Answer Backend Integration Test Kevin Moreno

* Used 39a0f19-7278-4a64-a255-b7646d1ace80 as ***lumu-client-key***and 5ab55d08-ae72-4017-a41c-d9d735360288 as ***collector-id.***

First, I looked for the information of the API specifically the body parameters of the Send DNS Queries method from LUMU Website. I did a POST request using Postman and the provided information. key (lumu-client-key) and collector id.

Interfaz de usuario gráfica, Texto, Aplicación, Correo electrónico

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Figure 1. Post request using Postman.

* The stats should be printed as specified above, highlighting the number  
  of records processed, the rank of clients (IPs) performing the most  
  queries, as well as the most queried hosts. The rank should include the  
  total hits and the percentage those hits represent from the total of   
  records analysed.

I wrote the code to create the tables (see github: <https://github.com/ksmorenos93/lumu_prueba_tecnica.git>). The results for the first 10 Clients IPs and Host Rank and are showed below.

Texto

Descripción generada automáticamente con confianza media

Figure . Clients IPs Rank

Texto

Descripción generada automáticamente

Figure 3. Host Rank

* Explain what the computational complexity of your ranking algorithm.

To make this ranking algorithm one counts how many times each unique IP or HOST appeared and update the counter for each IP or HOST in the list, so you iterate through the whole list with N elements, in this case 16967. After that sorting is performed based on the counts

(descending in this case). A common sorting algorithm have a time complexity of (N log N). For the ranking algorithm the time complexity would be from the counting and sorting (N + N log N). Sorting is a computationally more expensive operation and therefore we could simplify to (N log N). In other words, the sorting part is more significant in this algorithm and in case of larger datasets is the dominant term.

* Provide instructions on how to run your script: Python is necessary to run the code.

1. Clone the repository on your local folder with the command: git clone https://github.com/ksmorenos93/lumu\_prueba\_tecnica.git .
2. Go to your local folder.
3. Install the libraries (pip install -r requirements.txt)
4. If pip is not installed check this link: https://pip.pypa.io/en/stable/installation/
5. Run the file “prueba\_tecnica\_lumu.py” using python.

* Upload your project and share with us.

The project was uploaded to a public repository in GitHub called “lumu\_prueba\_tecnica” check the following link:

https://github.com/ksmorenos93/lumu\_prueba\_tecnica.git