



Google Search Trends Analysis: Global Technology Interest Patterns

In this project, I explored worldwide Google search trends to uncover how different regions engage with key technology topics. Using Python and the PyTrends library, I analyzed real-time Google Trends data, built visualizations, and developed a reusable pipeline for keyword-based trend analysis.

Project Objectives

1

Identify Top Countries

Determine which countries have the highest search interest for selected tech keywords.

2

Visualize Search Trends

Create clear and engaging bar charts, line plots, and interactive world maps.

3

Compare Keywords

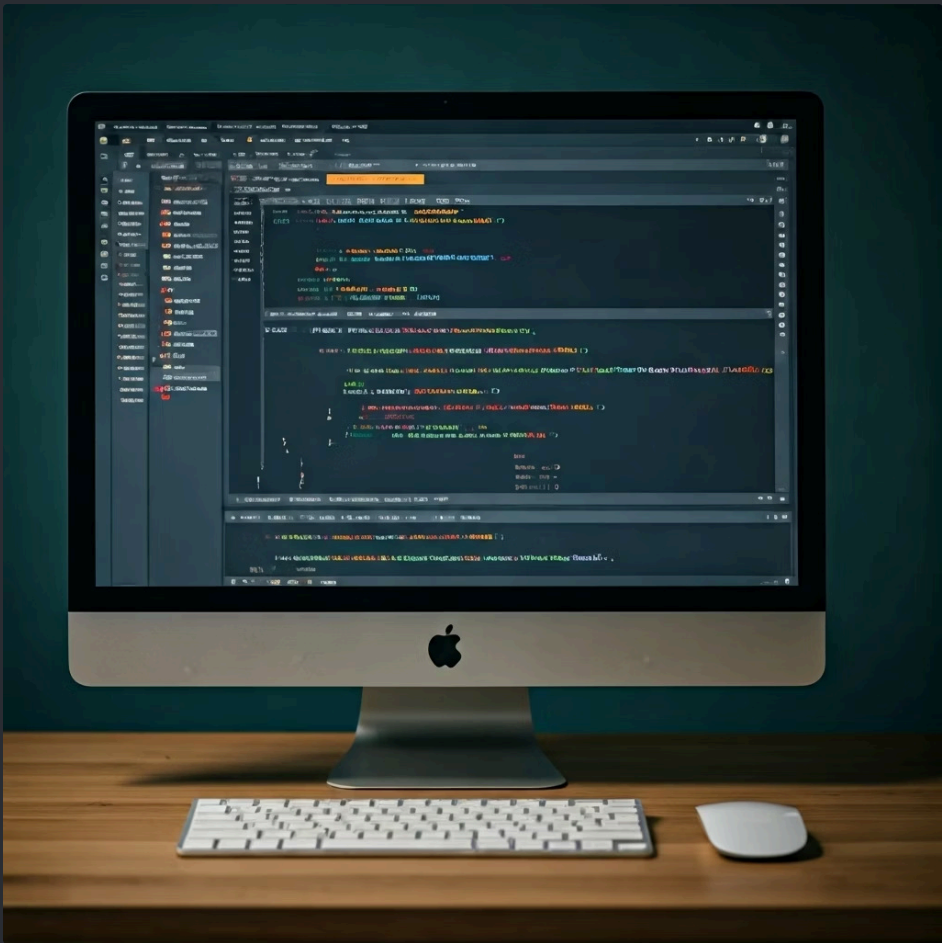
Analyze and compare the popularity of multiple technology-related terms over a one-year period.

4

Build a Reusable Workflow

Develop an adaptable analysis pipeline that can handle any keyword input.

Data Collection & Tools Used



PyTrends

Used as a Python interface for the Google Trends API to fetch search interest data.



Pandas

For data cleaning and manipulation.



Matplotlib & Seaborn

For static plots and trend line charts.



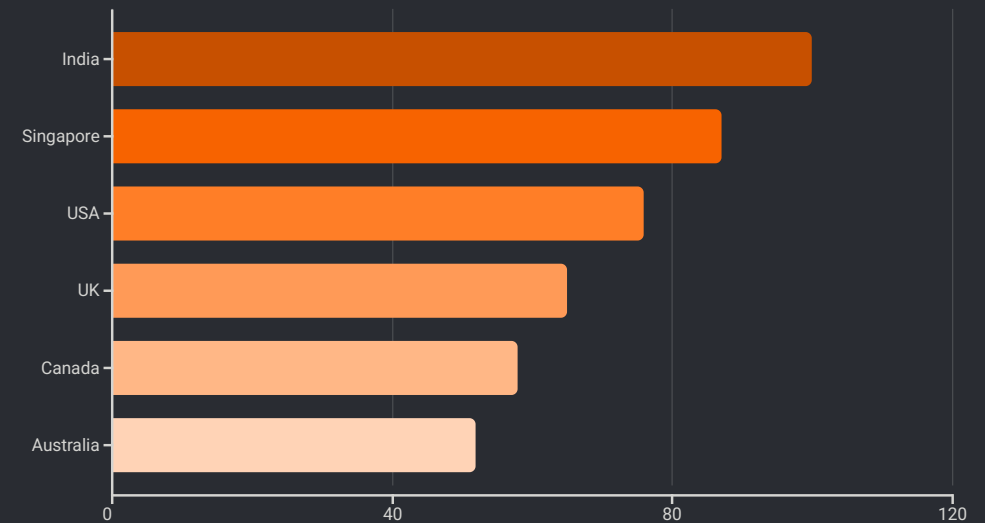
Plotly Express

To create interactive choropleth maps visualizing global search patterns.



Top Countries by Search Interest

I analyzed the top 15 countries showing the most interest in each keyword. Bar charts helped highlight which regions are leading in tech-related searches, making it easy to spot geographic patterns.



Global Choropleth Maps

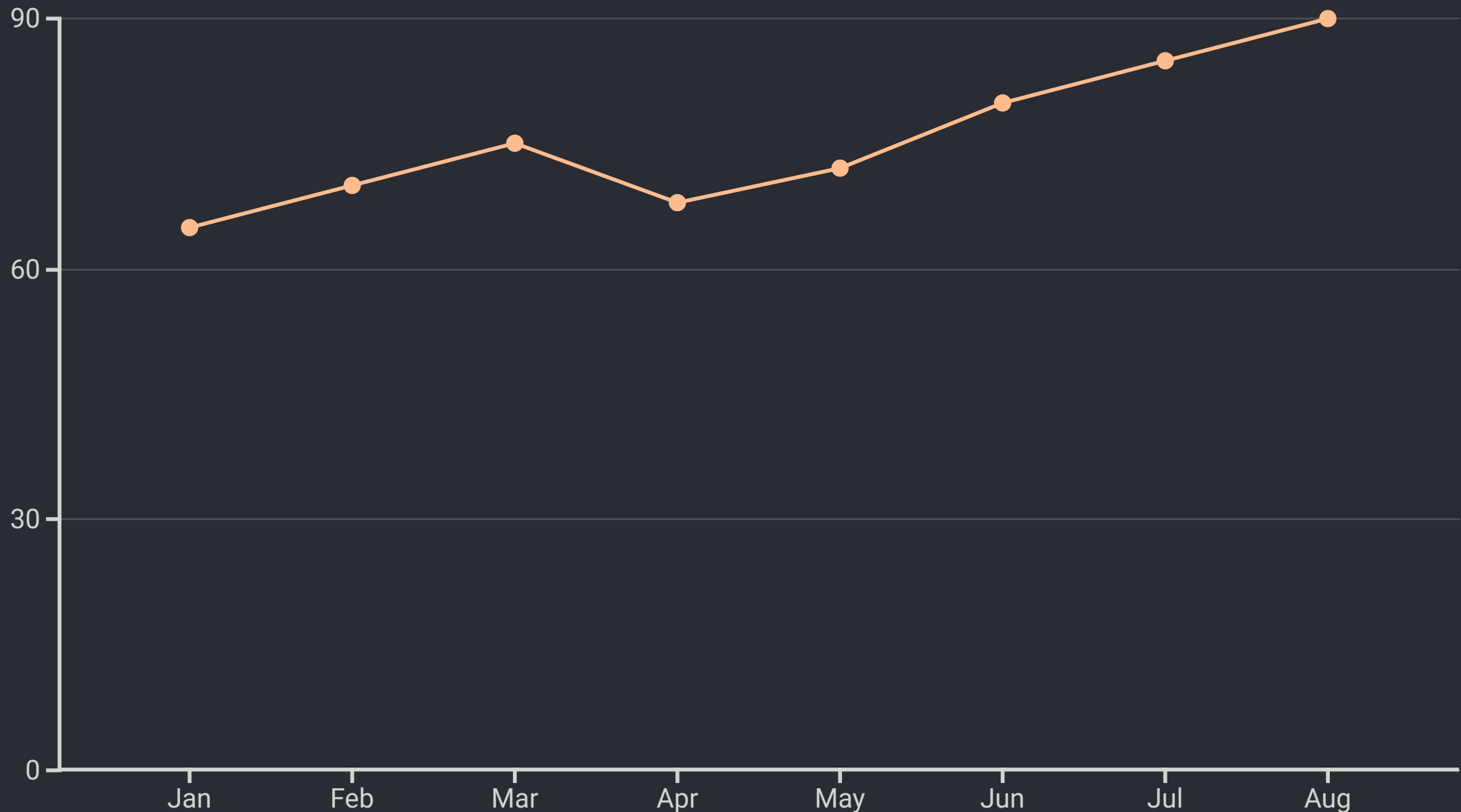
I visualized search interest on a world map using Plotly, giving a clear global snapshot of how search trends vary by country.

- ① Choropleth maps use color intensity to represent data values across geographic regions, making them ideal for visualizing search interest variations globally.



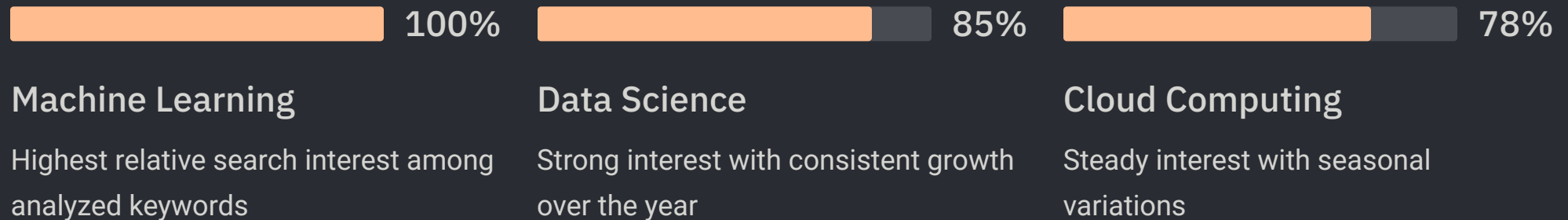
Time Series Trend Analysis

I extracted and visualized monthly trends to identify seasonal patterns, unexpected spikes, and long-term shifts in keyword popularity.



Keyword Comparison

Key technology terms - including Cloud Computing, Data Science, and Machine Learning - were compared to see which topics generate the highest interest globally and how they trend relative to each other.



Key Learnings

This project strengthened my skills in:

Real-time Data Analysis

Working with real-time search trend data.

Automation

Automating data pipelines for keyword-based analysis.

Data Visualization

Building clear, insightful visualizations to tell data stories.

Python Libraries

Using Python libraries effectively for both data extraction and visualization.

Applications

The workflow I built is flexible and can be reused for:

- Marketing research and campaign targeting.
- Monitoring emerging technology trends.
- Academic studies on public interest patterns.
- Any project requiring real-time, keyword-based trend insights.

Conclusion

Through this Google Search Analysis project, I learned how to transform raw search data into meaningful insights about global technology interest. The pipeline can easily be scaled and adapted to new keywords, making it a powerful tool for data-driven decision-making.



Raw Search Data

Collected from Google Trends API



Analysis Pipeline

Processed with Python tools



Visualizations

Created with Matplotlib, Seaborn, Plotly



Actionable Insights

Ready for data-driven decisions

