A) High-level data staging plan

- Data Acquisition : The dataset is about the data scientist jobs salary. So we get the dataset from Kaggle with the following link : https://www.kaggle.com/datasets/thedevastator/jobs-dataset-from-glassdoor?select=glassdoor_jobs.csv

- Data Cleaning : The cleaning of the dataset consisted first of removing the irrelevant column for the analysis. These columns were `"Unnamed: 0","Headquarters","Sector","age",”Company size”,"Salary Estimate","JobDescription","hourly","employer_provided","company_txt","job_state","Competitors","same_state","python_yn","R_yn","spark","aws","excel","seniority","desc_len","num_comp".`
  After that, we removed the “Founded” and the “Revenue” columns because they had a lot of null values. In this stage we decide to keep the rating column although they have some null values columns because they are relevant for the analysis.
  We removed also the rows with inconsistent values in “Industry”,”Rating” and “Size” columns

- Data transformation : In the original form of the dataset, the “job_simp” column had a lot of null value. We noticed that we can solve this issue by analyzing the first column and using this information to fill the missing rows. We filled the missing rows with the label “Research”.
  We also transform the “location” column data. Indeed, they had the form “City,State”, we then split them into two different columns. The first column was the “City” column and the second one was the “State”. We transformed the “Size” columns data into range values.

- Data storage : We stored the staging data in MySql data database.

DATA QUALITY ISSUE

During the data staging we faced certain issues. The first one was the amount of rows, we only got 742 rows which made our data cleaning more delicate because we didn’t want to remove anymore rows. But the advantage of this dataset was the large number of columns. So we took advantage of that.

In “job_simp” columns we got more than 100 missing values. So to avoid removing them, we used the first column to make some correspondence and complete the missing rows.

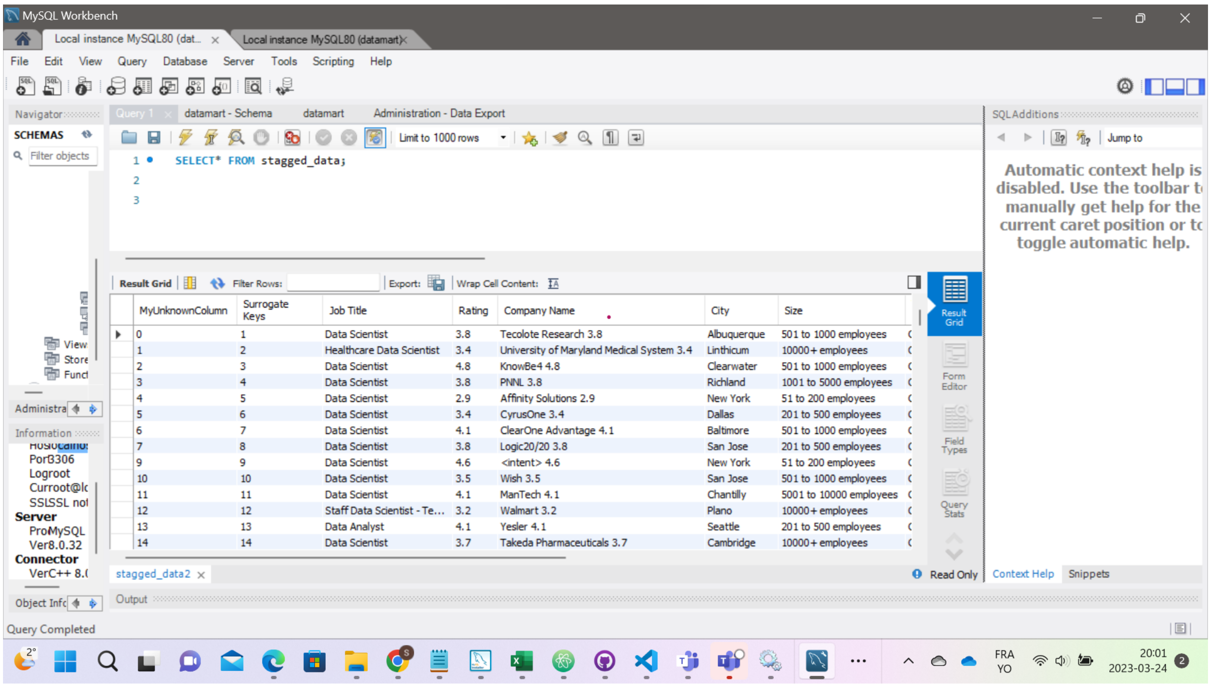
Also in the “Industry”,”Size” and “Rating” columns we gave us some inconsistent values. To solve this problem, we checked the total number of inconsistency rows and the number was very low, less than 10. So we decided to remove them.

MySQL database

We created the database using MySQL.

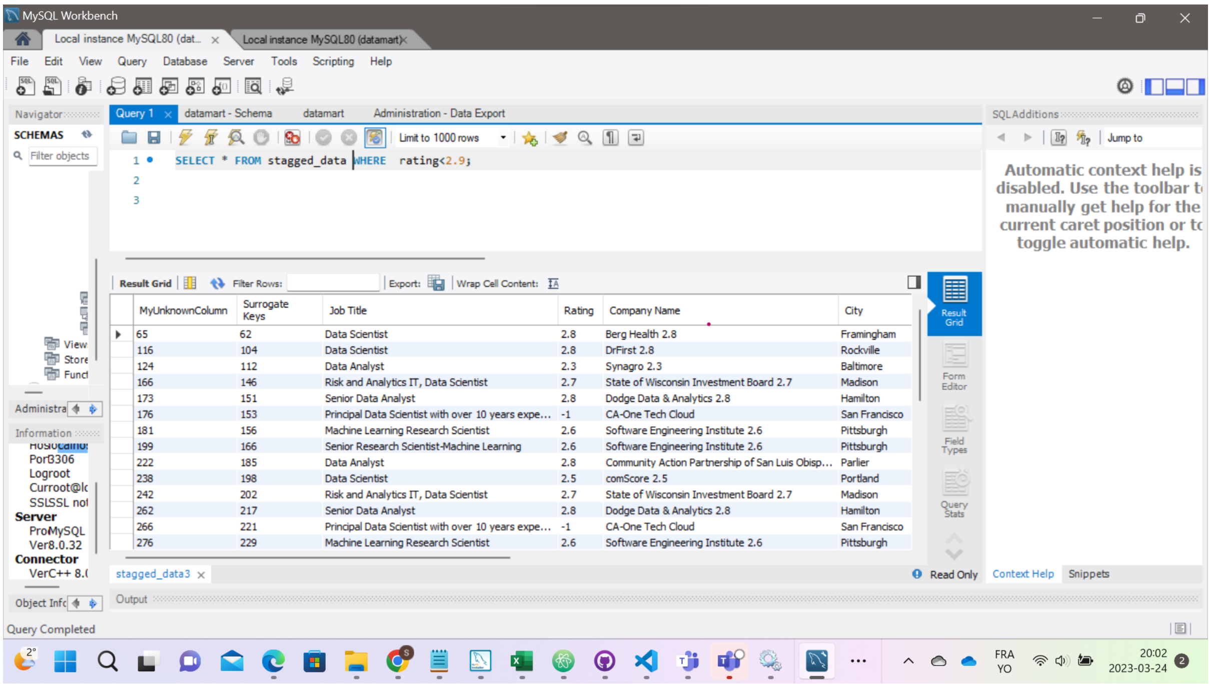
~~~
````CREATE TABLE stagged_data (
    SurrogateKey INT PRIMARY KEY,
    JobTitle VARCHAR(255),
    Rating FLOAT,
    CompanyName VARCHAR(255),
    City VARCHAR(255),
    Size VARCHAR(255),
    TypeOfOwnership VARCHAR(255),
    Industry VARCHAR(255),
    MinSalary INT,
    MaxSalary INT,
    AvgSalary FLOAT,
    JobClassification VARCHAR(255),
    State CHAR(2)
);

````
~~~



```
SELECT* FROM stagged_data;
```

	MyUnknownColumn	Surrogate Keys	Job Title	Rating	Company Name	City	Size
▶	0	1	Data Scientist	3.8	Tecolote Research 3.8	Albuquerque	501 to 1000 employees
	1	2	Healthcare Data Scientist	3.4	University of Maryland Medical System 3.4	Linthicum	10000+ employees
	2	3	Data Scientist	4.8	KnowBe4 4.8	Clearwater	501 to 1000 employees
	3	4	Data Scientist	3.8	PNNL 3.8	Richland	1001 to 5000 employees
	4	5	Data Scientist	2.9	Affinity Solutions 2.9	New York	51 to 200 employees
	5	6	Data Scientist	3.4	CyrusOne 3.4	Dallas	201 to 500 employees
	6	7	Data Scientist	4.1	ClearOne Advantage 4.1	Baltimore	501 to 1000 employees
	7	8	Data Scientist	3.8	Logic20/20 3.8	San Jose	201 to 500 employees
	9	9	Data Scientist	4.6	<intent> 4.6	New York	51 to 200 employees
	10	10	Data Scientist	3.5	Wish 3.5	San Jose	501 to 1000 employees
	11	11	Data Scientist	4.1	ManTech 4.1	Chantilly	5001 to 10000 employees
	12	12	Staff Data Scientist - Te...	3.2	Walmart 3.2	Plano	10000+ employees
	13	13	Data Analyst	4.1	Yesler 4.1	Seattle	201 to 500 employees
	14	14	Data Scientist	3.7	Takeda Pharmaceuticals 3.7	Cambridge	10000+ employees

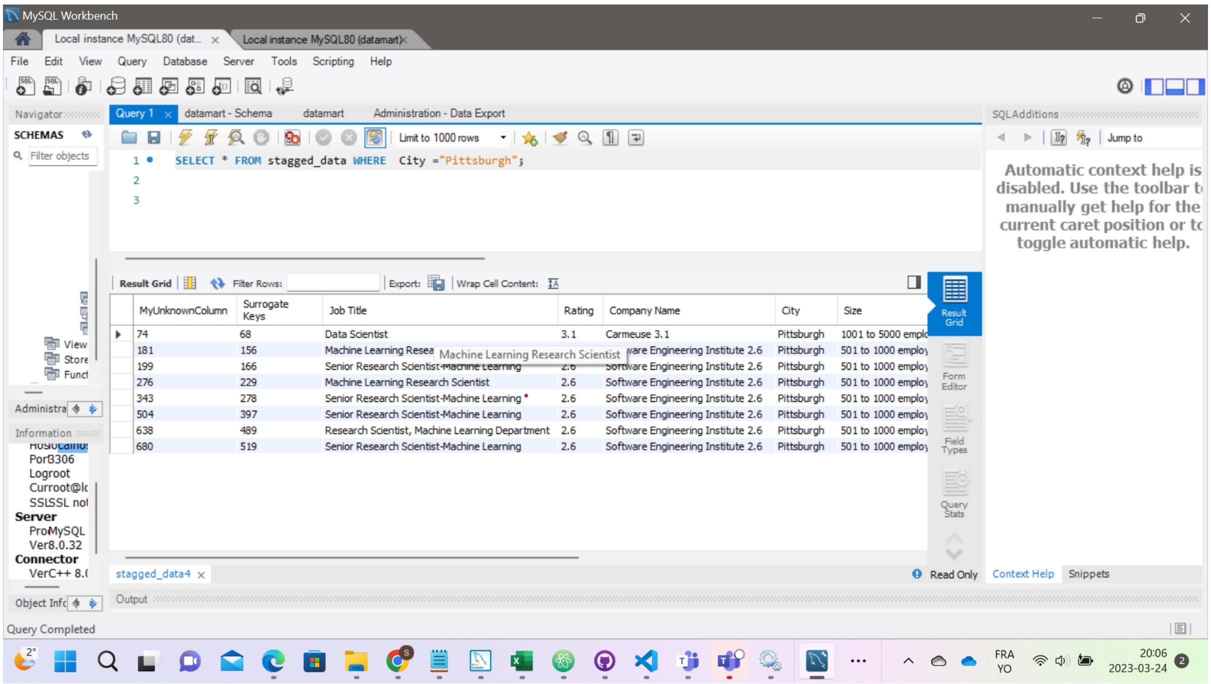


```
SELECT * FROM stagged_data WHERE  rating<2.9;
```

	MyUnknownColumn	Surrogate Keys	Job Title	Rating	Company Name	City
▶	65	62	Data Scientist	2.8	Berg Health 2.8	Framingham
	116	104	Data Scientist	2.8	DrFirst 2.8	Rockville
	124	112	Data Analyst	2.3	Synagro 2.3	Baltimore
	166	146	Risk and Analytics IT, Data Scientist	2.7	State of Wisconsin Investment Board 2.7	Madison
	173	151	Senior Data Analyst	2.8	Dodge Data & Analytics 2.8	Hamilton
	176	153	Principal Data Scientist with over 10 years expe...	-1	CA-One Tech Cloud	San Francisco
	181	156	Machine Learning Research Scientist	2.6	Software Engineering Institute 2.6	Pittsburgh
	199	166	Senior Research Scientist-Machine Learning	2.6	Software Engineering Institute 2.6	Pittsburgh
	222	185	Data Analyst	2.8	Community Action Partnership of San Luis Obisp...	Parlier
	238	198	Data Scientist	2.5	comScore 2.5	Portland
	242	202	Risk and Analytics IT, Data Scientist	2.7	State of Wisconsin Investment Board 2.7	Madison
	262	217	Senior Data Analyst	2.8	Dodge Data & Analytics 2.8	Hamilton
	266	221	Principal Data Scientist with over 10 years expe...	-1	CA-One Tech Cloud	San Francisco
	276	229	Machine Learning Research Scientist	2.6	Software Engineering Institute 2.6	Pittsburgh

stagged_data3

Query Completed

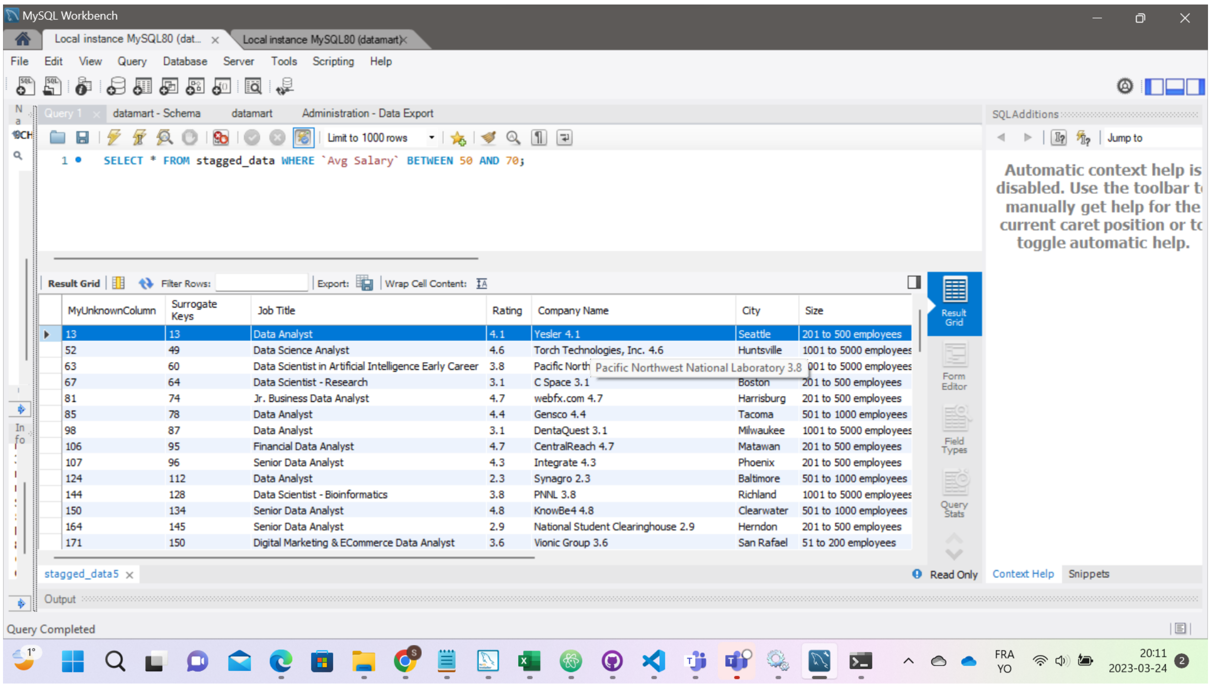


```
SELECT * FROM stagged_data WHERE  City ="Pittsburgh";
```

	MyUnknownColumn	Surrogate Keys	Job Title	Rating	Company Name	City	Size
▶	74	68	Data Scientist	3.1	Carmeuse 3.1	Pittsburgh	1001 to 5000 emplo
	181	156	Machine Learning Resea Machine Learning Research Scientist		ware Engineering Institute 2.6	Pittsburgh	501 to 1000 employ
	199	166	Senior Research Scientist-Machine Learning	2.6	Software Engineering Institute 2.6	Pittsburgh	501 to 1000 employ
	276	229	Machine Learning Research Scientist	2.6	Software Engineering Institute 2.6	Pittsburgh	501 to 1000 employ
	343	278	Senior Research Scientist-Machine Learning	2.6	Software Engineering Institute 2.6	Pittsburgh	501 to 1000 employ
	504	397	Senior Research Scientist-Machine Learning	2.6	Software Engineering Institute 2.6	Pittsburgh	501 to 1000 employ
	638	489	Research Scientist, Machine Learning Department	2.6	Software Engineering Institute 2.6	Pittsburgh	501 to 1000 employ
	680	519	Senior Research Scientist-Machine Learning	2.6	Software Engineering Institute 2.6	Pittsburgh	501 to 1000 employ

stagged_data4

Query Completed



```
SELECT * FROM stagged_data WHERE `Avg Salary` BETWEEN 50 AND 70;
```

Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or tc toggle automatic help.

MyUnknownColumn	Surrogate Keys	Job Title	Rating	Company Name	City	Size
13	13	Data Analyst	4.1	Yesler 4.1	Seattle	201 to 500 employees
52	49	Data Science Analyst	4.6	Torch Technologies, Inc. 4.6	Huntsville	1001 to 5000 employees
63	60	Data Scientist in Artificial Intelligence Early Career	3.8	Pacific North		001 to 5000 employees
67	64	Data Scientist - Research	3.1	C Space 3.1	Boston	201 to 500 employees
81	74	Jr. Business Data Analyst	4.7	webfx.com 4.7	Harrisburg	201 to 500 employees
85	78	Data Analyst	4.4	Gensco 4.4	Tacoma	501 to 1000 employees
98	87	Data Analyst	3.1	DentaQuest 3.1	Milwaukee	1001 to 5000 employees
106	95	Financial Data Analyst	4.7	CentralReach 4.7	Matawan	201 to 500 employees
107	96	Senior Data Analyst	4.3	Integrate 4.3	Phoenix	201 to 500 employees
124	112	Data Analyst	2.3	Synagro 2.3	Baltimore	501 to 1000 employees
144	128	Data Scientist - Bioinformatics	3.8	PNNL 3.8	Richland	1001 to 5000 employees
150	134	Senior Data Analyst	4.8	KnowBe4 4.8	Clearwater	501 to 1000 employees
164	145	Senior Data Analyst	2.9	National Student Clearinghouse 2.9	Herndon	201 to 500 employees
171	150	Digital Marketing & ECommerce Data Analyst	3.6	Vionic Group 3.6	San Rafael	51 to 200 employees

Pacific Northwest National Laboratory 3.8

stagged_data5

Query Completed