Covid-19 Cases on World map (Batch processing)

What is Batch Processing?

Data which is collected over time and then fed into a system where “meaning” is extracted and further it is sent to store(warehouses) or to process further use.

For e.g., Daily processing of bills in a retail shop.

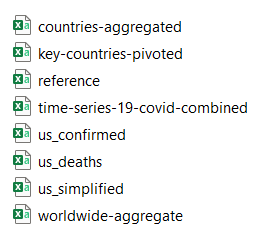
**Ref Link:**

[2 Beginner Level Projects For Aspiring Data Engineers ⌛️Covid-19 Data | Real Time Data Processing 👈 - YouTube](https://www.youtube.com/watch?v=GmR2migiu6A)

**Context:**

* A new coronavirus designated 2019-nCoV was first identified in Wuhan, the capital of China's Hubei province.
* People developed pneumonia without a clear cause and for which existing vaccines or treatments were not effective.
* The virus has shown evidence of human-to-human transmission.
* Transmission rate (rate of infection) appeared to escalate in mid-January 2020
* As of 15th May 2023, approximately 69,27,378 deaths have been confirmed.

**Content:**



**Tech Stack:**

1. Hadoop two main components(HDFS & YARN)
2. Python
3. Anaconda(IDE)
4. Spark/PySpark
5. SQL(PostgreSQL/MySQL)\*
6. NoSQL(Cassandra/HBase)
7. Dashboarding(Tableau, Power-BI, Grafana\*, Kibana)

**High-Level Diagram:**

**Milestones:**

* Milestone – 1

- Clone/Download file from Git repo & save it in your local.

- [GitHub - datasets/covid-19: Novel Coronavirus 2019 time series data on cases](https://github.com/datasets/covid-19)

A screenshot of a computer program

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* Milestone – 2

- Setup Hadoop in local.

- Here we need to focus on only two main components of Hadoop(HDFS &

YARN)

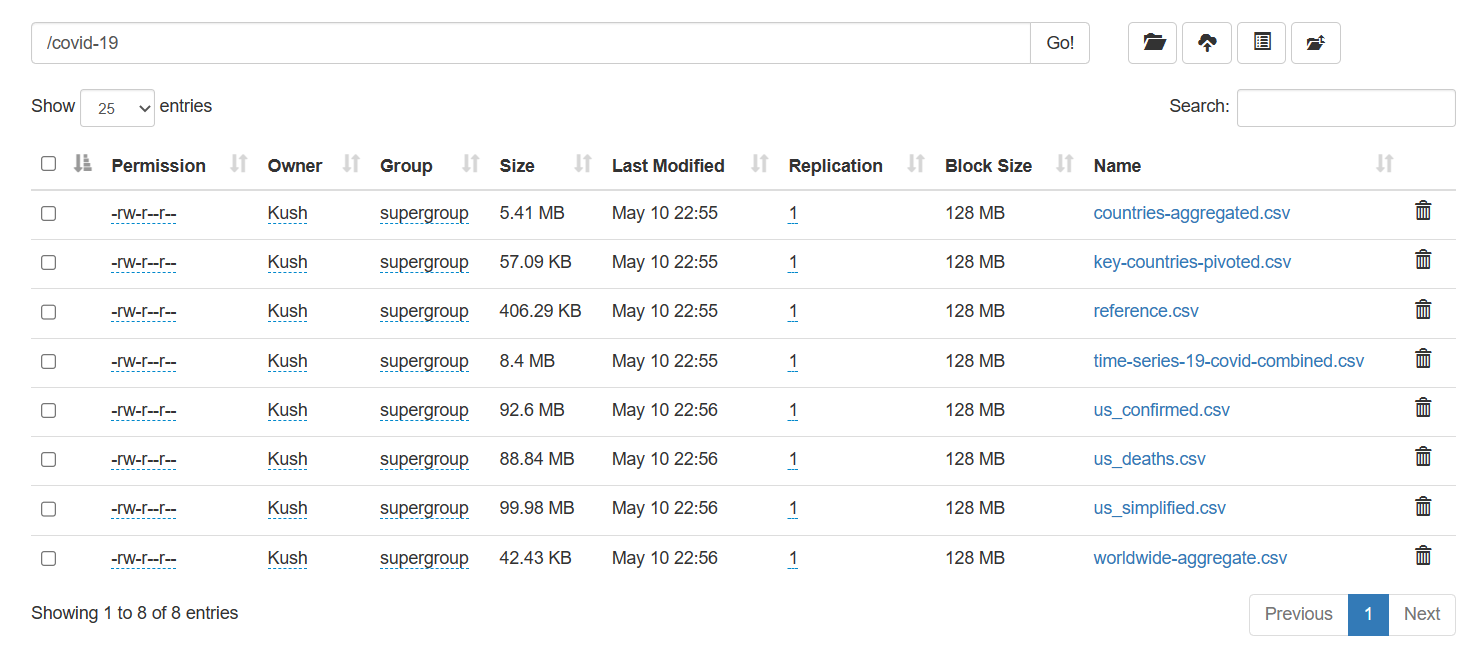
- HDFS is distributed file system so now copy that file from local to HDFS.

*- hdfs dfs mkdir /dir\_name*

*- hdfs dfs -ls /*

*- hdfs dfs -copyFromLocal “path” /dir\_name*

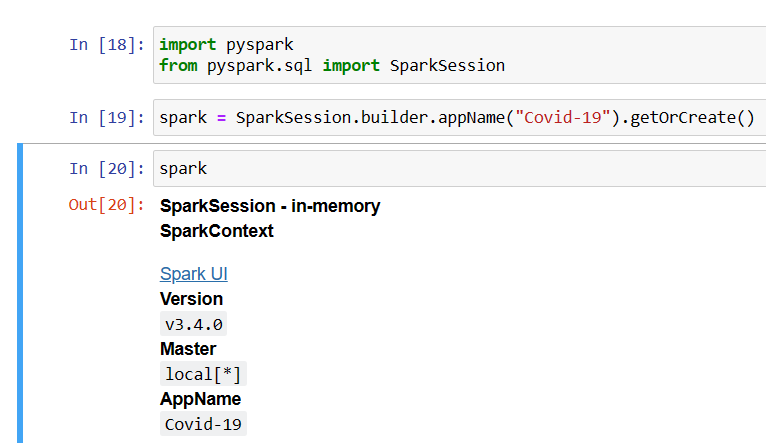
*- hdfs dfs -ls /dir\_name*



* Milestone – 3

- Setup spark in your local.

* We need to install Spark in our local and further we need to instantiate.
* To initiate we need we can use “spark” in the CMD, or we can use it in Jupyter Notebook.



- Write a spark application which reads file from HDFS and creates a DataFrame.

a. With the help of Spark we could pull the data from HDFS(Hadoop Distributed File

System) and create a DataFrame.

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A screenshot of a computer screen

Description automatically generated with low confidence

* Just looking a quick view, we can understand how many columns are there and we can plan what type of further transformation we could do.
* Milestone – 4
* Following basic transformation on the data:

1. Ingesting only the required columns.
2. Dropping duplicate values
3. Null handling transformation for all the columns.

String: NA

INT: -1

Date/Timestamp: 1800-01-01

Float: 0.0

1. Column renaming
2. Type casting according to the required data type.