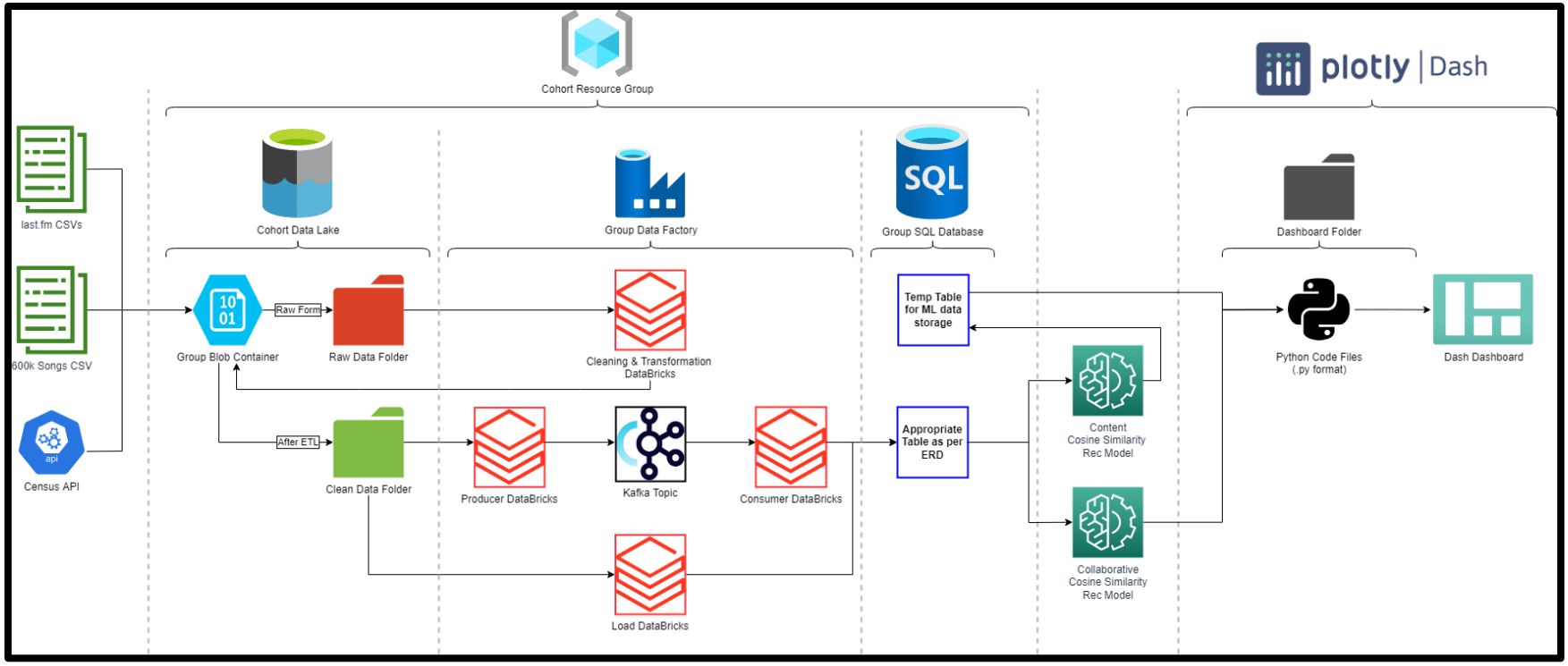
Data Platform Diagram – Olivier Rochaix, Eduard Stalmakov, Vanessa Gleason, and Alistair Marsden



From left to right:

Data sets stored or accessible in CSV format are indicated by this icon. Our group is using two such data sets; the 600k songs data set being one large CSV file and the last.fm data set being a collection of multiple CSVs.

Data that will be acquired via querying an API is indicated by this icon. Our group is using the Census API in order to collect data on audio streaming services' user demographics.

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This icon represents an Azure Resource Group. This is used as a visual indicator of where certain processes are taking place or technologies are being used.

This icon represents an Azure Data Lake. This is used as a visual indicator of where certain processes are taking place or technologies are being used. Found within the Resource Group.

This icon represents an Azure Blob Container. Our group is using this Blob Container to store raw and clean data in separate folders. Using an Azure Blob Container allows our group to access this data from multiple machines and automate the use of that data. Stored within the Data Lake.

These icons represent the folders into which we store raw and cleaned data sets. Raw data is represented by the red folder, and cleaned data is represented by the green folder. Stored within the Blob Container.

The group's Azure Data Factory. This is used as a visual indicator of where certain processes are taking place or technologies are being used. Found in the Resource Group.

Azure DataBricks. These DataBricks contain code that can be used for a variety of tasks; in our project we use them for the ETL process and create Kafka producers and consumers. Used in data pipelines within the Data Factory.

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The Confluent cloud. This stores the topic with which we produce and consume data from in order to simulate a live stream of data.

The group's SQL database. This is where a record of the simulated live stream data will be stored as well as where the group stores a normalized form of our cleaned data sets.

Tables within the SQL database. Stores values from our data sets and values consumed through Kafka.

The machine learning model(s). Our group will use Machine Learning to create music recommender systems based on user playlist content and song attributes.

Plotly Dash. Our group will use Dash in order to create our dashboard.

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Dashboard folder. This is used to store the Python files necessary to create and modify the Dash dashboard here.

Python code files. Multiple Python code files are used to create and / or modify our Dash dashboard.

Project dashboard: The group's final product. This will be a mockup of the recommender system, imitating an audio streaming service's interface. It will also have additional pages detailing the modelling process and audio streaming user demographics.