

# Google Search Analysis

## **Project Overview**

This project is a Python-based analytical tool designed to extract, process, and visualize real-time Google Trends data using the pytrends API. It enables users to input a custom keyword and generates multi-dimensional insights including geographic distribution, temporal interest trends, and related keyword comparisons.

### **Core Workflow:**

- 1. User Input: Prompts for a keyword to analyze.**
- 2. Data Retrieval:**
  - Uses pytrends.build\_payload() to query Google Trends.
  - Fetches interest by region, interest over time, and related queries.
- 3. Geographic Analysis:**
  - Ranks countries based on normalized interest scores.
  - Visualized using a choropleth map (plotly.express).
- 4. Temporal Trend Visualization:**
  - Extracts and plots 12-month trend data via matplotlib and seaborn.
- 5. Keyword Comparison:**
  - Compares search volumes of related keywords using bar charts.

### **Technologies Used:**

- Data Collection: pytrends
- Data Manipulation: pandas, numpy
- Visualization: matplotlib, seaborn, plotly.express
- UX: Command-line interaction for dynamic keyword analysis

The project is modular, beginner-friendly, and ideal for demonstrating skills in API integration, data wrangling, visual analytics, and user-interactive automation in Python.