Anton Slizh's

U2M8.LW.ETL Overview – Extraction

&

Ataccama platform overview

GitHub: https://github.com/drapejny/DataCamp2022

Task 1

2.1. Task 01: Extraction Description

To choose the extraction method we should consider different factors. The main factor is the possibilities of source system to implement one or another method. Very often, there is no possibility to add additional logic to the source systems to enhance an incremental extraction of data due to the performance or the increased workload of these systems. Also, we should look at the volume and the changeability of data being used.

In our business model we decided to implement the *Full Extraction* method. The main idea of this method is to extract full data completely from the source system. There is no need to keep track all data changes at definite time period. The decision was made because the volume of data system is not significantly large and there are some difficulties in implementing the *Incremental Extraction* method in provided source system.

As the physical extraction method we decided to use *Offline Extraction*. Here the data is not extracted directly from the source, but instead it's taken from another external area which keeps the copy of source. This help us avoid overloading of the main source system fetching the records from the external source instead of the actual source.

Task 2

3.1. Task 02: Prepare Table of Facts to DW Layer

I have already created the package for load my fact table in Lab 4. Let's look at the loading fact table *(fct_sales)* again.

Defining procedure and variables:

```
CREATE OR REPLACE PACKAGE BODY pkg_load_sales
IS
    PROCEDURE load_sales
    IS
        TYPE sales_rows_t IS TABLE OF dw_data.fct_sales%ROWTYPE;

        sales sales_rows_t;

        CURSOR c IS
            SELECT  1,
                    cl.date_id,
                    pr.product_id,
                    cu.customer_id,
                    st.store_id,
                    geo.geo_id,
                    cl.amount,
                    cl.pos_transaction
            FROM dw_cl.dw_cl_sale_data cl
            JOIN dw_data.dim_products_scd  pr
            ON cl.sku_num = pr.sku_num AND pr.exp_time IS NULL
            JOIN dw_data.dim_customers cu
            ON cl.phone = cu.phone
            JOIN dw_data.dim_stores st
            ON cl.store_address = st.address
            JOIN dw_data.dim_geo_locations geo
            ON cl.country = geo.country_desc;
```

I have used the cursor to iterate throw the data. The cursor was created as select statement on the sales data from cleansing layer and joined data from dimensions (just to convert natural keys to surrogate).

The procedure body contains bulk collecting to the sales variable and further bulk insertion into fact table.

```
BEGIN
    OPEN c;
    LOOP
        FETCH c
        BULK COLLECT INTO sales;
        FORALL i in 1 .. sales.COUNT()
            INSERT INTO dw_data.fct_sales
                    (
                        sale_id,
                        date_id,
                        product_id,
                        customer_id,
                        store_id,
                        geo_id,
                        amount,
                        pos_transaction
                    )
             VALUES
                 (
                    seq_sales.NEXTVAL,
                    sales(i).date_id,
                    sales(i).product_id,
                    sales(i).customer_id,
                    sales(i).store_id,
                    sales(i).geo_id,
                    sales(i).amount,
                    sales(i).pos_transaction
                 );
        EXIT WHEN c%NOTFOUND;
    END LOOP;
    CLOSE c;

    COMMIT;
```

The load sales procedure executing after updating data in the dimensions:

```
BEGIN
    pkg_load_dates.load_dates;
    pkg_load_geo_locations.load_geo_locations;
    pkg_load_products.load_products;
    pkg_load_stores.load_stores;
    pkg_load_customers.load_customers;
    pkg_load_sales.load_sales;
END;
```

Result data:

	SALE_ID	DATE_ID	PRODUCT_ID	CUSTOMER_ID	STORE_ID	GEO_ID	AMOUNT	POS_TRANSACTION
1	62623568	02.02.22	2769955	57783	306	412	3	20220202560201
2	62623569	24.04.21	2769955	57783	306	412	1	20210424458301
3	62623570	02.05.21	2769977	57783	306	412	2	20210502566001
4	62623571	31.03.21	2769977	57783	306	412	2	20210331457401
5	62623572	09.11.21	2769977	57783	306	412	1	20211109374501
6	62623573	04.01.21	2769977	57783	306	412	2	20210104524501
7	62623574	23.06.22	2769977	57783	306	412	2	20220623149701
8	62623575	04.01.22	2769977	57783	306	412	2	20220104528201
9	62623576	09.07.22	2769942	57783	306	412	1	20220709549001
10	62623577	01.05.21	2769942	57783	306	412	1	20210501234701
11	62623578	03.11.21	2769942	57783	306	412	3	20211103376201
12	62623579	28.01.22	2769942	57783	306	412	1	20220128355701
13	62623580	21.11.21	2769942	57783	306	412	2	20211121113001
14	62623581	17.03.22	2769942	57783	306	412	3	20220317371901
15	62623582	21.09.21	2769942	57783	306	412	1	20210921173801
16	62623583	22.06.22	2769942	57783	306	412	2	20220622368401
17	62623584	29.06.22	2769942	57783	306	412	1	20220629019601
18	62623585	11.11.21	2769955	57783	306	412	1	20211111300401
19	62623586	15.03.22	2769977	57783	306	412	2	20220315072101
20	62623587	12.07.21	2769977	57783	306	412	2	20210712195801
21	62623588	10.01.22	2769977	57783	306	412	3	20220110455501
22	62623589	26.02.21	2769977	57783	306	412	1	20210226114901
23	62623590	31.03.22	2769961	57783	306	412	2	20220331450801
24	62623591	19.02.22	2769961	57783	306	412	2	20220219059501
25	62623592	04.02.21	2769961	57783	306	412	2	20210204543101

Task 3

Overview of Ataccama

First of all I have registered on Ataccama (https://app.ataccama.com/catalog). After creating the account, I can start to analyze data.

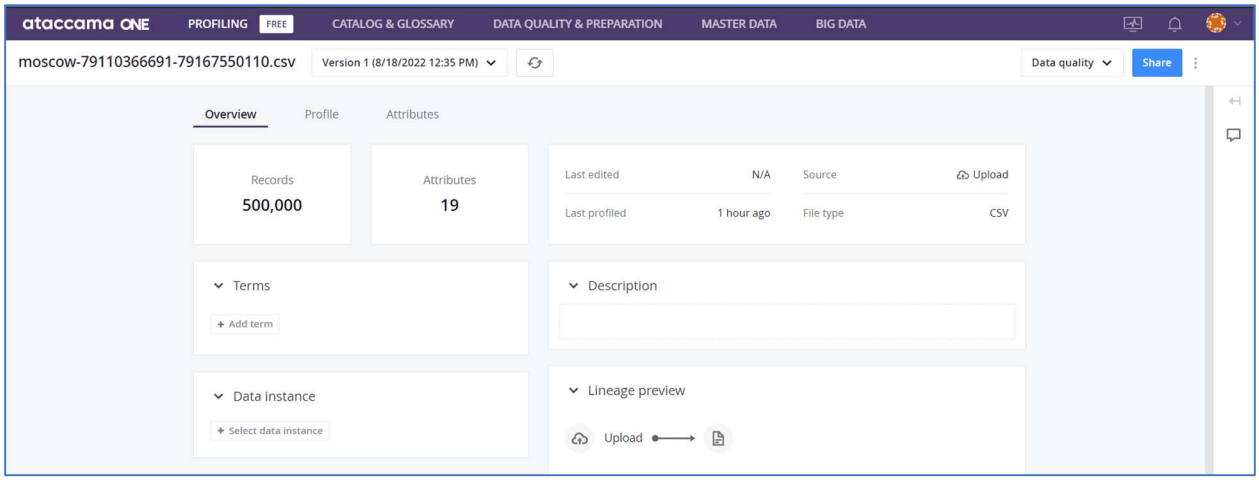
I couldn't connect to my Oracle DB. So, I decided to manually upload the dataset to analyze.

I have the dataset of orders from one of the most popular delivery services in Russia. Few months ago, when suddenly this information became public, I downloaded it just for educational purposes. So, the moment has come.

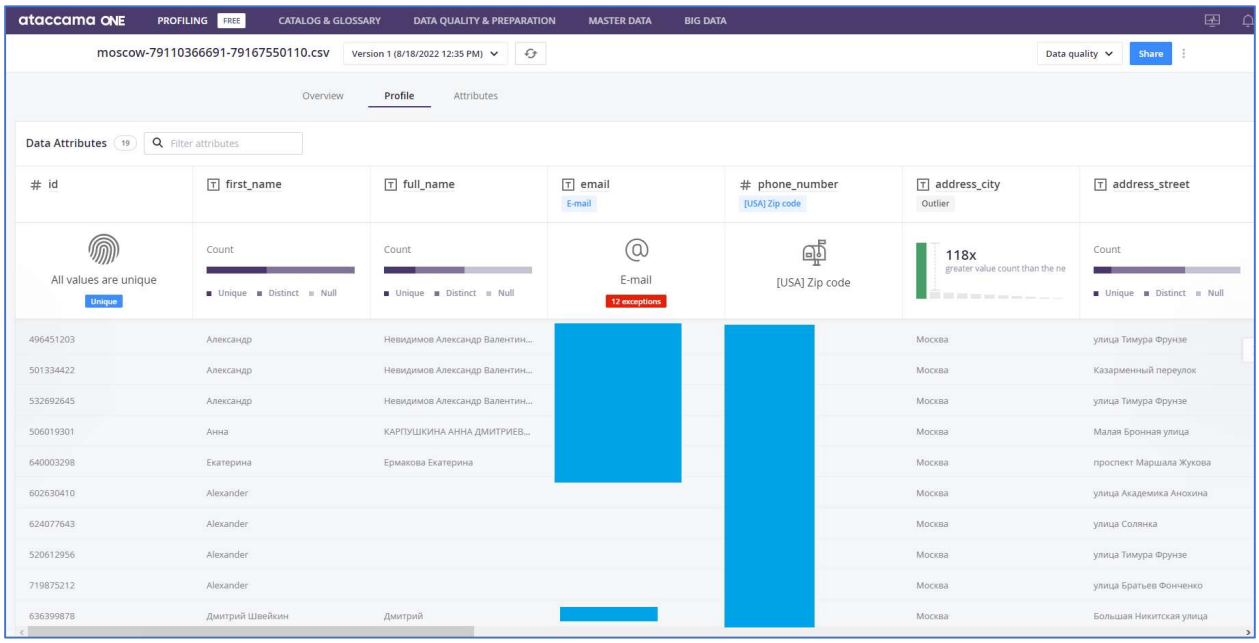
Uploading csv file with orders in Moscow region and starting the profiling process.

After profiling was completed let's look at the prepared report about dataset.

The file contains 500.000 rows and 19 attributes.



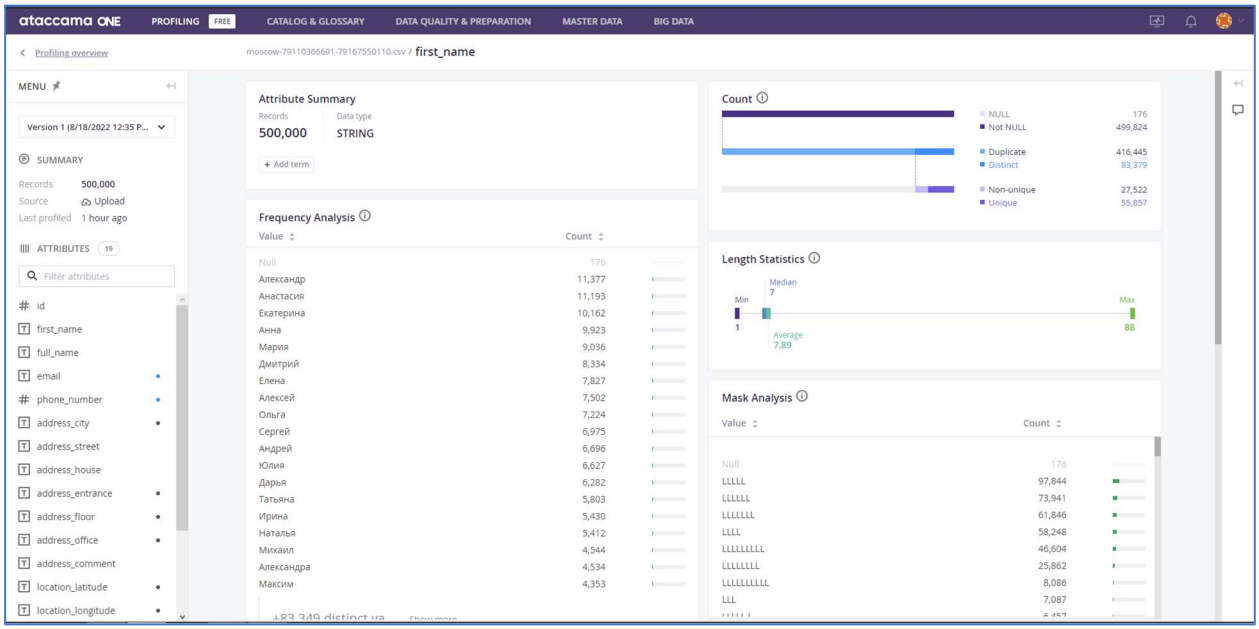
Here the overview of the dataset



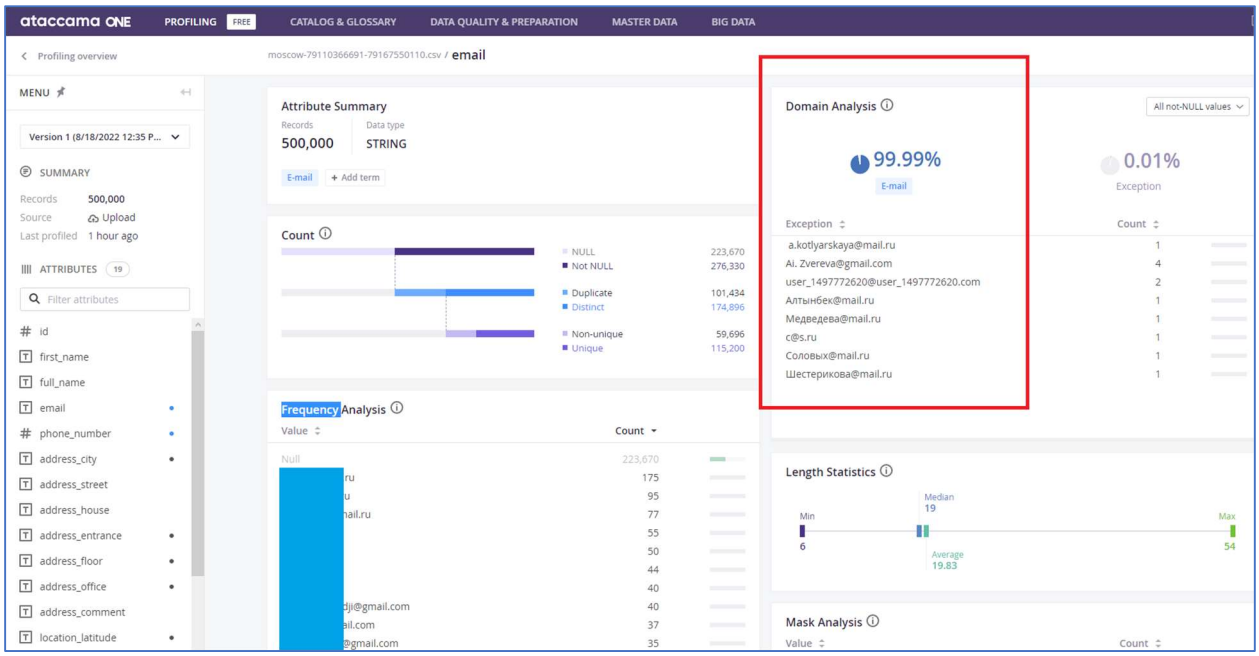
Then we can check statistics about each attribute in the dataset.

Let's look at the *first_name* attribute statistic.

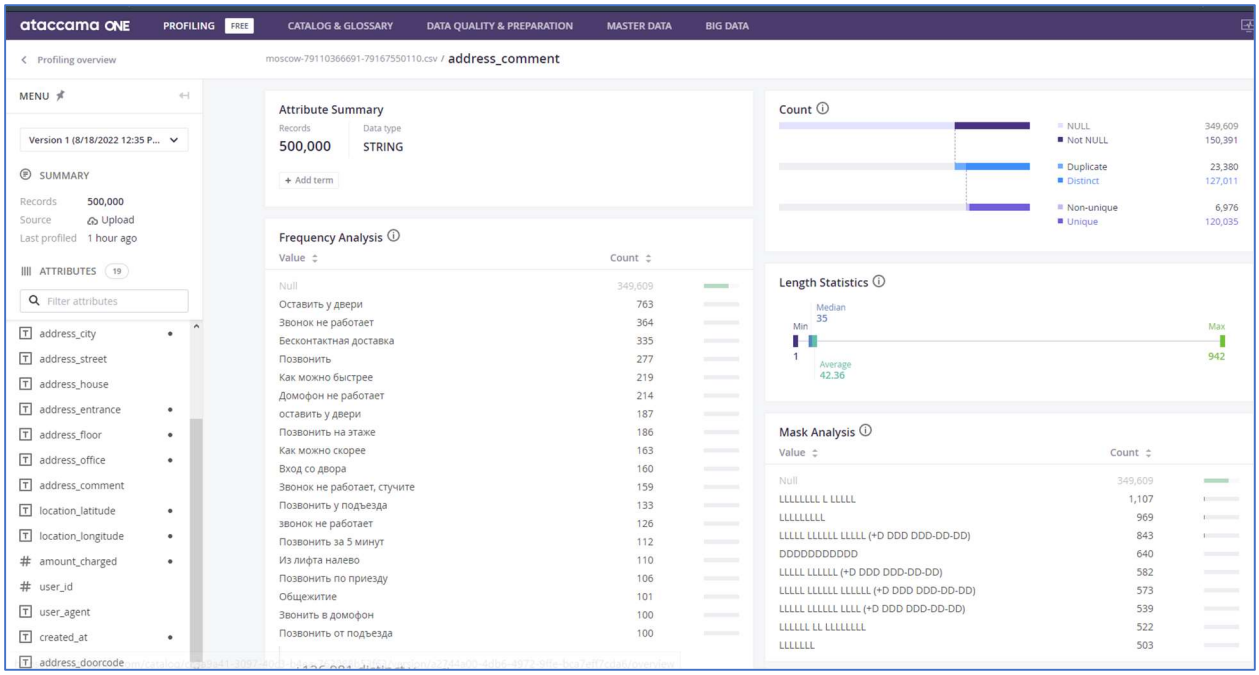
We can check the most popular first names of customers, the length and mask statistics of the attribute values.



Also let's look at the *email* attribute. As well as the value and count statistics we can look at the exception values. In the *Domain Analysis* we can look at the exceptions and their frequency.



And let's look at the *address_comment* attribute. Here we can see the most popular customers comments for orders.



So, the Ataccama platform (free version) provide great tools for basic analysis of your datasets.