🧬 COVID-19 Clinical Trials Exploratory Data Analysis

📊 Project Overview

This project provides an in-depth **Exploratory Data Analysis (EDA)** of global COVID-19 clinical trials.
Using data cleaning, transformation, and visualization techniques in **Python**, the analysis explores trends in trial phases, statuses, conditions, interventions, enrollments, and timelines.

🧠 Objectives

- Understand the **distribution of clinical trials** by phase, status, and country
- Identify the **most common conditions** and **interventions** studied
- Examine **enrollment patterns** and **trial durations**
- Track the **temporal trend** of trial initiations
- Provide a **cleaned and standardized dataset** for downstream analysis or dashboarding

🧹 Data Cleaning & Preparation

1. **Removed duplicates** based on trial ID and title
2. **Standardized phase and status** fields
3. **Normalized multi-value columns** (split countries, interventions, conditions)
4. Converted **date fields** and calculated **trial duration (days)**

5. Handled **missing and inconsistent enrollments**

6. Created a **refined dataset** ready for analysis

Executive Summary

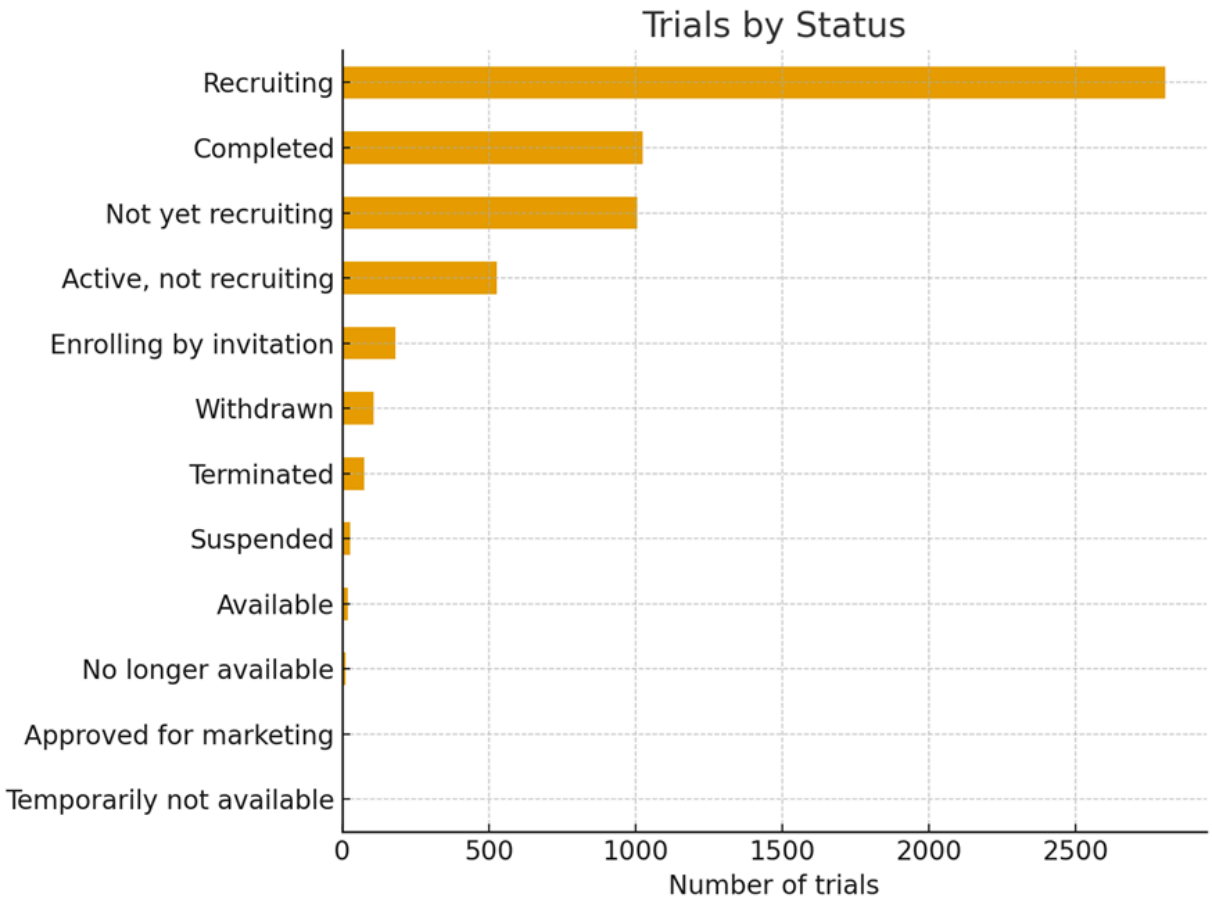
This project presents an exploratory data analysis (EDA) of global COVID-19 clinical trial data. The goal is to understand research trends, intervention types, study statuses, and global participation during the pandemic. Using Python (Pandas, Matplotlib, Seaborn), the dataset was cleaned and analyzed to derive insights into how the world responded to the COVID-19 health crisis through clinical studies.

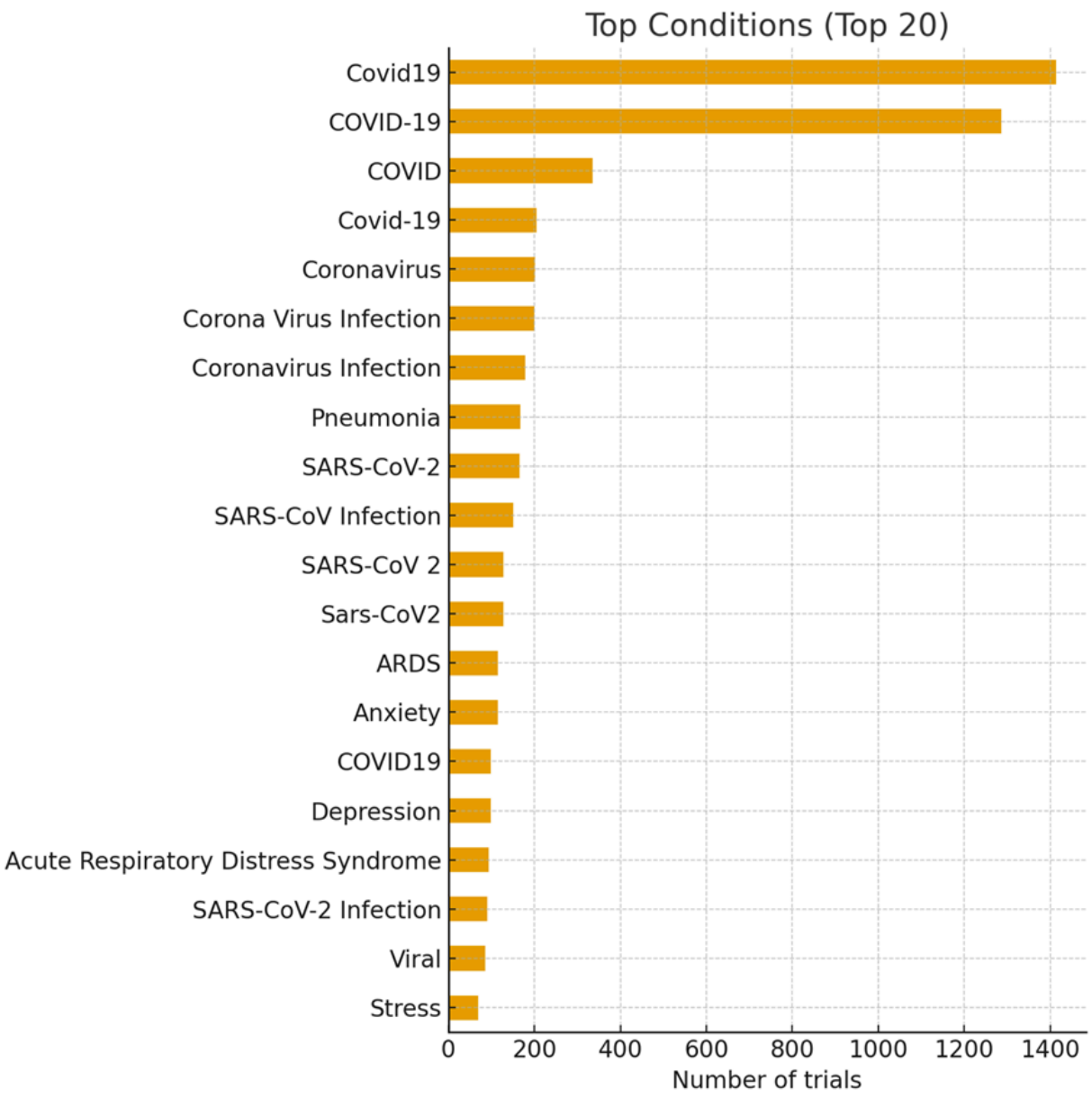
Project Overview & Objectives

The COVID-19 Clinical Trials EDA project investigates patterns in worldwide clinical studies related to COVID-19, focusing on their timelines, sponsors, interventions, and completion statuses.

Key objectives include:

- • Analyzing trends in trial registrations and completions over time.
- • Identifying major countries and organizations conducting trials.
- • Examining the distribution of study statuses (Completed, Recruiting, etc.).
- • Exploring types of interventions (Drug, Vaccine, Behavioral, etc.).
- • Summarizing major insights and patterns from the dataset.


Trials by Status
Recruiting
Completed
Not yet recruiting
Active, not recruiting
Enrolling by invitation
Withdrawn
Terminated
Suspended
Available
No longer available
Approved for marketing
Temporarily not available
0
500
1000
1500
2000
2500
Number of trials



📜 Author

Project by: *Pranjal Waghmare*
Date: November 2025