

Experiment No: 5

JSON Data Parsing and Manipulation

Objective:

To develop a Python program that reads and analyzes structured JSON files containing COVID-19 data across multiple countries, computes summary statistics, identifies extreme cases, and generates a consolidated report.

Task Description:

You are working as a data scientist for a healthcare organization, and your team has been tasked with analyzing COVID-19 data from multiple countries. The data is stored in JSON files, with each file representing the daily COVID-19 statistics for a specific country. Each JSON file has the following structure:

```
{ "country": "Country Name",  
  "date": "YYYY-MM-DD",  
  "confirmed_cases": { "total": 1000, "new": 50 },  
  "deaths": { "total": 20, "new": 2 },  
  "recovered": { "total": 800, "new": 30 }  
}
```

Your task is to write a Python program that performs the following operations:

1. Read COVID-19 data from all JSON files in a given directory and its subdirectories.
2. Calculate and display the following statistics for each country:
 1. Total confirmed cases.
 2. Total deaths.
 3. Total recovered cases.
 4. Total active cases (total confirmed cases minus total deaths and total recovered).
3. Determine the top 5 countries with the highest number of confirmed cases and the lowest number of confirmed cases.
4. Generate a summary report in JSON format that includes the statistics for all countries and save it to a file named "covid19_summary.json".