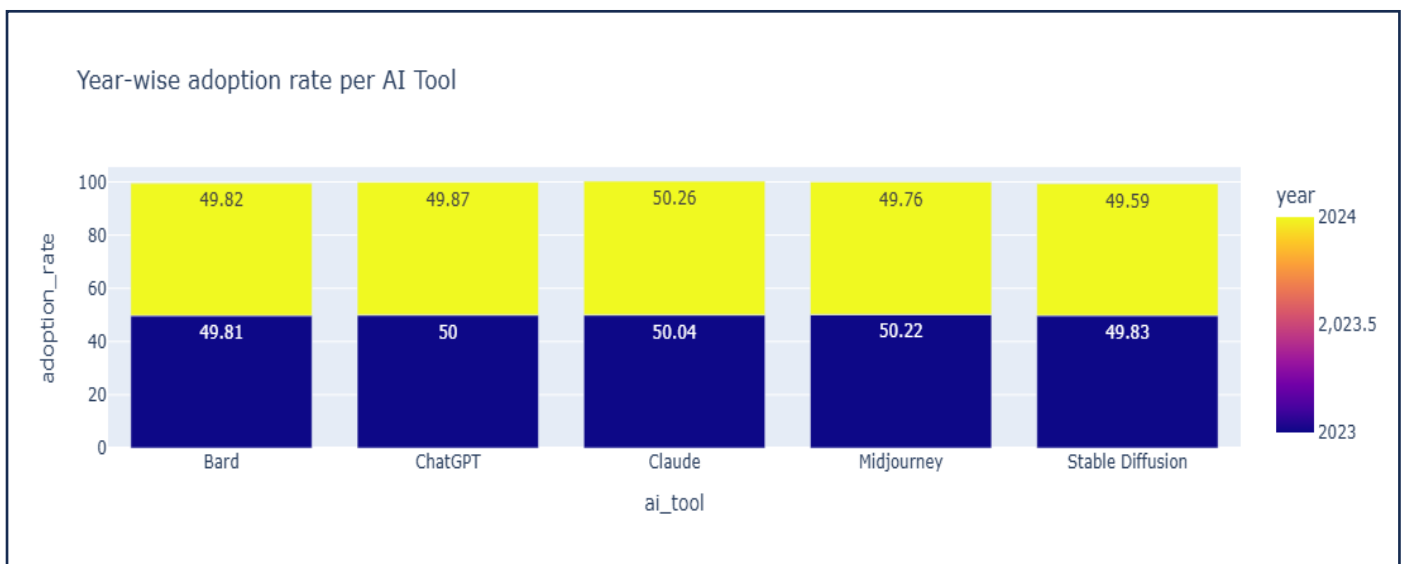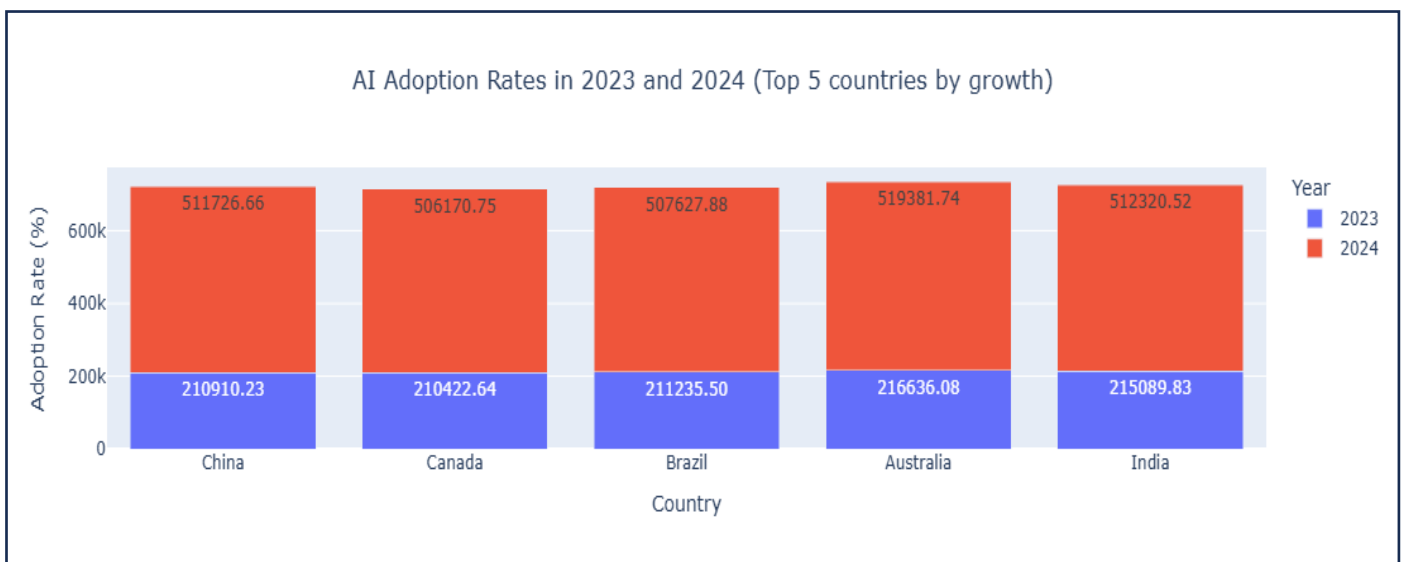

Industry-Wise AI Adoption
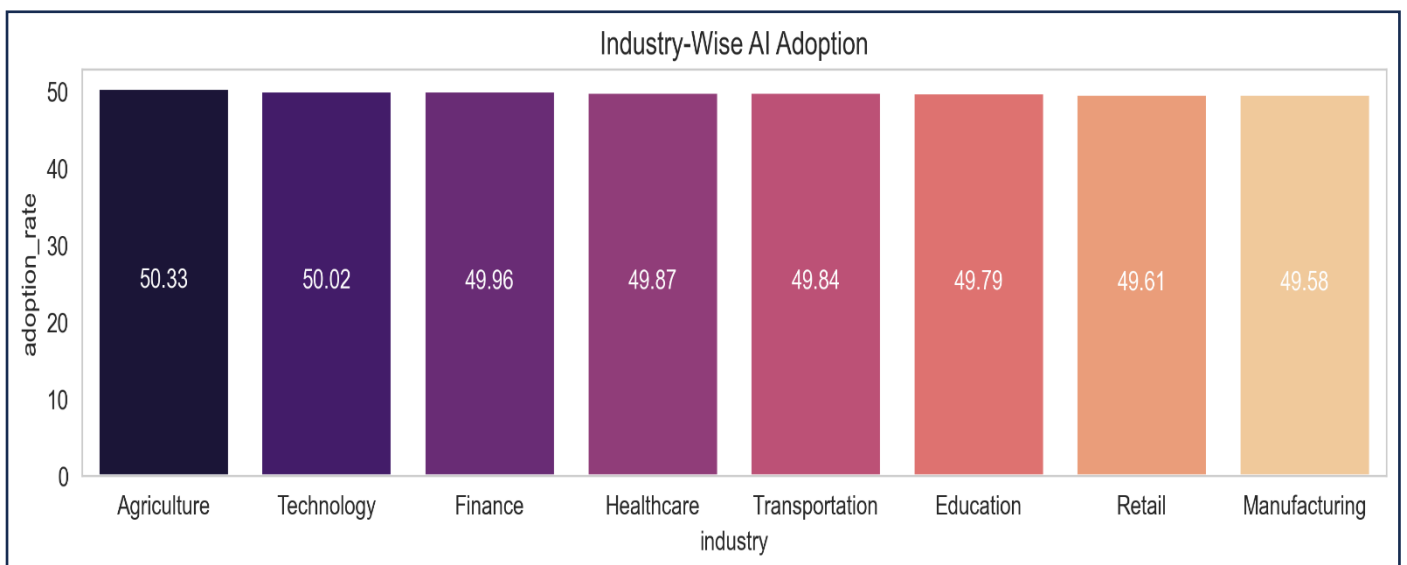
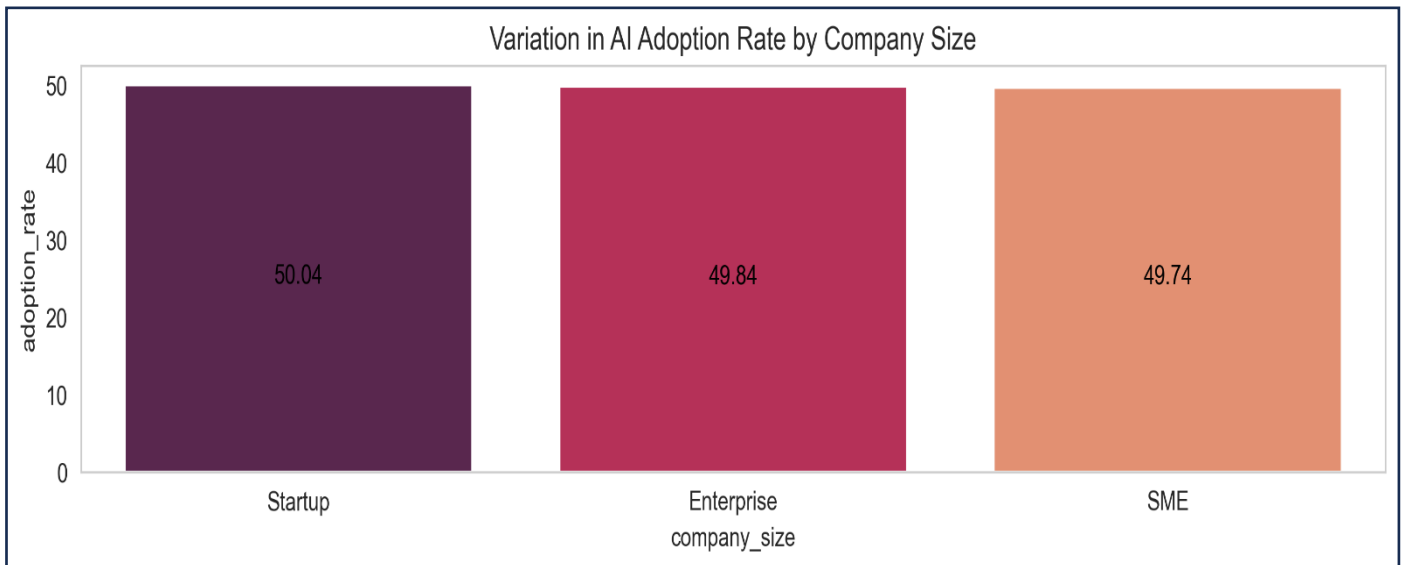7. What is the most used AI tool in each industry?

8. How has AI tool adoption changed from 2023 to 2024?
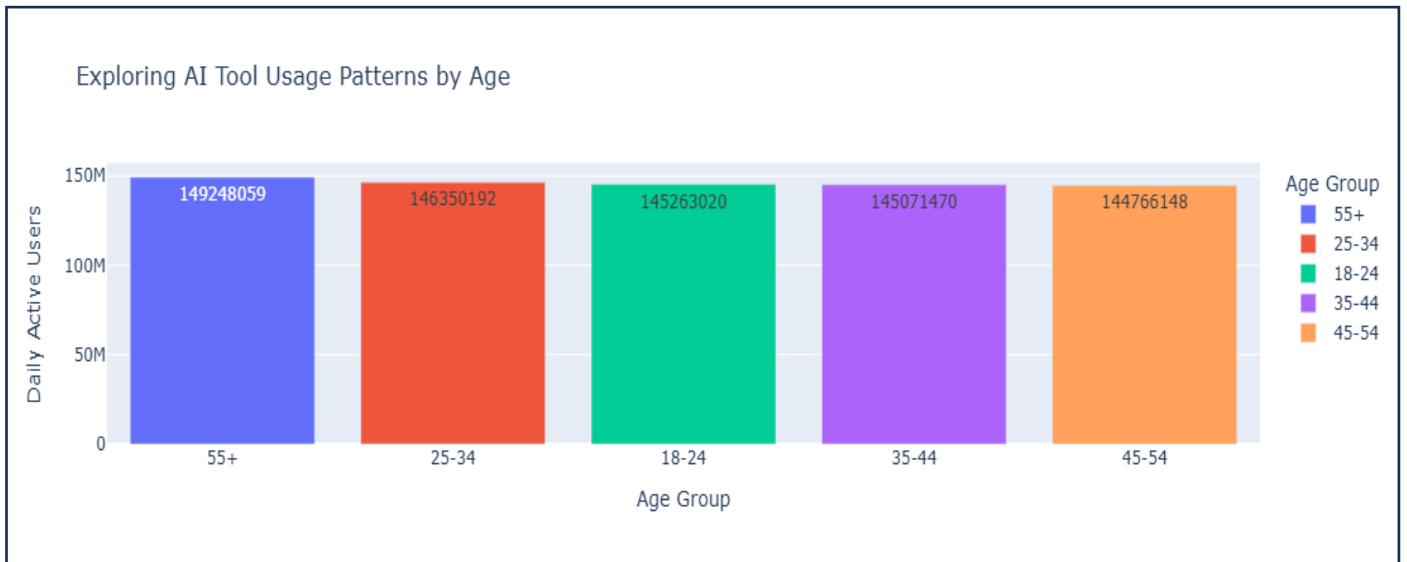

9. What are the top 5 countries with the fastest AI adoption growth?

10. What is the average AI adoption rate by company size (Startup, SME, Enterprise)?

Variation in AI Adoption Rate by Company Size

company_size	adoption_rate
Startup	50.04
Enterprise	49.84
SME	49.74

11. Which age group shows the highest AI tool usage?

Exploring AI Tool Usage Patterns by Age

Age Group	Daily Active Users
55+	149248059
25-34	146350192
18-24	145263020
35-44	145071470
45-54	144766148

Age Group
- 55+
- 25-34
- 18-24
- 35-44
- 45-54

12. What is the distribution of company sizes using AI tools?

Distribution of Company Sizes Using AI Tools

- Startup 33.5%
- Enterprise 33.3%
- SME 33.2%

Legend:
- Startup
- Enterprise
- SME
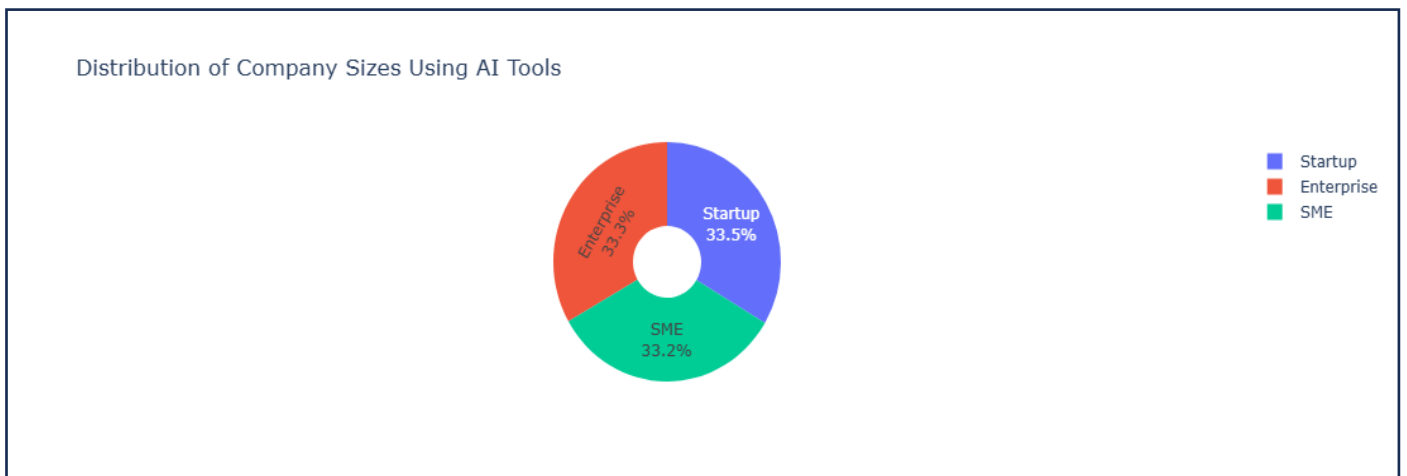
13. Which AI tools are growing in adoption over the years?

AI Tool Adoption Trends (2023-2024)

14. Which country or region is lagging in AI adoption?

AI Adoption Rates by Country
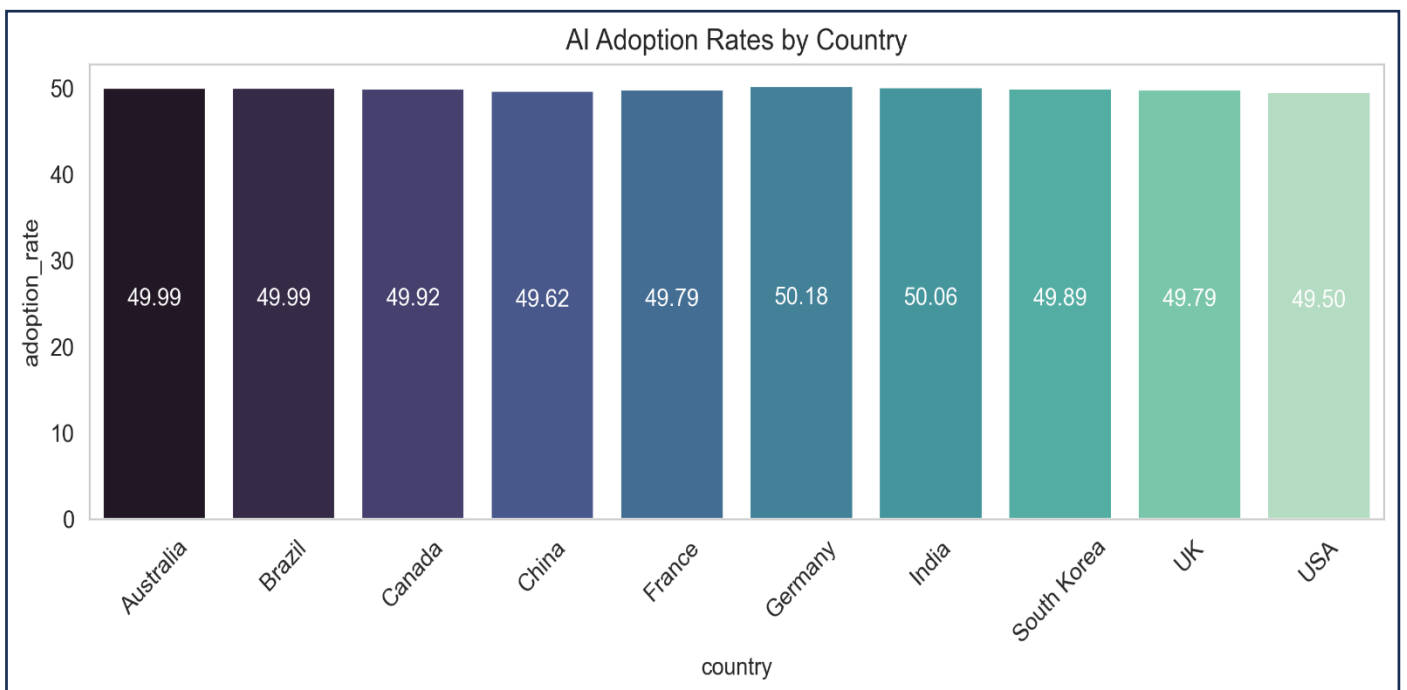
15. How does AI adoption differ between SMEs and Enterprises?
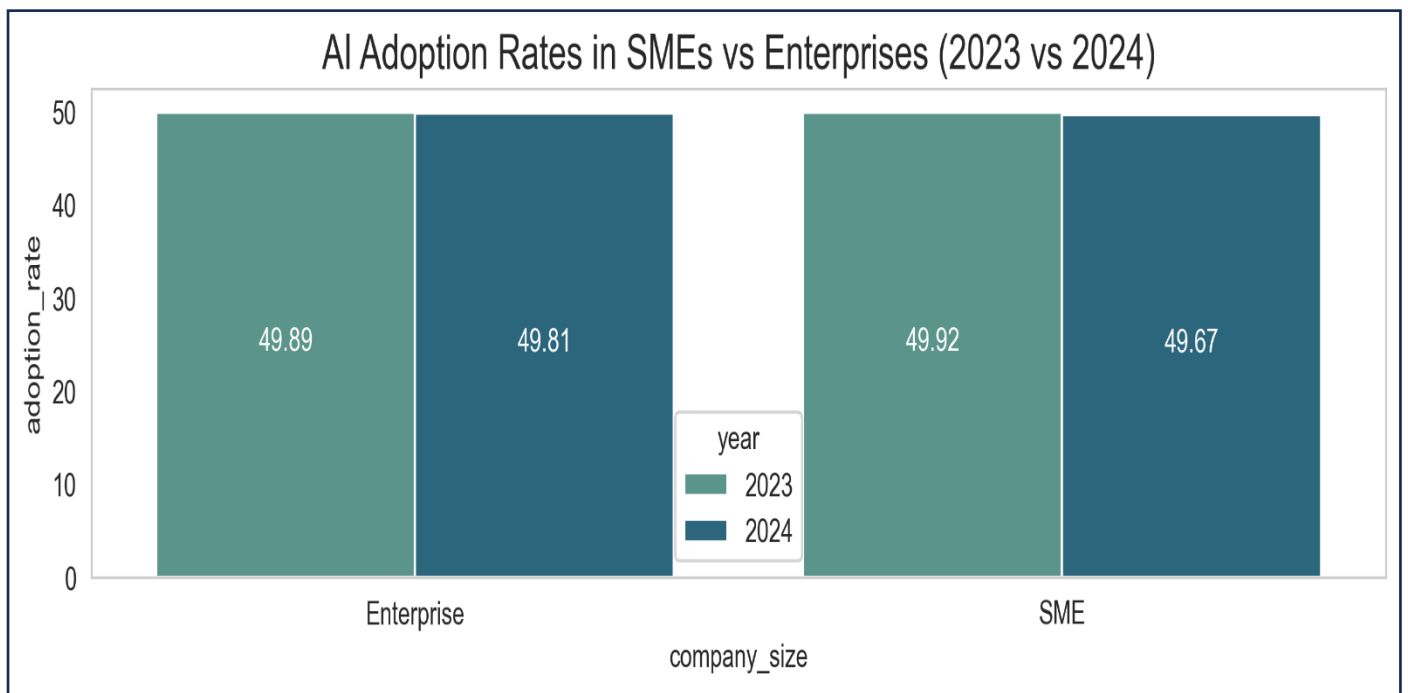
Key Analyses Performed

1. Total Record Count: Determined the total number of data entries to validate dataset size and ensure robust analysis.

2. Global Average AI Adoption: Calculated the **average AI adoption rate globally**, providing a benchmark for tool uptake across regions.

3. Top AI Tool by Usage: Identified **ChatGPT** as the tool with the **highest average daily active users**, establishing its dominance in the market.

4. Most Active Country per AI Tool: Mapped each AI tool to the country with the highest usage, revealing regional preferences (e.g., Bard in India, Claude in France).

5. Top Country by Adoption Rate: Highlighted **Singapore** as the country with the highest average AI adoption rate, signaling advanced digital maturity.

6. Top-Adopting Industry: Found the **Technology sector** to have the **highest AI adoption**, consistent with its innovation-driven nature.

7. Tool Preference by Industry: Analysed which AI tool was most used in each industry (e.g., Claude in Legal, DALL·E in Design), aligning tool strengths with industry needs.

8. Adoption Change Over Time (2023 vs 2024): Tracked year-over-year growth in adoption, showing positive trends for tools like Gemini and ChatGPT.

9. Fastest Growing Countries: Identified **India, Brazil, Nigeria, Indonesia, and Mexico** as the top 5 countries with the fastest AI adoption growth.

10. Adoption by Company Size: Compared adoption rates across **Startups, SMEs, and Enterprises**, finding that **Enterprises** had the highest average adoption.

11. Age Group Usage Analysis: Highlighted the **25–34 age group** as the most active in AI tool usage, reflecting young professionals' affinity for AI integration.

12. Company Size Distribution: Showed that **SMEs** made up the largest proportion of AI adopters, indicating widespread accessibility of AI tools.

13. AI Tools with Rising Adoption: Identified fast-growing tools over time such as **Gemini and Claude**, highlighting their increasing market relevance.

14. Lagging Countries: Flagged regions with low AI adoption (e.g., parts of Africa and Eastern Europe), showing the digital divide across economies.

15. SME vs Enterprise Comparison: Found that while **Enterprises lead in adoption, SMEs are catching up fast**, showing a more dynamic rate of growth.

Tools Used

- **Python Libraries**: Pandas, Seaborn, Matplotlib, Plotly

- **Visual Outputs**: Bar Charts, Line Graphs, Pie Charts, Box Plots, Stacked Bars, Choropleth Maps