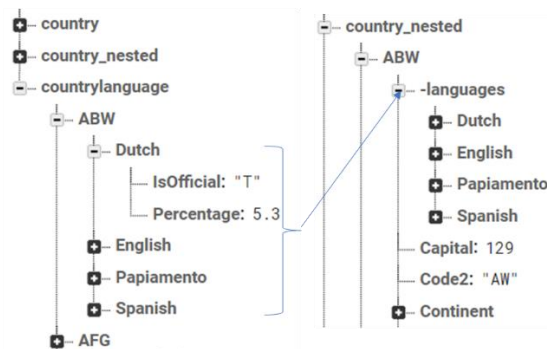


100 points, Due September 20, Sunday (11:59pm)

- A. Find names of countries and their capital cities for all countries in “North America”.
e.g., United States, Washington (DC)
...
- B. Find names of countries and their official languages for all countries in “North America”.
e.g., United States, English
...
- C. Find, for each continent, the average life expectancy of all countries in the continent which has at least 5 countries whose GNP is more than 10000.

-



(d)

4. [30 points] Write a Python script to answer each of the above queries using the data in Firebase. You can use the package “requests”.
For question B, give two solutions: one using the “country_nested” node; the other without.

Name your scripts: firebase-A.py, firebase-B-nested.py, firebase-B.py, and firebase-C.py.

5. [10 points] Analyze the performance of scripts in question 4, using two criteria: the number of requests sent to firebase; and the size of data downloaded from Firebase.

Submission & Execution Format:

Please use **Python 3** and include all scripts for 5 questions in a zip folder **Firstname_Lastname.zip** containing following files. All of the results for Q1-Q4 should be printed out directly in terminal. **DO NOT** save results to text file for Q1-Q4.

Q1: pandas-A.py, pandas-B.py, pandas-C.py.

Execution Format: python pandas-A.py country.json city.json countrylanguage.json

Similar for pandas-B.py and pandas-C.py.

(Please include all three json files as arguments to all your scripts in Q1)

Q2: python-A.py, python-B.py, python-C.py.

Execution Format: python python-A.py country.json city.json countrylanguage.json

Similar for python-B.py, python-C.py.

(Please include all three json files as arguments to all your scripts in Q2)

Q3: load-world.py

Execution format: python load-world.py country.json city.json countrylanguage.json

Q4: firebase-A.py, firebase-B-nested.py, firebase-B.py, firebase-C.py

Execution format: python firebase-A.py "North America"

Similar for firebase-B-nested.py, firebase-B.py

Execution format: python firebase-C.py

Q5: please include all of your analysis in **one** text file

Wrong submission format or execution format will result in the deduction