MCIT-AWS- PDSA- Intake2

Date : 11 – 04 -2022

Data Deduplication – Fuzzy Matching- Use Case 1

Presented by : Abeer Nada

Problem Description:

Use Case Description Input: 1- Neat Dataset1 with some records (~2600). 2- Dataset2 with some records (~64,000). Messy, duplicated. 3- Matching records (labels) (~350).

Task: Using ML, perform de-duplication for the datasets

Keywords:

Data Deduplication

Semantic matching

Record linkage

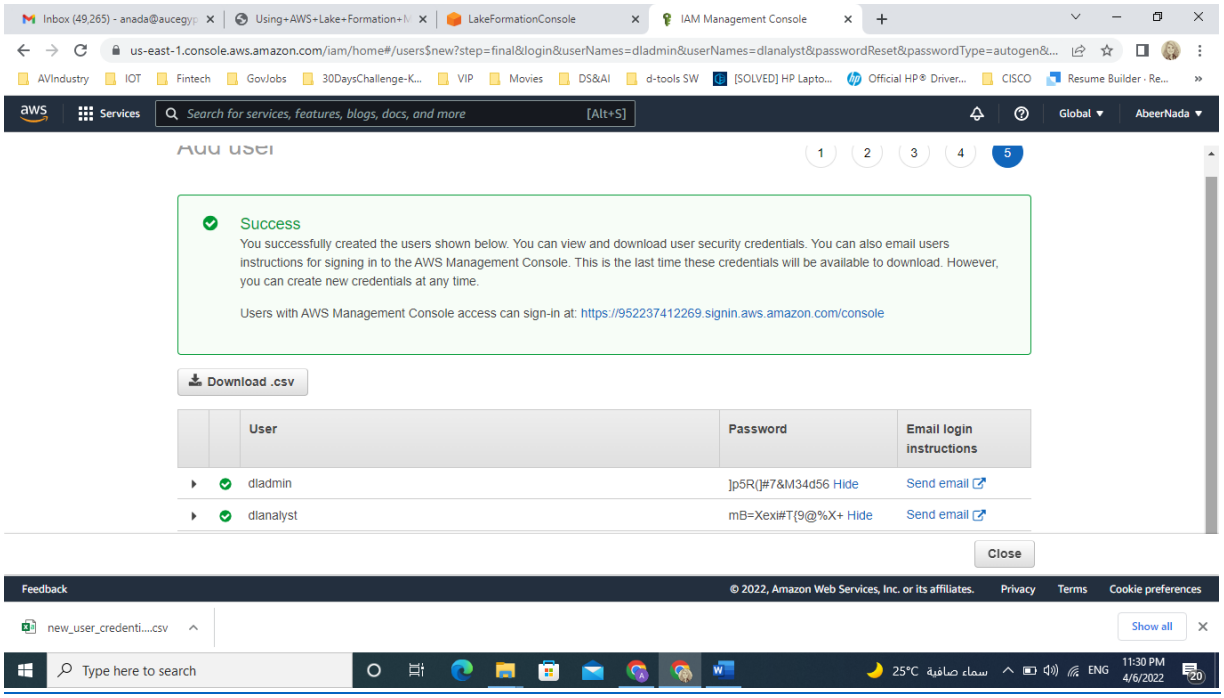
Entity resolution

Approved Solving Methods:

1- Build your own model – using supervised ML Algorithm for clustering
2- Fuzzy Score ML Model
3- Python Libraries with built-in ML Algorithms
4- Using AWS services

Chosen methods for the solution:

1- AWS for cleaning and transforming datasets using AWS S3, AWS Glue databrew. (A problem happened with the AWS crawler that prevent from completing the tasks on AWS
See blow screenshots: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1 2 3 4 5
Success
You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.
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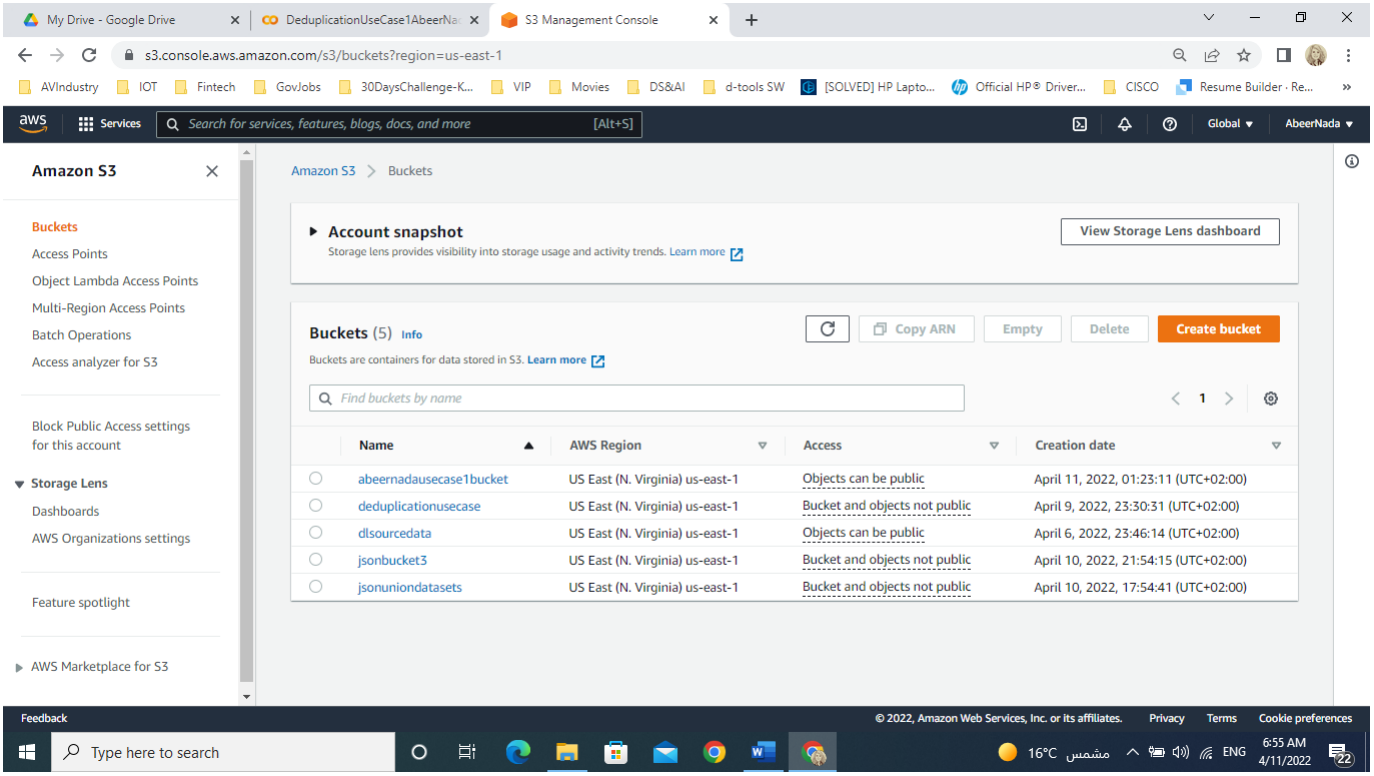
Amazon S3
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Amazon S3 > Buckets
Account snapshot
Storage lens provides visibility into storage usage and activity trends. Learn more
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Buckets (5) Info
Buckets are containers for data stored in S3. Learn more
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Create bucket
Find buckets by name
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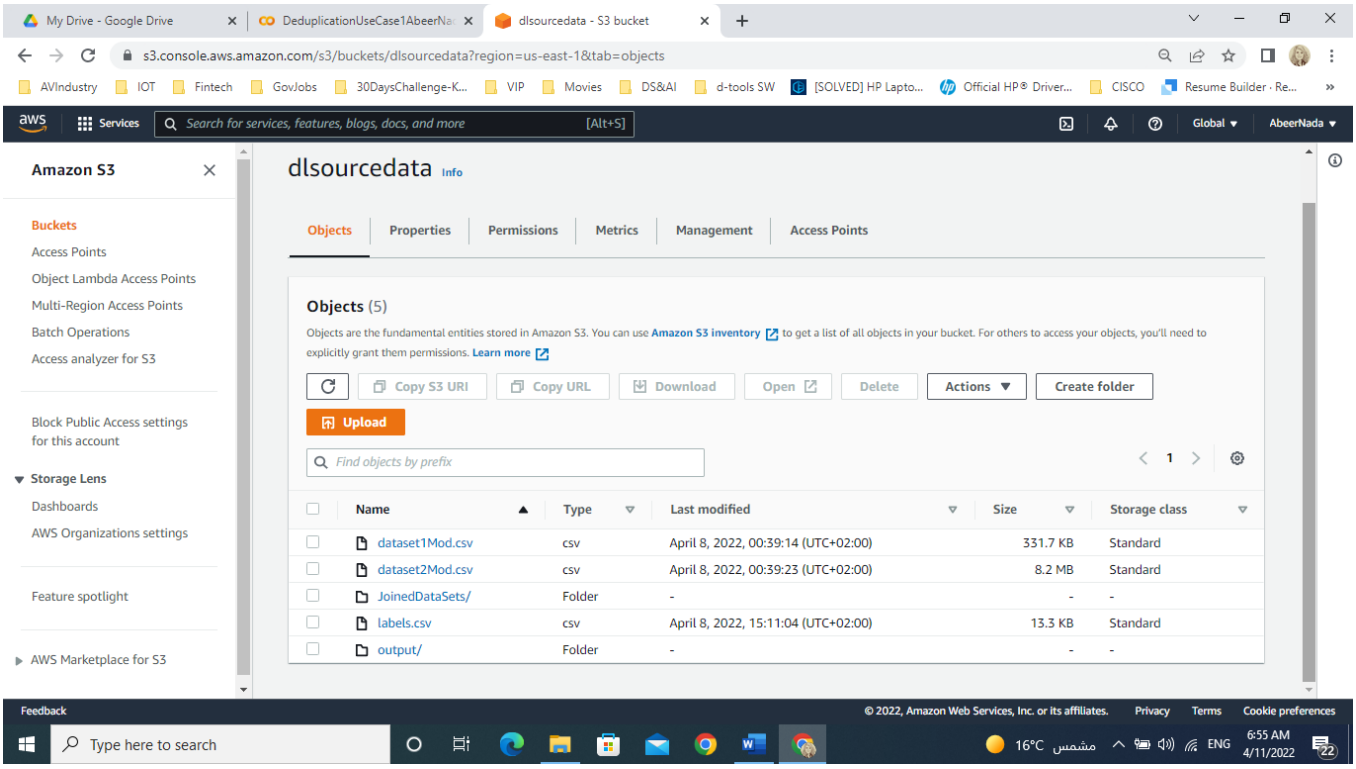
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Properties
Permissions
Metrics
Management
Access Points
Objects (5)
Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more
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Find objects by prefix
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Storage class
dataset1Mod.csv csv April 8, 2022, 00:39:14 (UTC+02:00) 331.7 KB Standard
dataset2Mod.csv csv April 8, 2022, 00:39:23 (UTC+02:00) 8.2 MB Standard
JoinedDataSets/ Folder - - -
labels.csv csv April 8, 2022, 15:11:04 (UTC+02:00) 13.3 KB Standard
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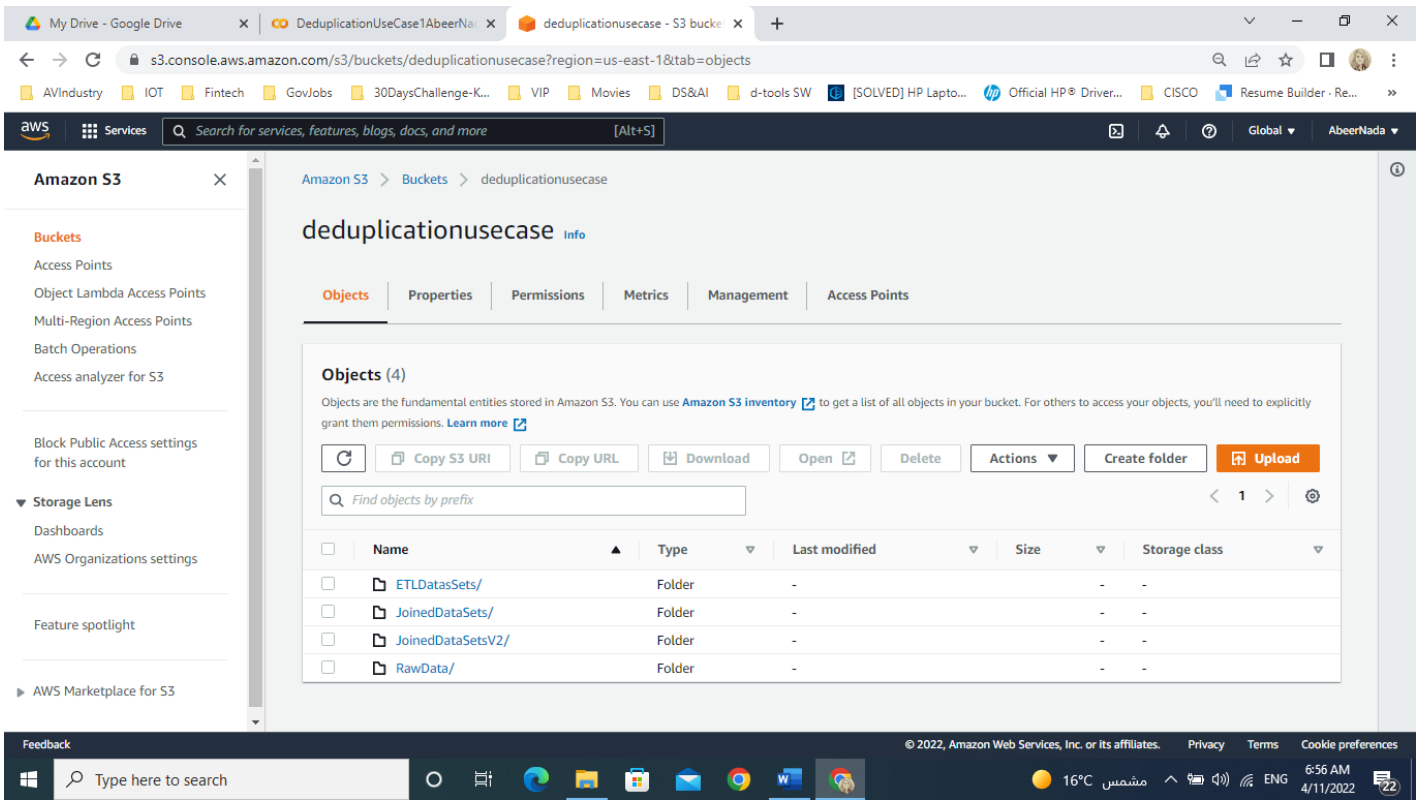
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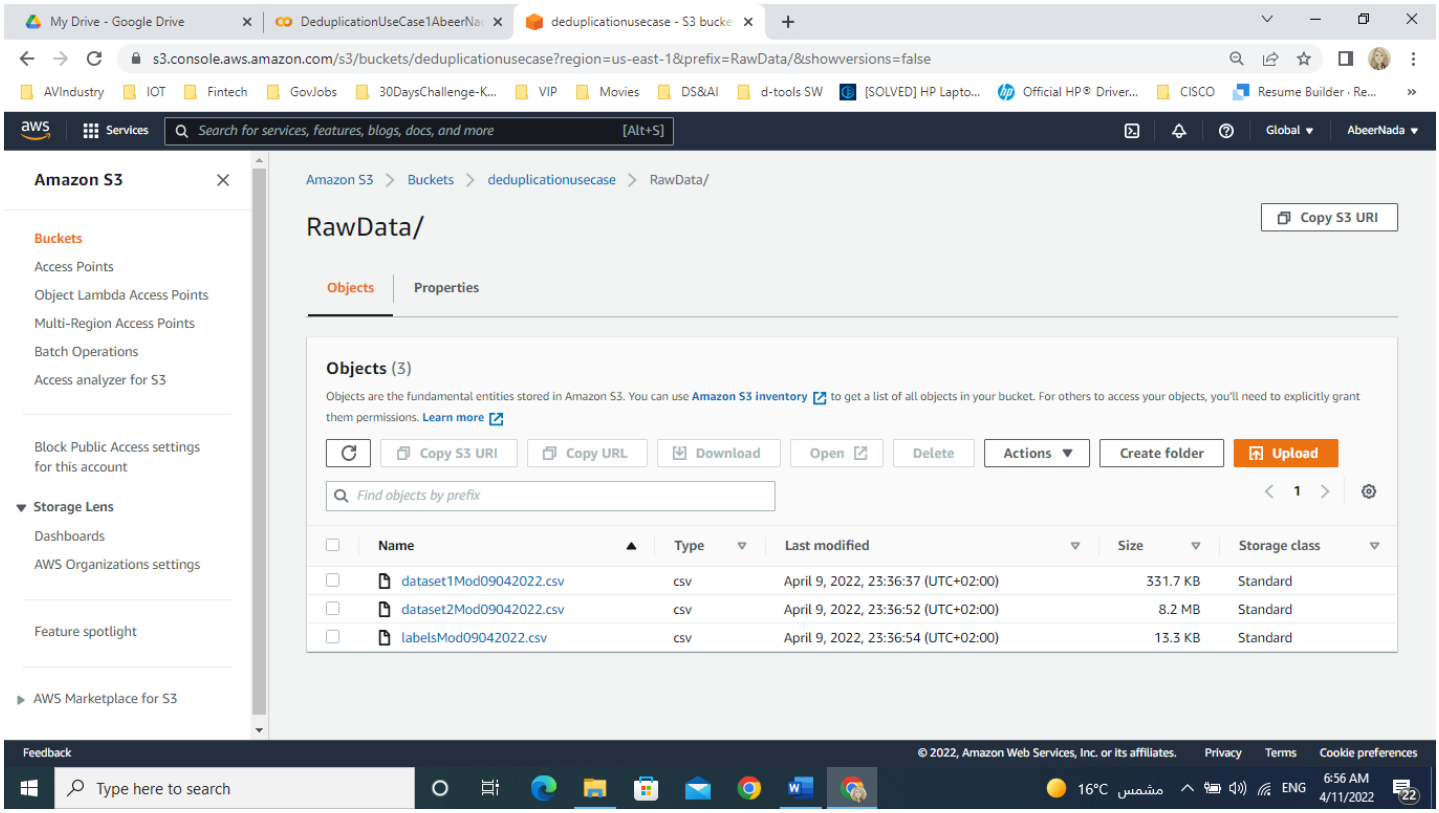
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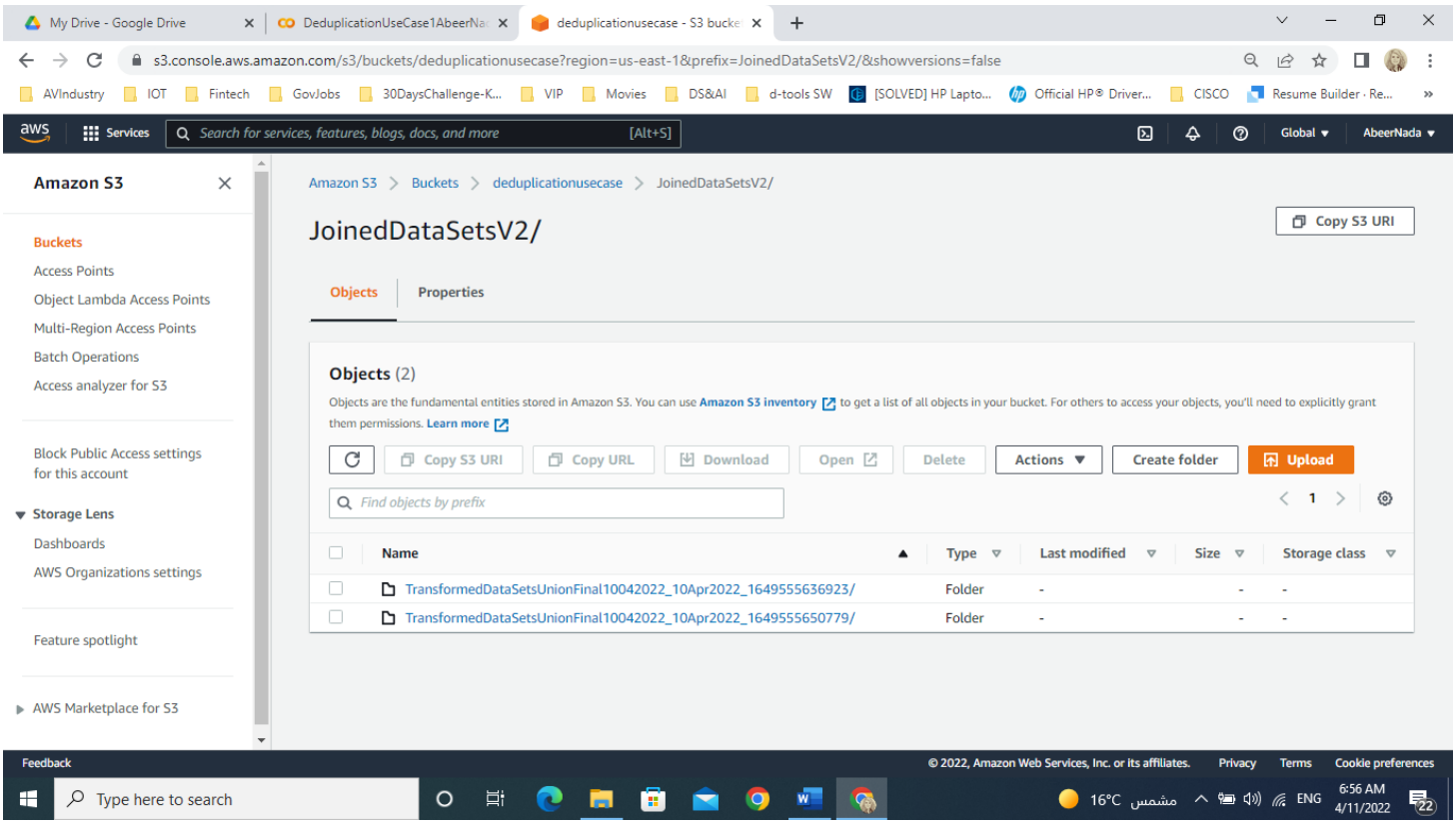
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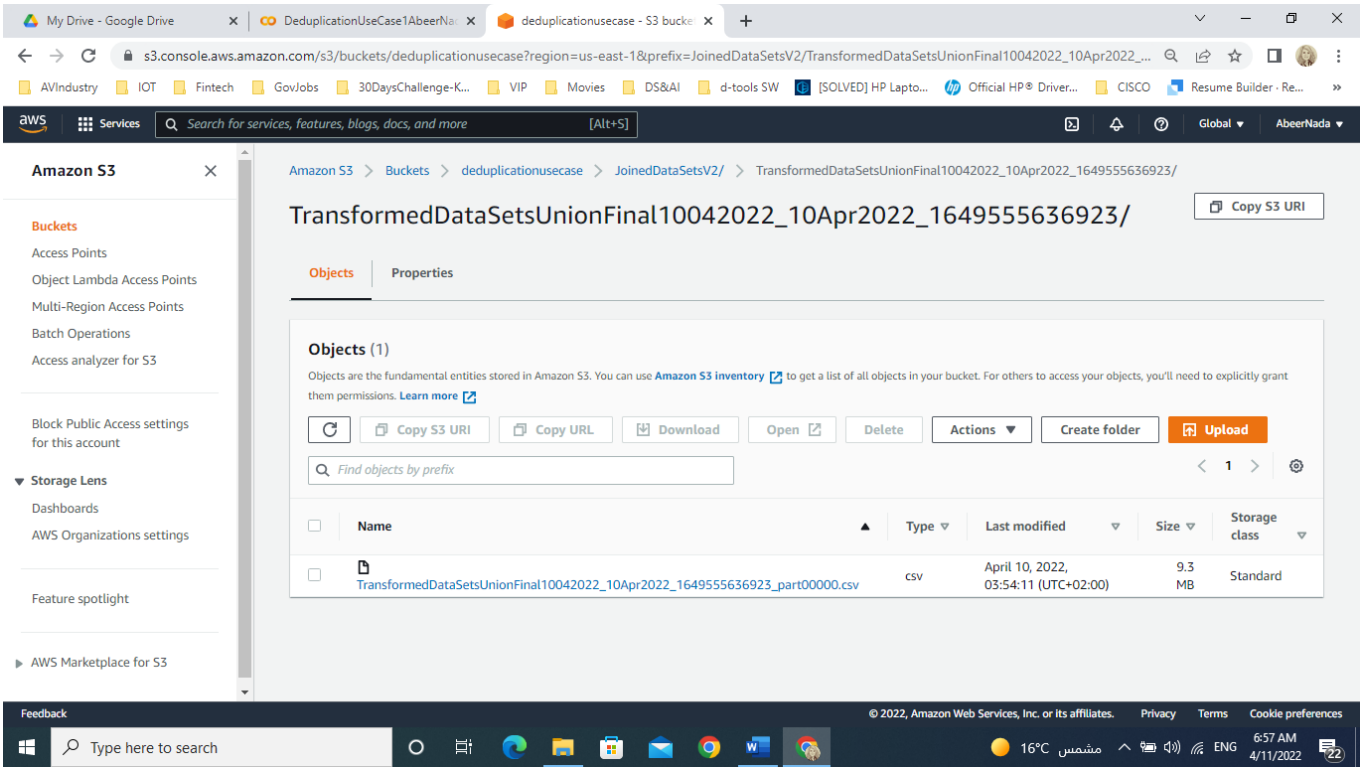
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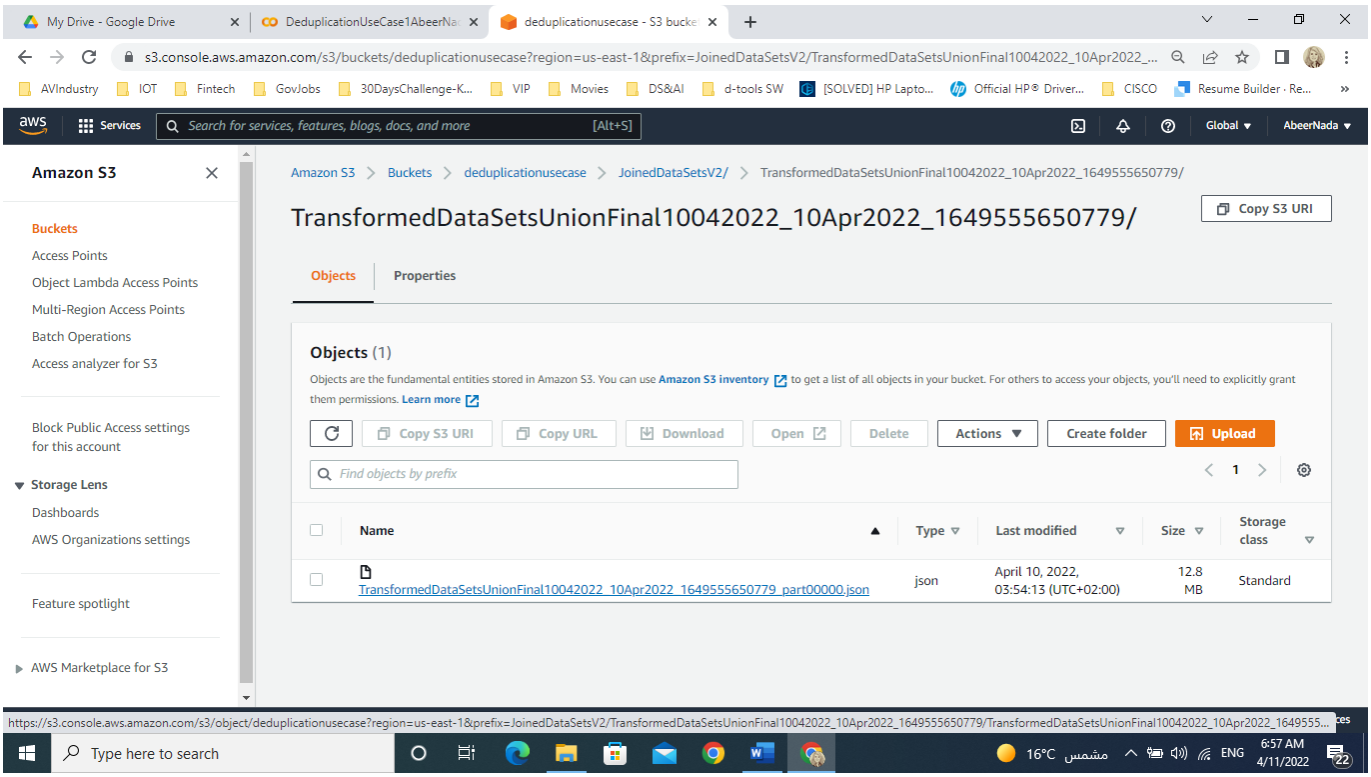
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Fintech
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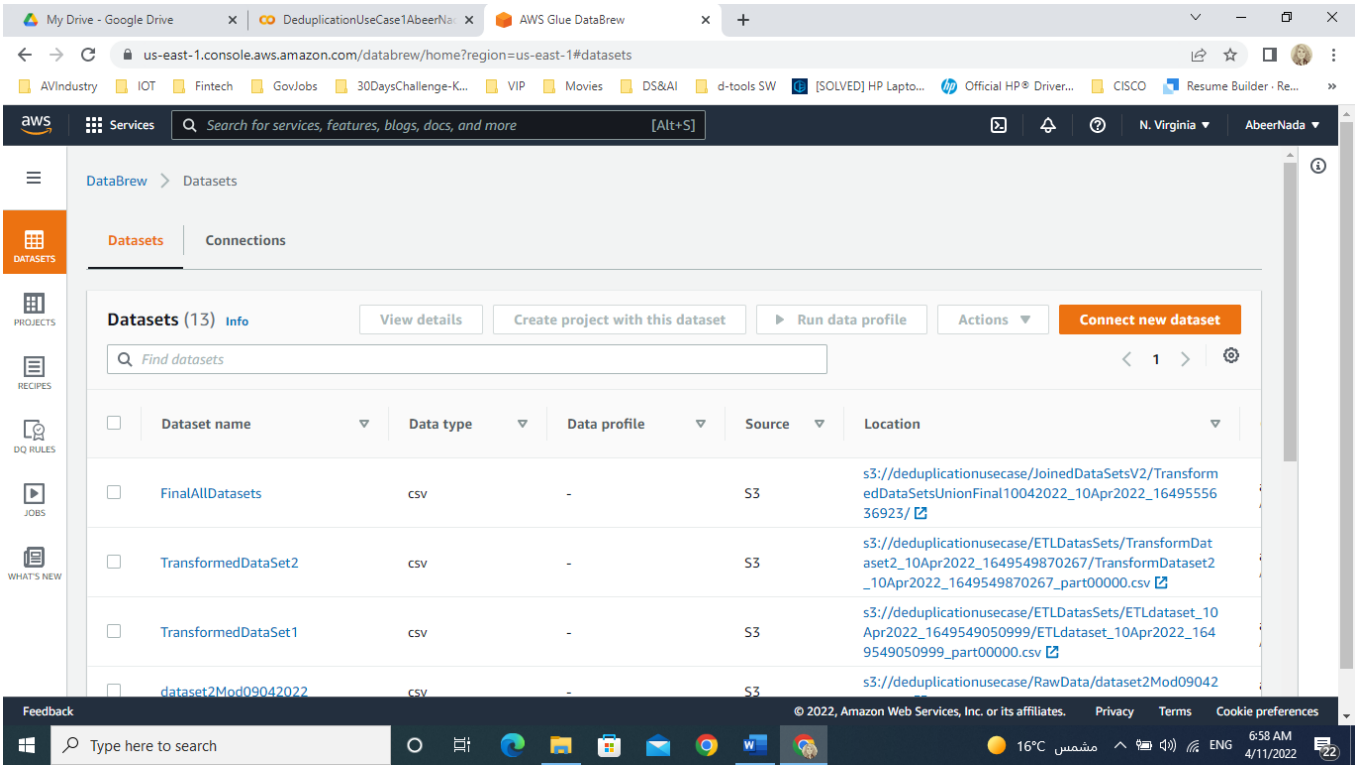
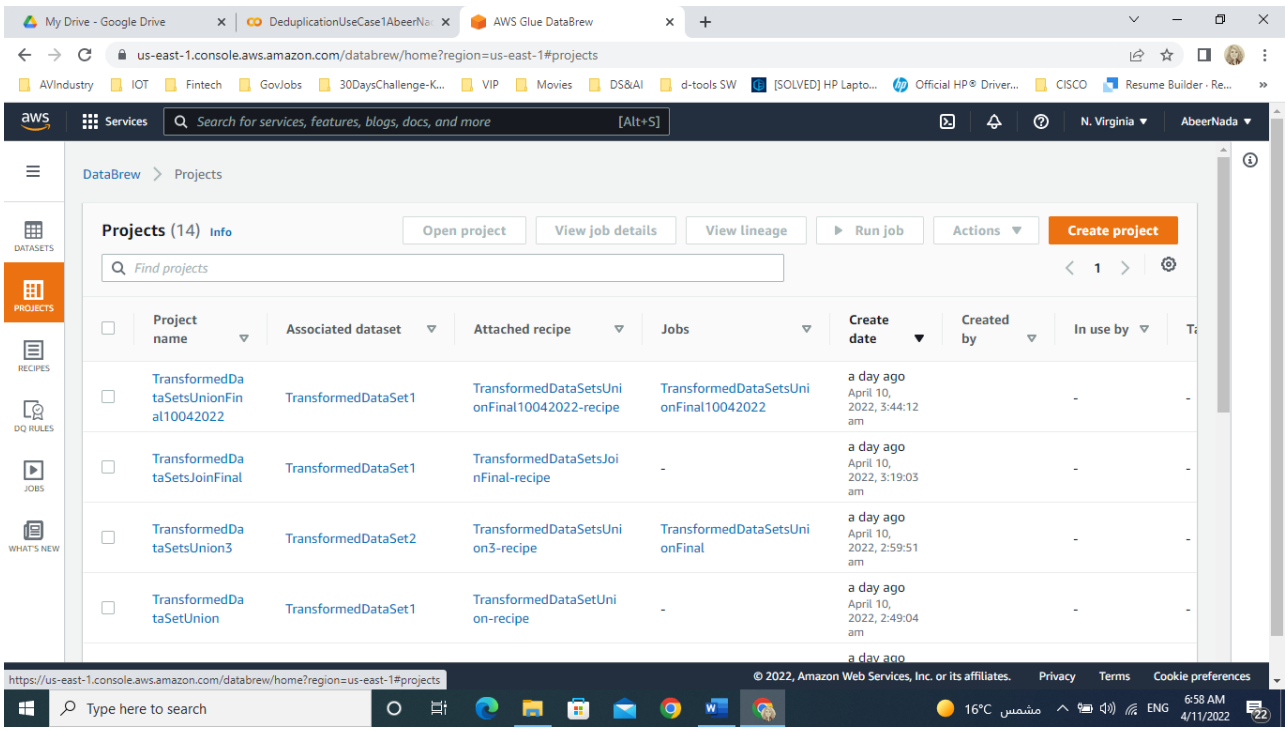
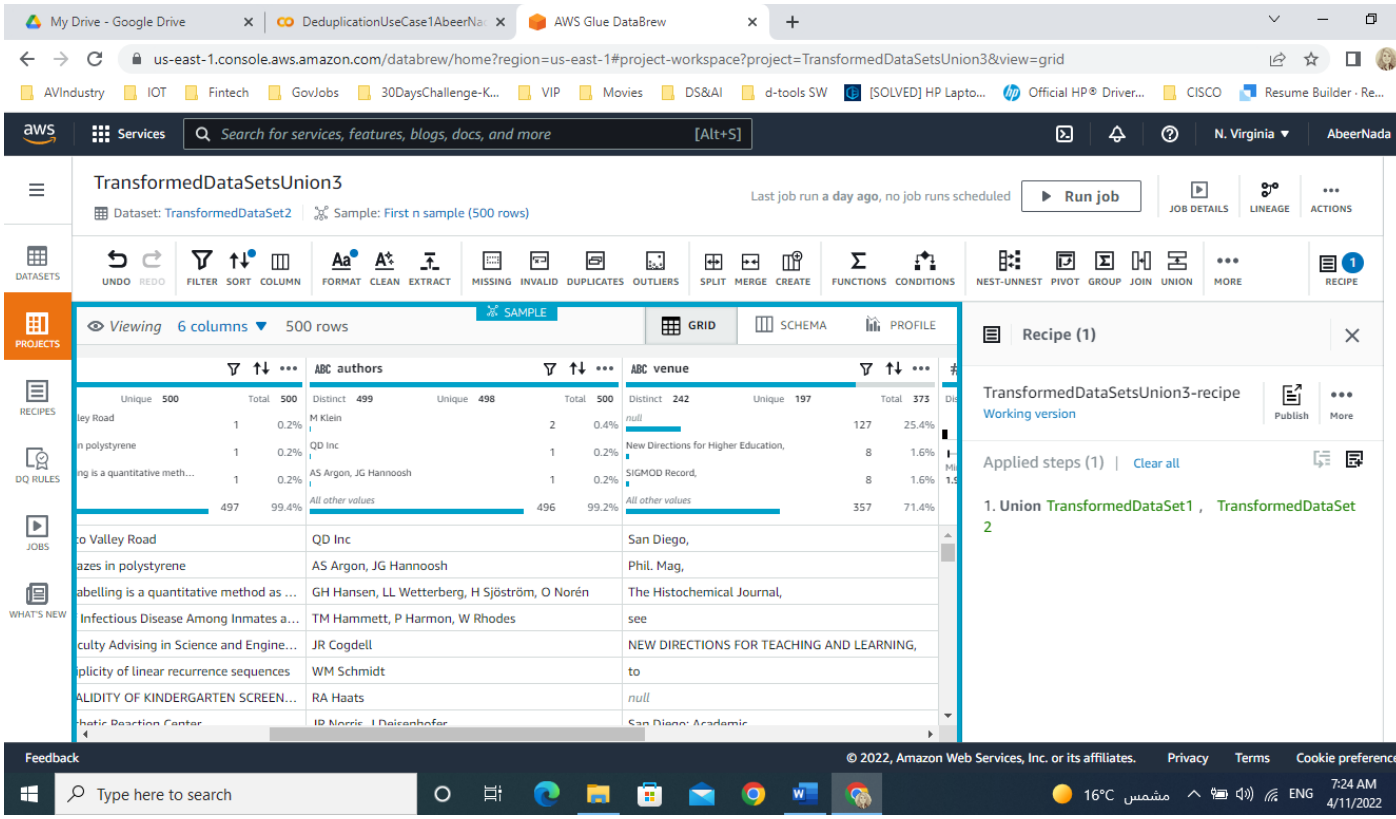
Glue Databrew:



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TransformedDataSetsUnion3
Dataset: TransformedDataSet2
Sample: First n sample (500 rows)
Last job run a day ago, no job runs scheduled
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JOB DETAILS
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SAMPLE
GRID
SCHEMA
PROFILE
ABC authors
ABC venue
Recipe (1)
TransformedDataSetsUnion3-recipe
Working version
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More
Applied steps (1)
Clear all
1. Union TransformedDataSet1 , TransformedDataSet 2
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San Diego,
AS Argon, JG Hannoosh
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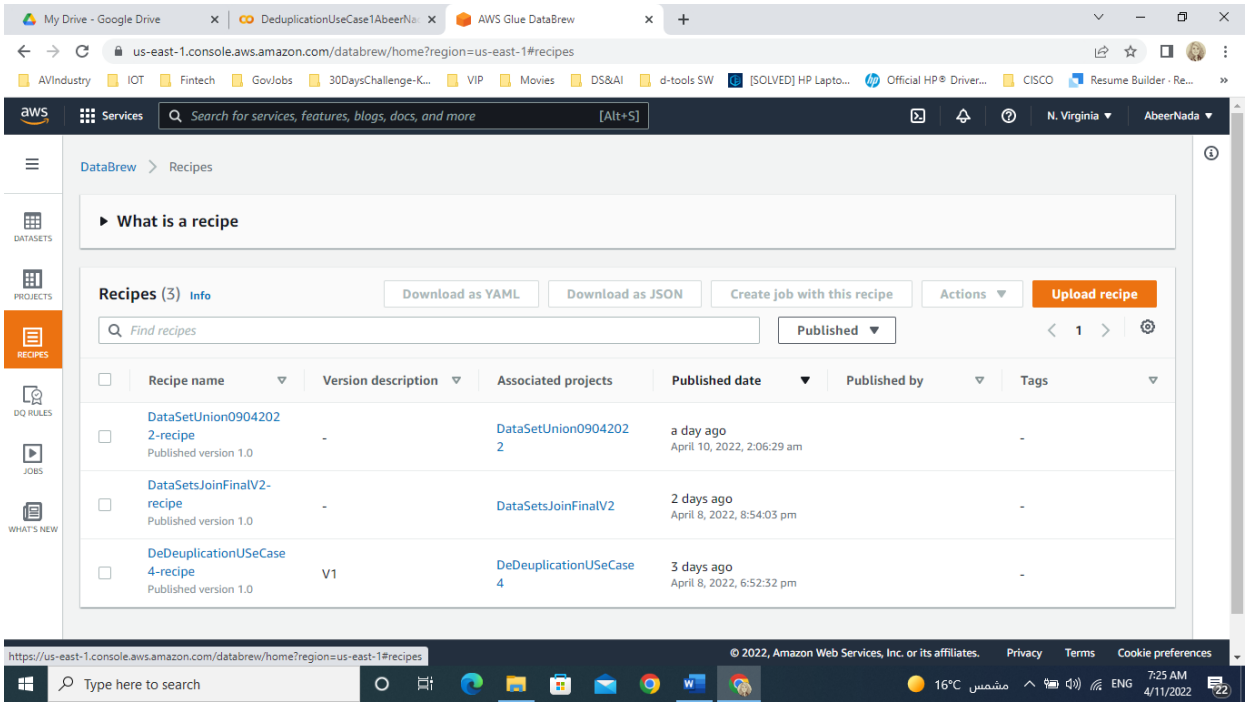
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DataSetUnion09042022
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April 10, 2022, 2:06:29 am
DataSetsJoinFinalV2-recipe
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2 days ago
April 8, 2022, 8:54:03 pm
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Published version 1.0
V1
DeDeuplicationUSeCase4
3 days ago
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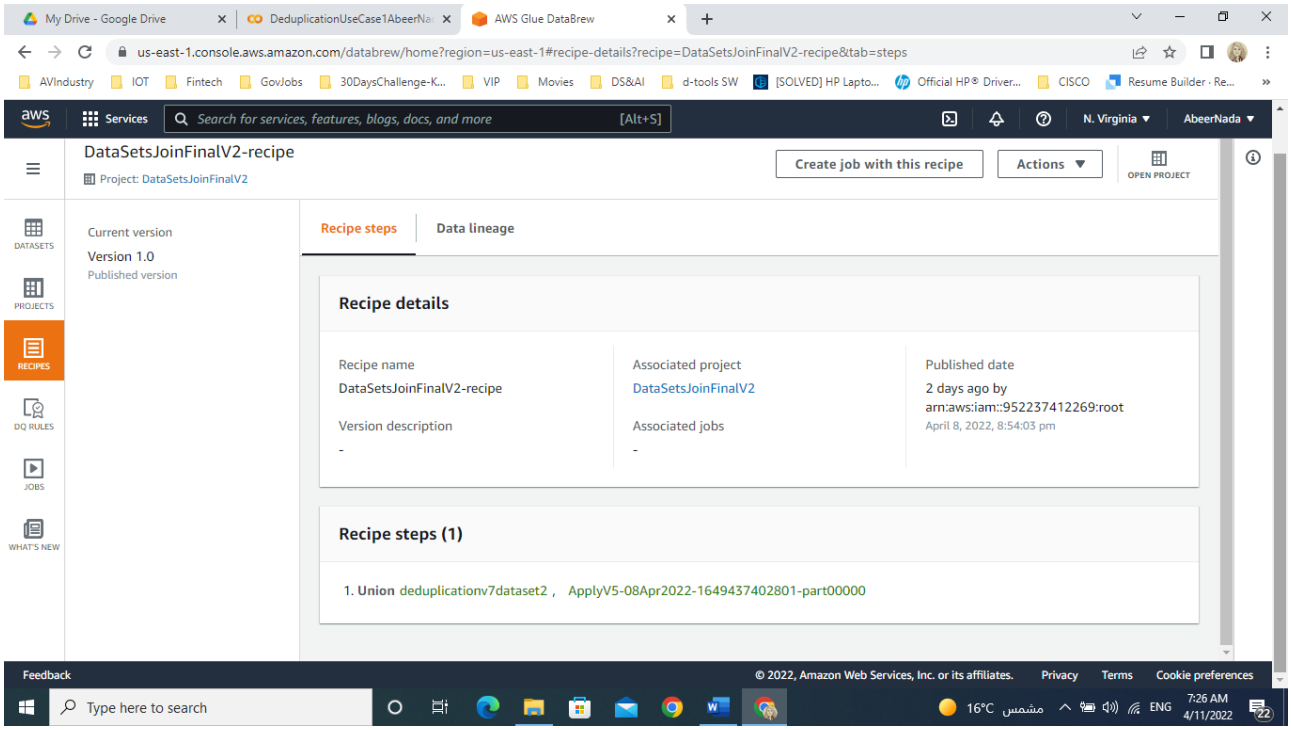
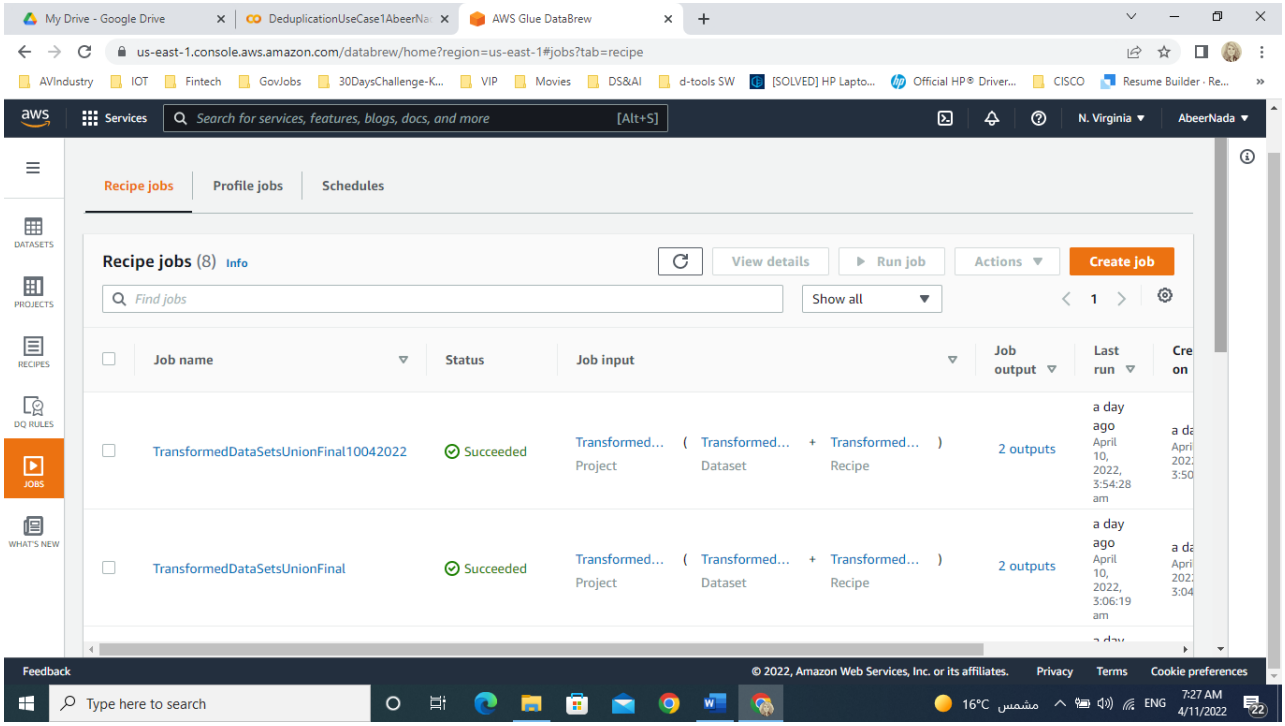
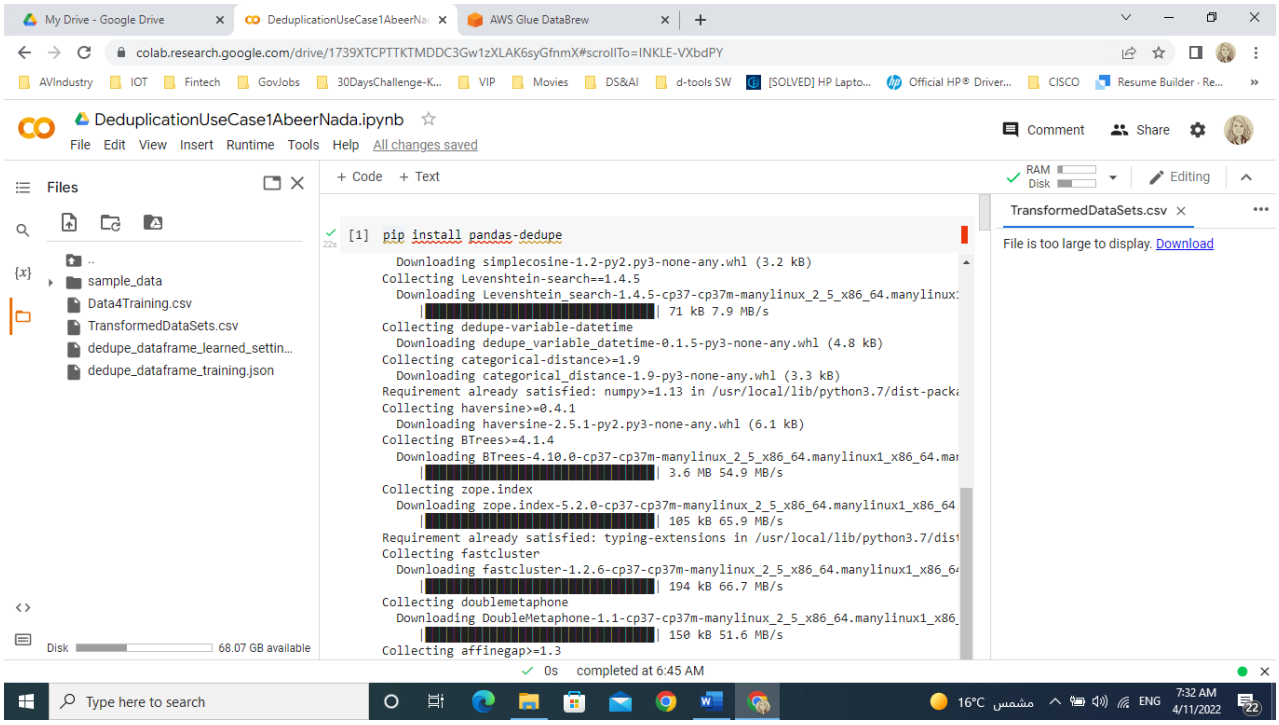




2- I generated one transformed csv and JSON file from the union of the two datasets (dataset1& dataset2) – please check attached files.

3- Using Dedupe Library in a python notebook to apply ML on the output dataset from the previous phase, please check attached notebook and file for the trained data.



References:

Using the Dedupe Machine Learning Library for Cleaning and Matching Data

https://www.azavea.com/blog/2019/08/30/using-the-dedupe-machine-learning-library-for-cleaning-and-matching-data/

Solving Data- Duplication problem using Machine Learning Algorithm

https://www.beyondkey.com/blog/solving-data-duplication-problem-using-machine-learning-algorithm/

https://stackoverflow.com/questions/16381133/using-machine-learning-to-de-duplicate-data

Why Machine Learning Is the Smart Way to Dedupe Salesforce

https://www.salesfix.com.au/blog/why-machine-learning-is-the-smart-way-to-dedupe-salesforce/

Dedupe - How it works

https://dedupe.io/documentation/how-it-works.html

Using Machine Learning to Detect Dupes: Some Real-Life Examples (Part II)

https://dzone.com/articles/using-machine-learning-to-detect-dupes-some-real-l