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Analyzing Startup Companies

CAI3801

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**Business Problem and Objective**

The startup ecosystem is a dynamic and rapidly evolving space, with certain industries and regions attracting more investment than others. This project aims to analyze startup growth and investment trends to identify the industries that receive the most funding, the countries with the fastest-growing startups, and the relationship between funding rounds and growth rates.

This project is particularly interesting to me because it gives me insight into industries in which I could potentially work or build a business. This project seeks to answer 1. Which industries attract the most funding? 2. Which countries have the fastest-growing startups? and 3. What is the correlation between funding rounds and growth rate?

**Data Source and Preparation**

Startup Growth and Investment Data, provided by Kaggle. It contains a Startup’s (Industry, Funding Rounds, Investment Amount, Valuation (USD), Number of Investors, Country, Year founded, and Growth Rate (%)).

To achieve this, I will be using a dataset from Kaggle that includes key variables such as industry, funding rounds, investment amounts, valuation, number of investors, country, year founded, and growth rate. However, before conducting any analysis, it is crucial to clean the dataset to handle missing values, inconsistencies, and potential outliers. Proper data cleaning ensures the accuracy and reliability of insights, allowing for well-informed conclusions about investment opportunities and growth trends in the startup world.

There were no missing values, and all data types were appropriate for the columns. So, I checked for duplicate or clear outliers in the data, and there weren’t any. I then developed a histogram which showed the count of startups in each valuation bin. The histogram is right-skewed, meaning that most startups are valued below $15 billion. Some startups, however, are evaluated at 20 billion or more. The description of the data from earlier shows that the average valuation is approximately 7.97 Billion, which is on the left-most side of the chart.

This newly cleaned dataset ensures that the analysis is accurate, reliable, and free from biases caused by missing or inconsistent data. By removing errors and standardizing values, the dataset becomes more suitable for identifying meaningful trends in startup growth and investment. This improves the quality of insights, allowing for better decision-making regarding industry opportunities and investment strategies.

**Diagnostic & Predictive Analytics**

**Chart 1: Funding Rounds per Industry**

A graph of blue bars

AI-generated content may be incorrect.

Insights: AI leads with the highest number of funding rounds (399), followed by Blockchain, E-commerce, and HealthTech. EdTech trails with the fewest funding rounds (268). This means that AI continues to attract the most startup interest and investor activity.

**Chart 2: Average Growth Rate (%) vs Investment Amount per Industry**

A graph of blue bars

AI-generated content may be incorrect.

Insights: Despite high funding rounds, AI and Blockchain show relatively moderate growth rates. E-commerce and EdTech have the highest average growth rates, while Biotech (especially in the US) is behind. This highlights a slight mismatch in some industries between capital raised and actual growth performance.

**Chart 3: Industry Valuation per Country**

A screen shot of a chart

AI-generated content may be incorrect.

Insights: China shows a high average valuation in the E-commerce industry, suggesting strong investor confidence. On the other hand, industries like Blockchain and Biotech have lower relative valuations in most countries.

**Chart 4: Average Growth Rate Heat Map**

A map of the united states

AI-generated content may be incorrect.

Insights: The USA outperforms Canada in average growth rate across industries (105.3% vs 99.7%). This geographic view helps identify which countries are fostering higher-growth startup environments.

**Chart 5: Potential Forecasts for the next 5 years**

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AI-generated content may be incorrect.

Insights: The USA’s investment forecast shows sharp fluctuations, showing investment trends rather than a steady upward trajectory. Forecasted investment suggests modest growth through 2028, though data limitations reduce accurate predictability.

**Chart 6: Adjusted Valuation What-If Scenario**

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Insights: A 10% growth rate increase would drive nearly all industries’ valuations close to $9B. This scenario analysis shows the great impact of growth on valuation.

**Dashboard Overview**

**Dashboard 1:**

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This dashboard combines views and reveals AI has the most funding rounds and high adjusted valuation, but is not the fastest growing. E-commerce excels in growth rate and valuation, especially in China. This cross-analysis helps align investment with sector performance and country-specific dynamics.

**Dashboard 2:**

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This dashboard combines a 5-year investment **forecast** with a valuation what-if scenario to evaluate how U.S. startup industries might evolve under changing growth conditions. The historical data reveals sharp, irregular spikes, indicating highly volatile investment patterns rather than a smooth upward trend. Strategic planning in the startup ecosystem must account for volatility; future funding is likely to remain unpredictable without more stable underlying market factors.

The bottom chart simulates a 5% decrease in growth rate across industries and its impact on average valuations. AI, E-commerce, and Fintech remain top-performing sectors under stress conditions, while health tech experiences the most noticeable dip. This what-if analysis is valuable for risk assessment. It shows that some industries (like AI and Fintech) can preserve high valuations even when growth slows, making them potentially safer bets for investors.

**Project Conclusions**

**Key Findings**

* **Prioritize AI and E-commerce**: These industries consistently show strong funding activity, high valuations, and increasing growth rates. Strategic investment in these sectors could potentially yield high returns even under slower growth times.
* **Focus on Fintech for high returns**: Despite modest funding round amounts, Fintech has strong valuations and stable growth, making it a dependable sector for long-term investment.
* **Monitor HealthTech and EdTech Closely**: Both sectors show lower valuations and appear more sensitive to decreases in growth. Firms in these spaces should focus on innovation efficiency and improving cost control.
* **Target E-commerce Startups in China**: Valuation heatmaps highlight China’s e-commerce sector as significantly more valuable than in other countries—this suggests untapped potential for global expansion or partnerships.

**Reflection**

I learned how to develop meaningful business insights from multi-dimensional visualizations by combining growth rate, funding, valuation, and geographic data. Understanding how different metrics interact across industries enhanced my strategic thinking. I strengthened my skills in data visualization interpretation and business storytelling. Additionally, I improved at using dashboards to translate data into actual strategic decisions, which is critical in real-world business analytics.