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Greater Manchester Property Price Monitor Dashboard and Design Report

01. INTRODUCTION

Greater Manchester Property Price Follow is a reporting solution based on Power BI that analyses the Greater Manchester property market. It displays data in the form of charts, tables, and visualisations, allowing users to comprehend different kinds of properties and trends. The client intends to import to their SQL Server database system the UK Price Paid Dataset, which contains over 20 million transactions dating back to 1995. Greater Manchester, a large metropolitan county in northwest England, is the second most populous urban area and the third most populous county in the United Kingdom.

We have created, implement, and test a SQL database and Power BI Dashboard for stakeholders in the industry, investigators, and legislators to analyse market dynamics, patterns, and emerging trends in property transactions across England and Wales. The raw data was extracted from price-paid datasets from the government's data repository and entered into a local database containing information from 2019 to 2022.

Importing raw data to the Microsoft SQL Server, exacting and analysing raw data, connecting the Microsoft SQL Server, and generating and presenting useful data through the Dashboard are the main steps of the process.

The objective of creating a dashboard is to visualise data for clients in order to provide a clear insight into allowing users to gauge the local property market. This report describes all of the steps involved in creating a dashboard in a clear and orderly manner.

02. EXPLORATION OF DATA

2.1 Data set Review

This data set contains both string and numeric data under the column names as,

1. Transaction ID - A reference number which is generated automatically recording each published sale. The number is unique and will change each time a sale is recorded.
2. Sales Price - The sale price is stated on the transfer deed.
3. Date of Transfer - Date when the sale was completed
4. Postcode - This is the postcode used at the time of the original transaction. Note that postcodes can be reallocated, and these changes are not reflected in the Price Paid Dataset.
5. Property Type (D = Detached, S = Semi-Detached, T = Terraced, F = Flats/Maisonettes, O = Other)
6. Old/New - Indicates the age of the property and applies to all price-paid transactions, residential and non-residential.
7. PAON (Primary Addressable Object Name) - Number or name of the house
8. SAON (Secondary Addressable Object Name) - Where a property has been divided into separate units (flats), the PAON (above) will identify the building and a SAON will be specified that identifies the separate flat
9. Duration – Relates to the tenure.
10. Street
11. Locality
12. Town/City
13. District
14. County
15. PPD Category Type- Indicates the price paid transaction.

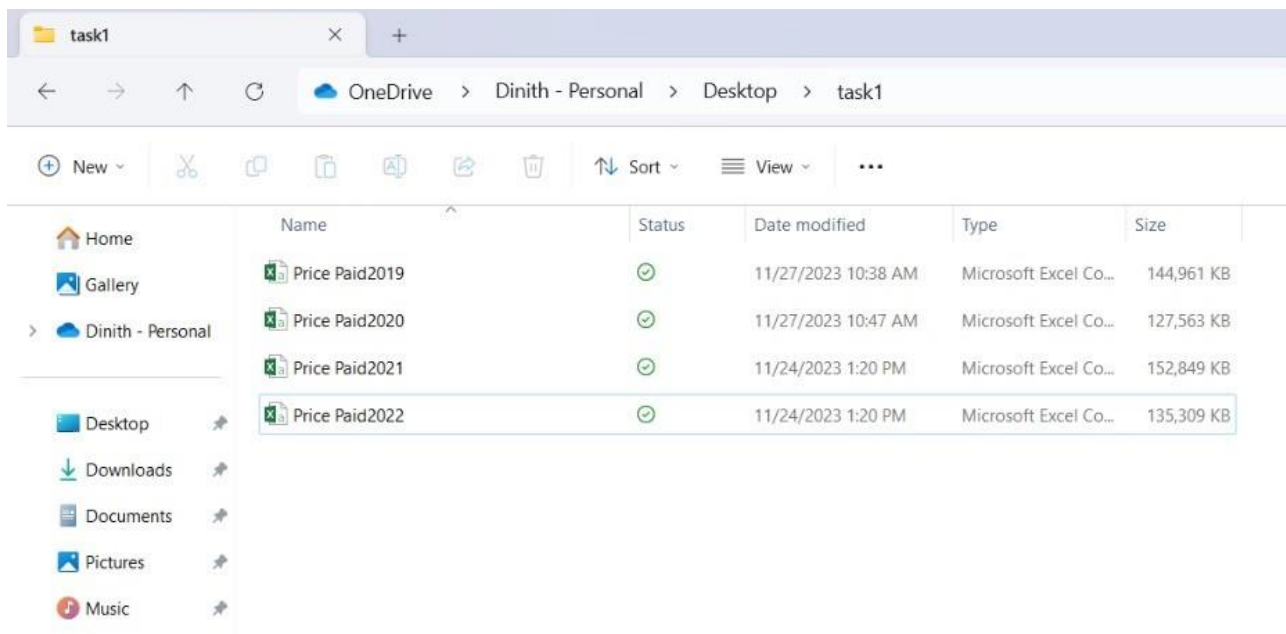
2.2 Importing Data from CSV to a Microsoft SQL Server Databases

Steps to import data from CSV to SQL server

- First you can Create a new folder in your desktop in name of “Task1” to save data
- Next Download 2019,2020,2021 and 2022 data files in CSV format using following link

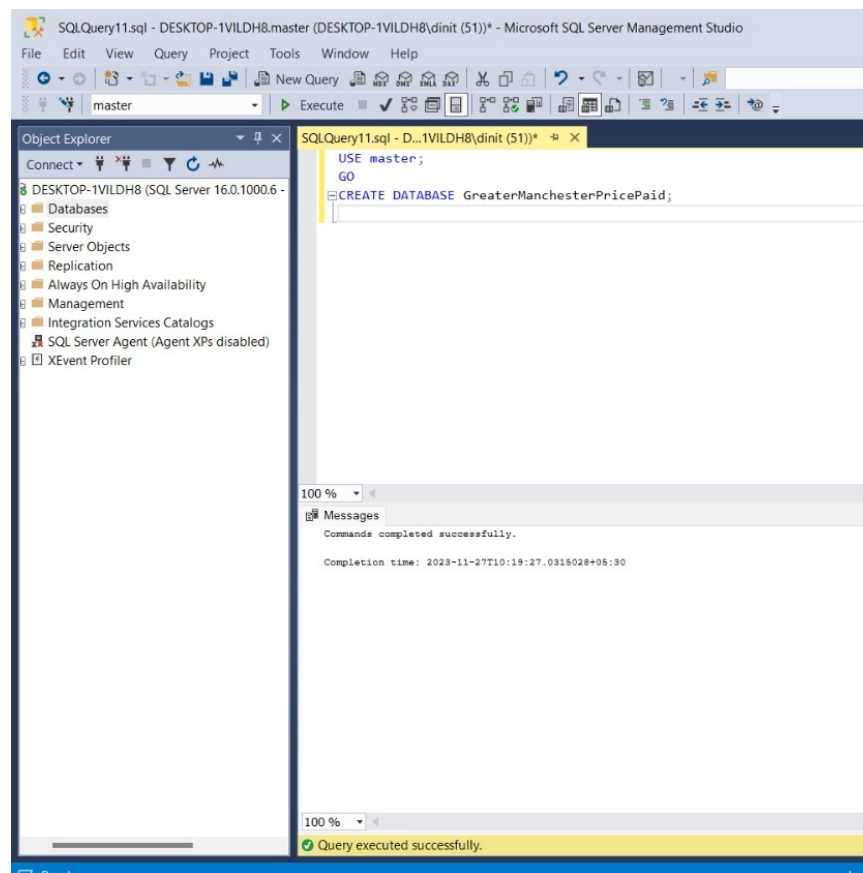
<https://www.gov.uk/government/statistical-data-sets/price-paid-data-downloads>

- Preview those 4 data CSV files separately
- Remove null values from the dataset.

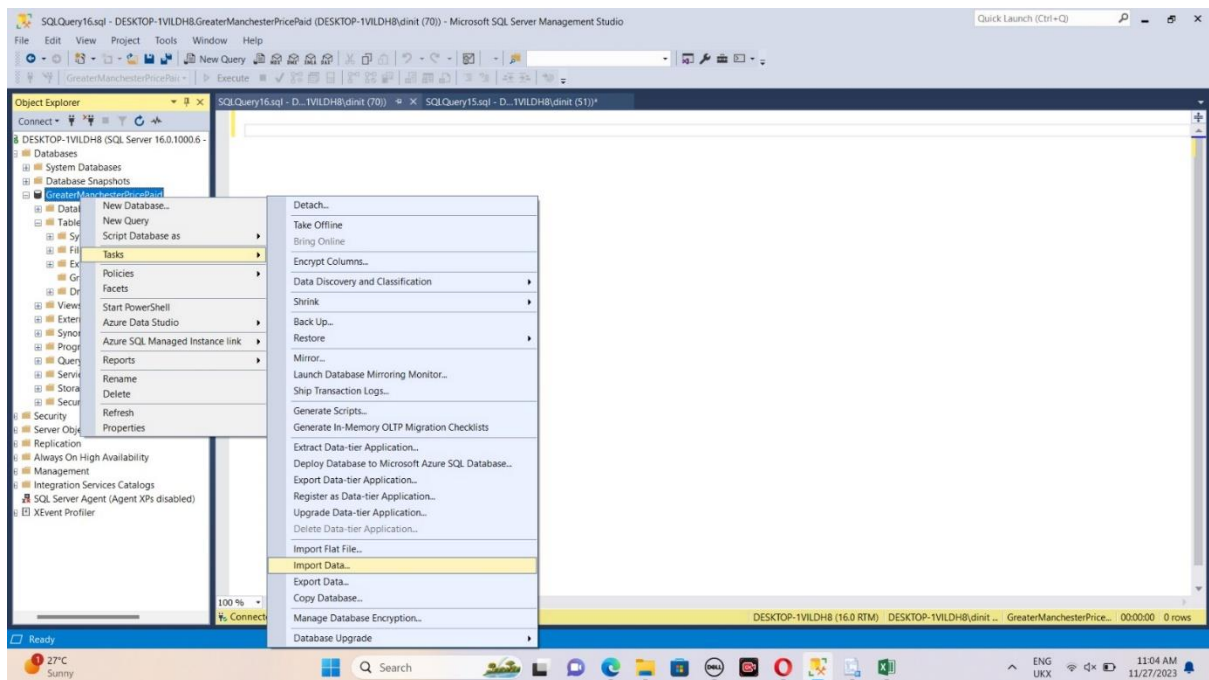


Name	Status	Date modified	Type	Size
Price Paid2019	✓	11/27/2023 10:38 AM	Microsoft Excel Co...	144,961 KB
Price Paid2020	✓	11/27/2023 10:47 AM	Microsoft Excel Co...	127,563 KB
Price Paid2021	✓	11/24/2023 1:20 PM	Microsoft Excel Co...	152,849 KB
Price Paid2022	✓	11/24/2023 1:20 PM	Microsoft Excel Co...	135,309 KB

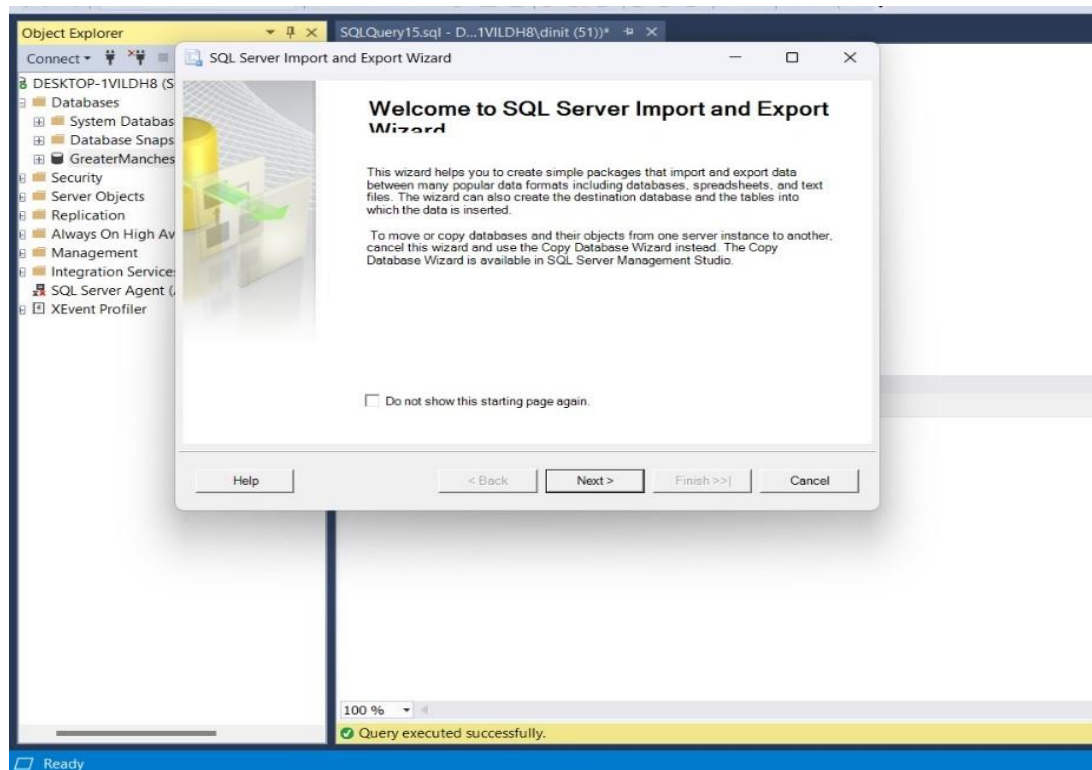
- Now Open SSMS and connect to SQL server instance
- Create a database called “ GreaterManchesterPricePaid”
- In the toolbar located and click the button labelled New Query



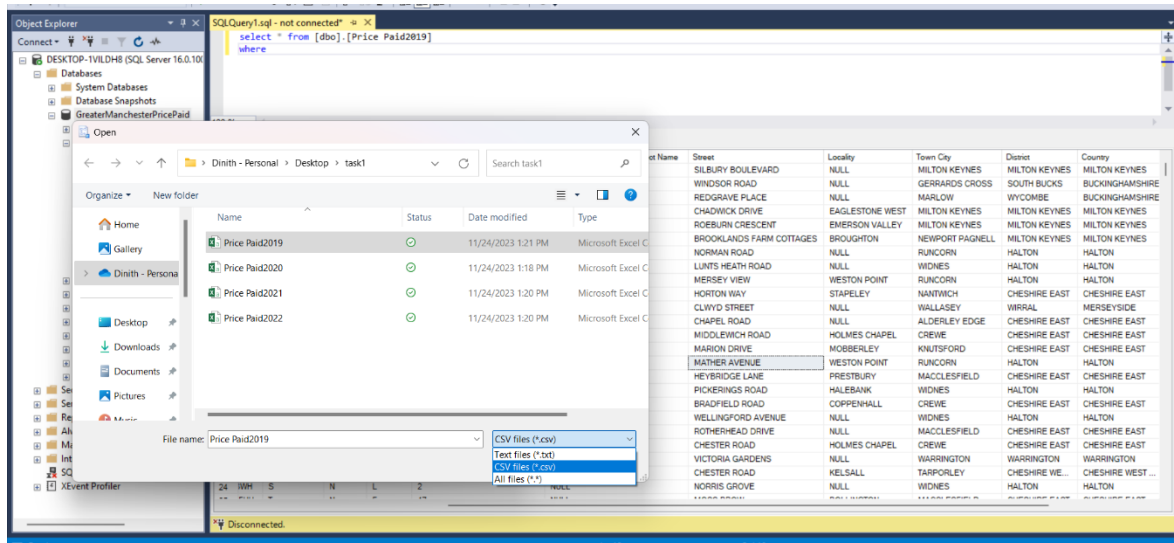
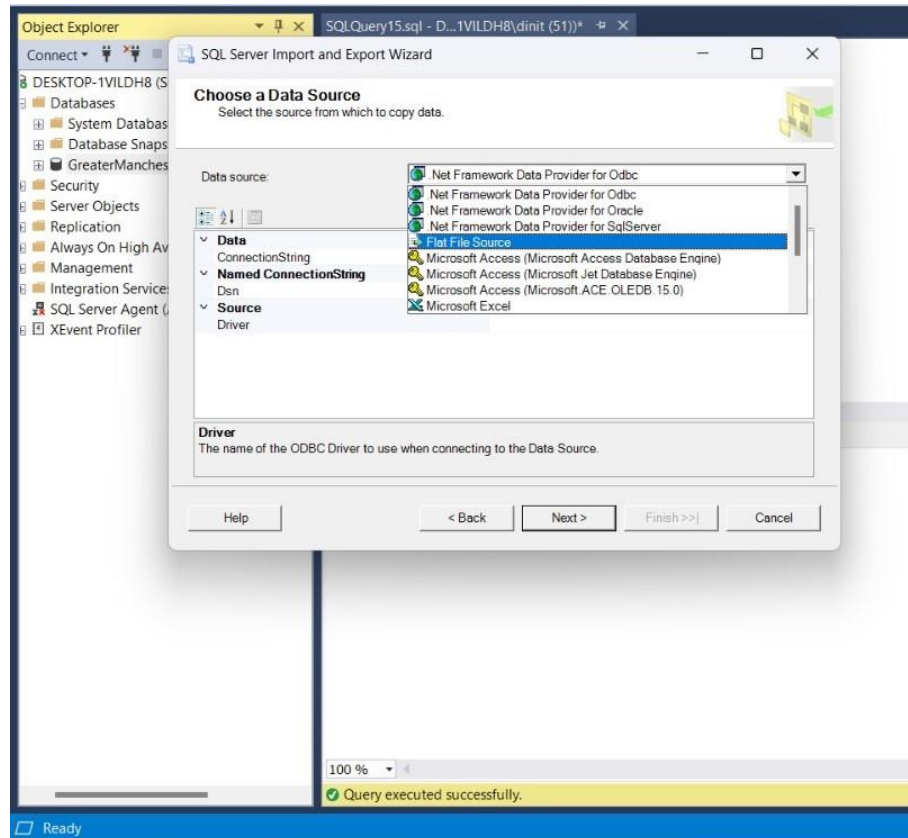
- Now Enter the following code into a Query Editor window and execute.
- Expand the object explorer server tree.
- Expand the Database folder.
- Right click on 'GreaterManchesterPricePaid' Database.
- Select Tasks.
- Move to Import Data

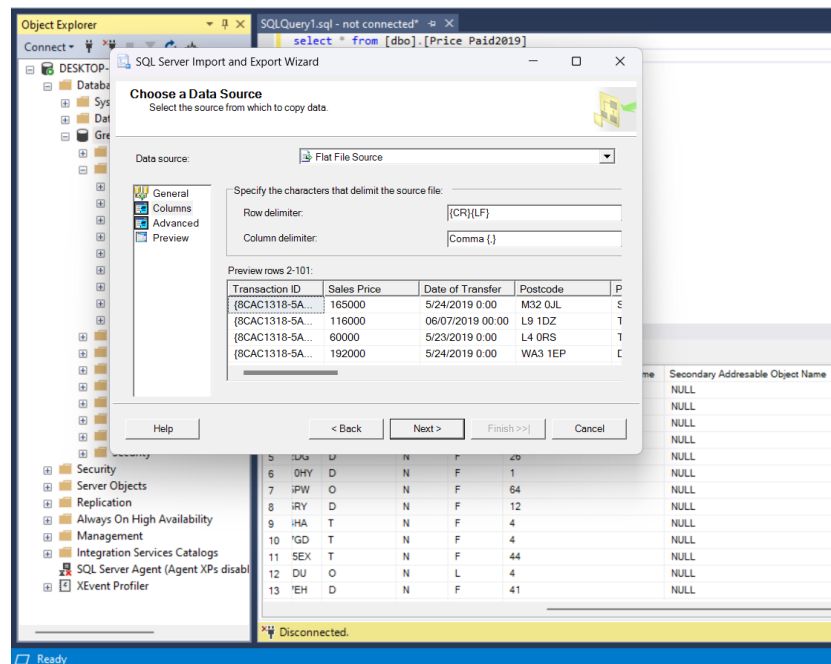


- Now Click next on Import data and Export Wizard welcome page.

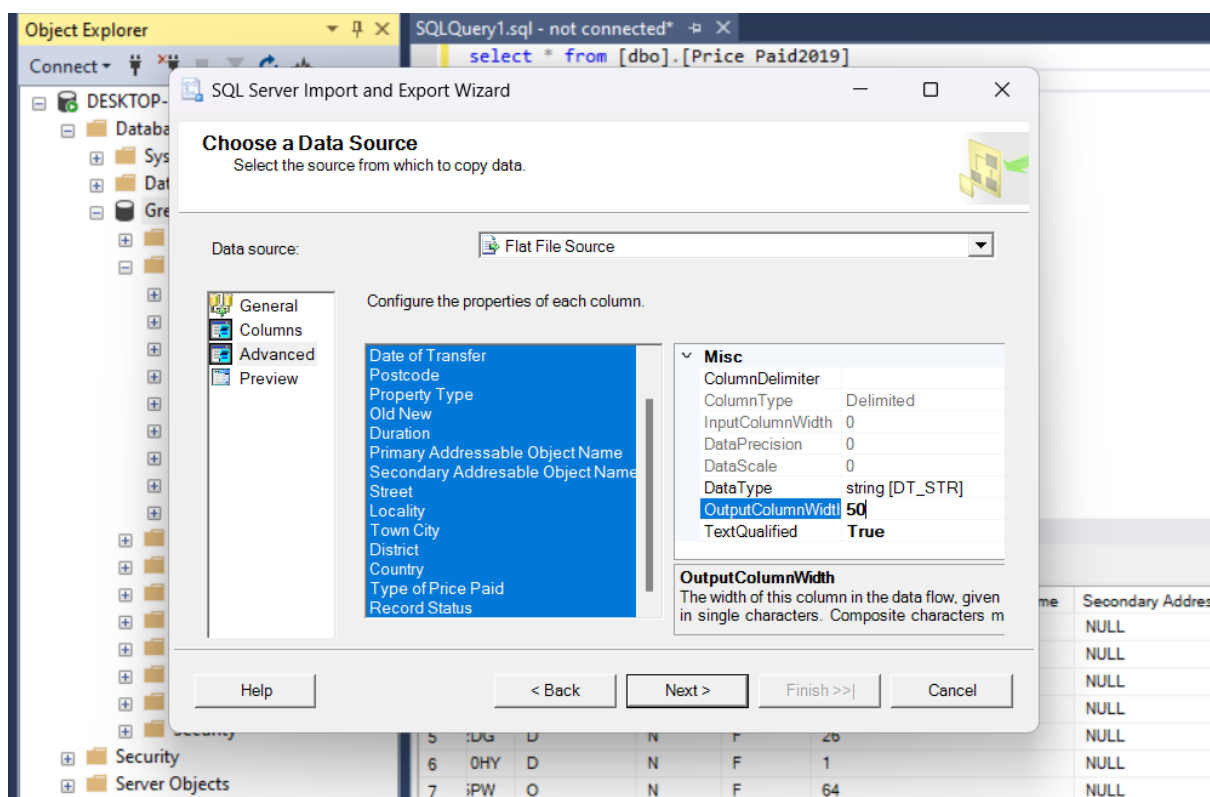


- You can Select flat file source as the data source and enter or browse for the file.

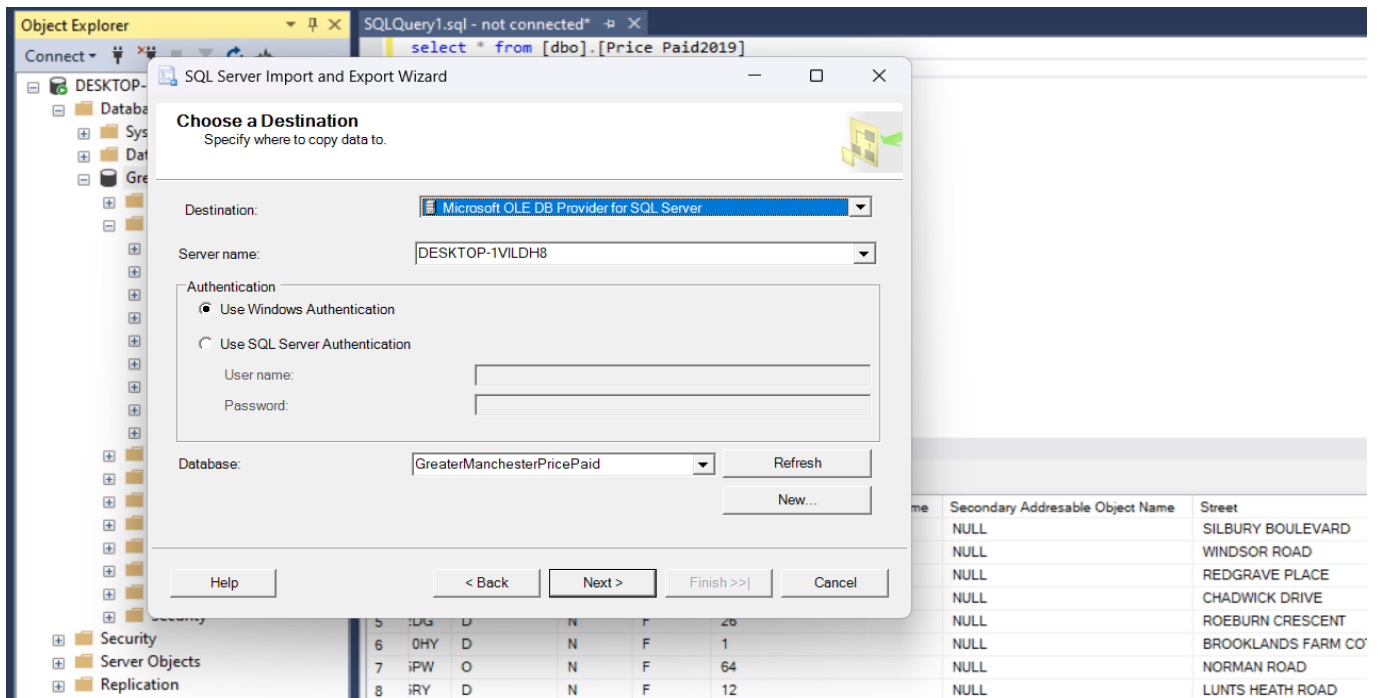




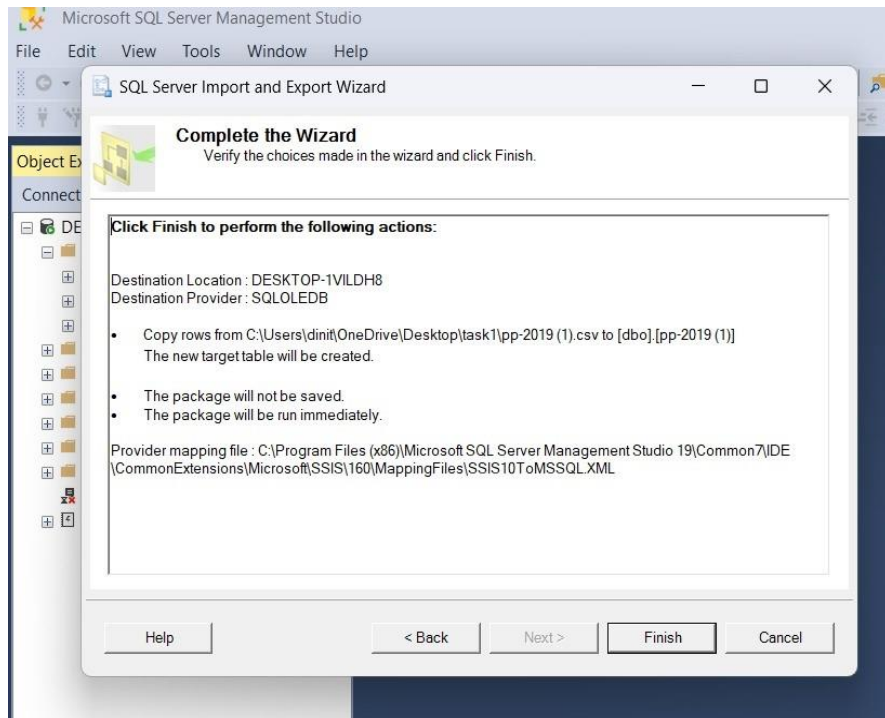
- Go to Advanced and change all the columns from 50 to 100



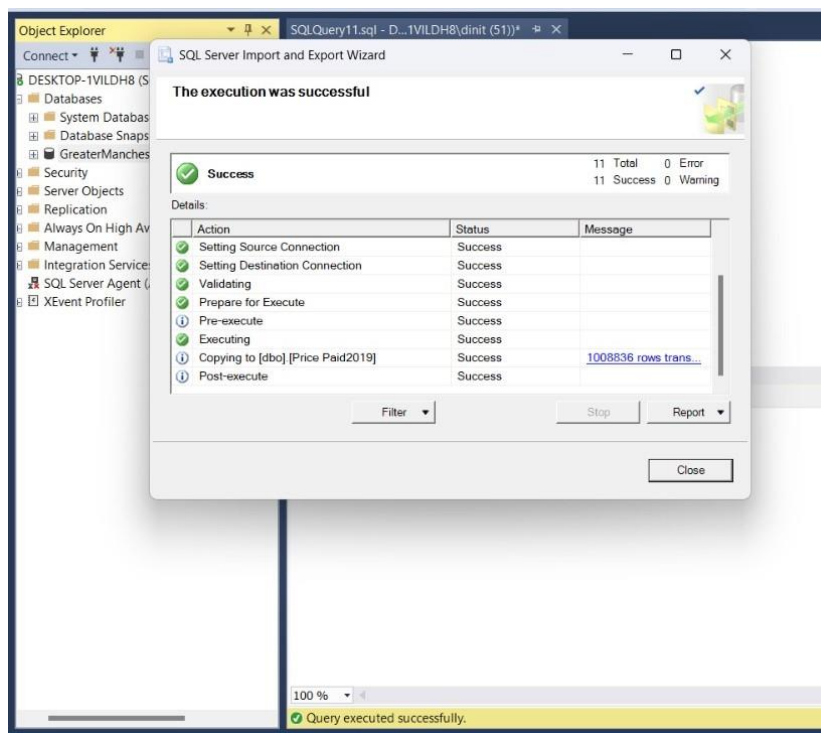
- Click Next to move forward



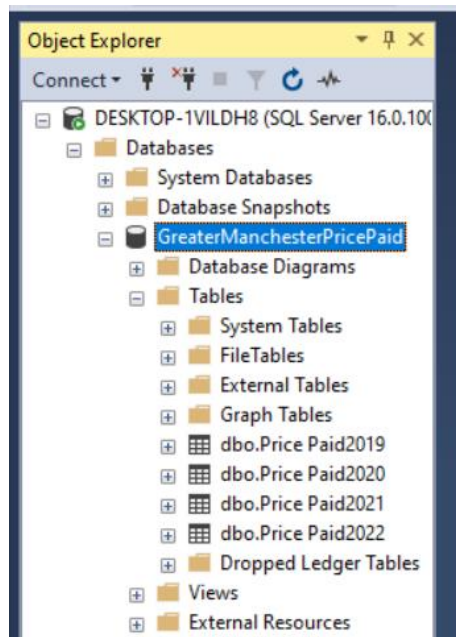
- You can select the source tables and views , then press ‘Next’.
- Click Next and Accept the default.
- Click Finish.



- The execution dialog box appears, if all the data has loaded click close



- Now you can see the new table in 'GreaterManchesterPricePaid' database



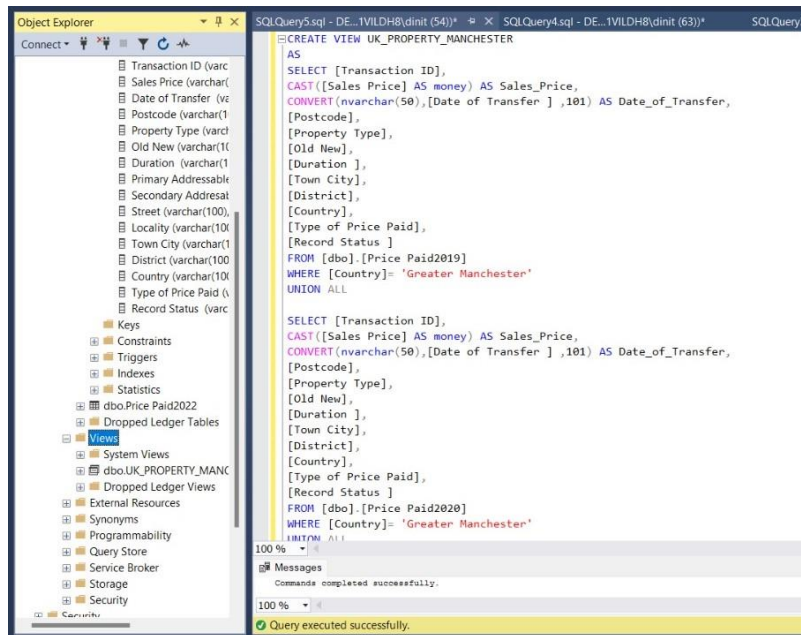
- You must repeat the same procedure for three times to add the three CSV files
- In a new query, type and execute the following code to see the imported data and check the other two tables as follows,

Transaction ID	Sales Price	Date of Transfer	Postcode	Property Type	Old New	Duration	Primary Addressable Object Name	Secondary Addressable Object Name	Street
1	8000000	5/13/2019 0:00	MK3 2AZ	O	N	F	300	NULL	SILBURY BOULEVARD
2	9550000	3/29/2019 0:00	SL5 6SE	O	N	F	ORCHARD FARM	NULL	WINDSOR ROAD
3	605500	4/15/2019 0:00	SL7 1JZ	O	N	F	8	NULL	REDGRAVE PLACE
4	7960000	04/04/2019 0:00	MK6 5LS	O	N	F	CHADWICK LODGE	NULL	CHADWICK DRIVE
5	6150000	4/23/2019 0:00	MK4 2DG	D	N	F	26	NULL	ROEBURN CRESCENT
6	300000	4/24/2019 0:00	MK16 0HY	D	N	F	1	NULL	BROOKLANDS FARM COTTAGES
7	540	4/24/2019 0:00	WA7 5PW	O	N	F	64	NULL	NORMAN ROAD
8	375000	05/02/2019 00:00	W14 5RY	D	N	F	12	NULL	LINTS HEATH ROAD
9	63500	04/05/2019 00:00	W17 4HL	T	N	F	4	NULL	MERSEY VIEW
10	190000	04/01/2019 00:00	CW5 7GD	T	N	F	4	NULL	HORTON WAY
11	135000	1/25/2019 0:00	CH45 5EX	T	N	F	44	NULL	CLWYD STREET
12	250000	05/07/2019 00:00	SK9 7DU	O	N	L	4	NULL	CHAPEL ROAD
13	430000	3/27/2019 0:00	CW4 7EH	D	N	F	41	NULL	MIDDLEWICH ROAD

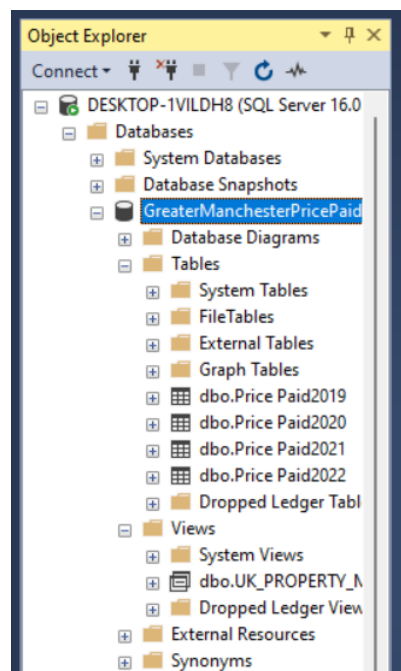
2.3 Create view

Using this technique, was able to eliminate a few columns and retrieve the inconsistent data under these stages.

- Under a new query, enter the following code to create a view by attaching all four tables.



- You can see the view under the **views**, in 'GreaterManchesterPricePaid' database.



- You can see the view under the **views**, in 'GreaterManchesterPricePaid' database

03. DASHBOARD DESIGN AND IMPLEMENTATION

3.1 Dashboard Purpose

A data dashboard is an information management tool that monitors, analyses, and displays performance, parameters, along with data points. The intention of designing this visualisation is to provide an insight into the UK property price market, which will help the client understand and have a grasp about the property items, as well as to extract all data into one simple diagram that provides quick measurable results and is simple to use.

3.2 Dashboard Draw up

- Before creating the dashboard, analyse the data to emphasise and demonstrate important information, remove unneeded data, and add more pertinent data.
- This can be done in options like Line charts, Histograms, Cards, Pie charts, Maps, Dashboard widget etc.
- After analyzing the Pivot Tables with relevant information, prepare the LineChart, Maps, Histogram, Column or Bar charts etc. in the relevant sheets.
- Press “Visualizations” to customize your charts



- Open Power Bi from your PC and continue the process as ,



- To connect your powerBI with SQL server database, put the server name of your SQL server database and press ‘OK’ to continue.
- Then Navigator continues as given below preview and select “ view” and “Load”.

Navigator

Display Options ▾

DESKTOP-1VILDH8 [1]

GreaterManchesterPricePaid [5]

☒ UK_PROPERTY_MANCHESTER1

☐ Price Paid2019

☐ Price Paid2020

☐ Price Paid2021

☐ Price Paid2022

UK_PROPERTY_MANCHESTER1

Preview downloaded on Monday

Transaction ID	Sales_Price	Date_of_Transfer	Postcod
{8A78B2B0-50F0-5CB0-E053-6B04A8C0F504}	185,000.00	04/10/2019 00:00	SK2
{8CAC1318-5AA6-0253-E053-6B04A8C08E51}	165,000.00	5/24/2019 0:00	M32
{8CAC1318-5AAA-0253-E053-6B04A8C08E51}	192,000.00	5/24/2019 0:00	WA3
{8CAC1318-5AAF-0253-E053-6B04A8C08E51}	92,000.00	5/21/2019 0:00	M11
{8CAC1318-5AB0-0253-E053-6B04A8C08E51}	275,000.00	5/13/2019 0:00	BL6
{8CAC1318-5AB1-0253-E053-6B04A8C08E51}	114,000.00	5/30/2019 0:00	WN2
{8CAC1318-5AB2-0253-E053-6B04A8C08E51}	133,000.00	6/21/2019 0:00	OL9
{8CAC1318-5AB3-0253-E053-6B04A8C08E51}	97,000.00	05/03/2019 00:00	M12
{8CAC1318-5AB4-0253-E053-6B04A8C08E51}	172,000.00	5/28/2019 0:00	BL3
{8CAC1318-5AB5-0253-E053-6B04A8C08E51}	96,000.00	06/07/2019 00:00	OL9
{8CAC1318-5AB7-0253-E053-6B04A8C08E51}	108,000.00	5/31/2019 0:00	OL9
{8CAC1318-5ABA-0253-E053-6B04A8C08E51}	135,000.00	5/24/2019 0:00	M43
{8CAC1318-5ABB-0253-E053-6B04A8C08E51}	76,500.00	5/24/2019 0:00	BL4
{8CAC1318-5ABD-0253-E053-6B04A8C08E51}	223,000.00	4/24/2019 0:00	M15
{8CAC1318-5ABE-0253-E053-6B04A8C08E51}	153,000.00	5/31/2019 0:00	M34
{8CAC1318-5ACO-0253-E053-6B04A8C08E51}	575,000.00	4/29/2019 0:00	M41
{8CAC1318-5AC2-0253-E053-6B04A8C08E51}	150,000.00	5/31/2019 0:00	M32
{8CAC1318-5AC3-0253-E053-6B04A8C08E51}	249,500.00	06/07/2019 00:00	OL6
{8CAC1318-5AC5-0253-E053-6B04A8C08E51}	72,000.00	06/04/2019 00:00	BL4
{8CAC1318-5AC7-0253-E053-6B04A8C08E51}	107,500.00	06/06/2019 00:00	M4C
{8A78B2B0-5BE6-5CB0-E053-6B04A8C0F504}	77,500.00	3/28/2019 0:00	OL1
{8A78B2B0-5BE8-5CB0-E053-6B04A8C0F504}	112,000.00	3/18/2019 0:00	M7

Select Related Tables

Load Transform Data Cancel

- Next , To change the data type change the default data type into ‘Date’.

File Home Help Table tools Column tools

Name Date_of_Transfer

Data type Date

Format *Wednesday, Mar...

Summarization Don't summarize

Data category Uncategorized

Sort by column

Data groups

Manage relationships

New column

Whole number

Decimal number

Fixed decimal number

Date/time

Date

Time

Text

True/false

Binary

Postcode	Property Type	Old New	Duration	Town City	District	Country	Type of Price
M40 3GF	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M14 7GD	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M19 2TS	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M13 0UD	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M23 2XA	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M23 1HZ	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M19 1FZ	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M13 0GP	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M40 3SR	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M13 0GU	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M14 5HJ	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A
M22 1BY	T	N	F	MANCHESTER	MANCHESTER	GREATER MANCHESTER	A

3.3 Dashboard Illustrations

This dashboard was designed to collect, analyse, and present data in order provide an understandable overview of the UK Greater Manchester Property market and to assist clients in making informed decisions about the appraisals of their properties. This dashboard, with the name Greater Manchester Property price Monitor, contains analyzed information on the type of property, Sales price, countries, data of transfer, districts, duration, the average price, the property ratio, and the value of the property.

Sales trend analysis

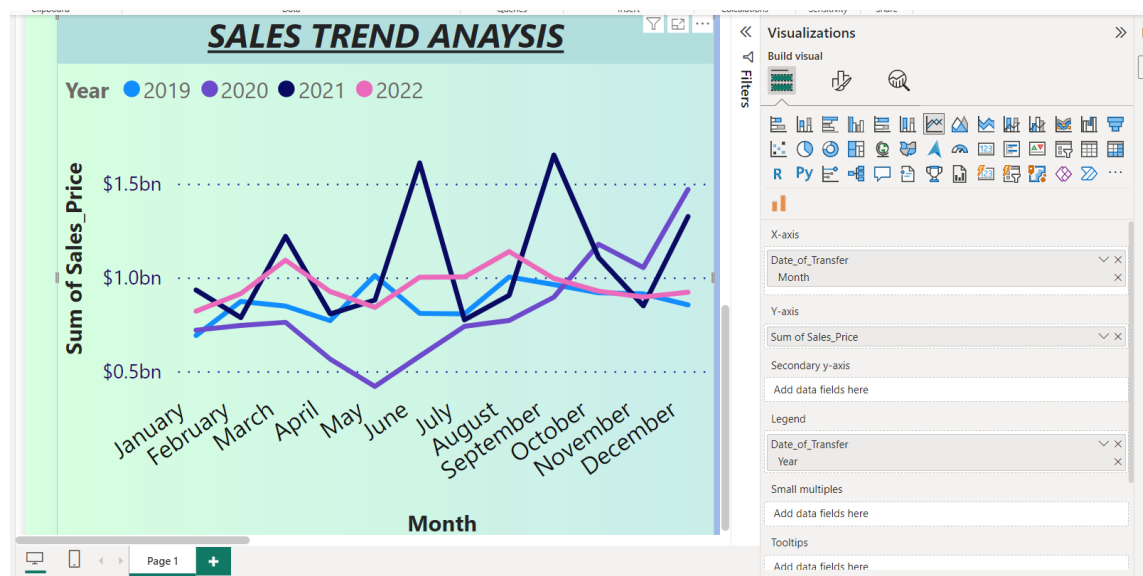
Here a line chart depicts a monthly property sale over time.

Through given figure you can see ,

X axis - Sum of sales price

Y axis – Month

Legend - Year .



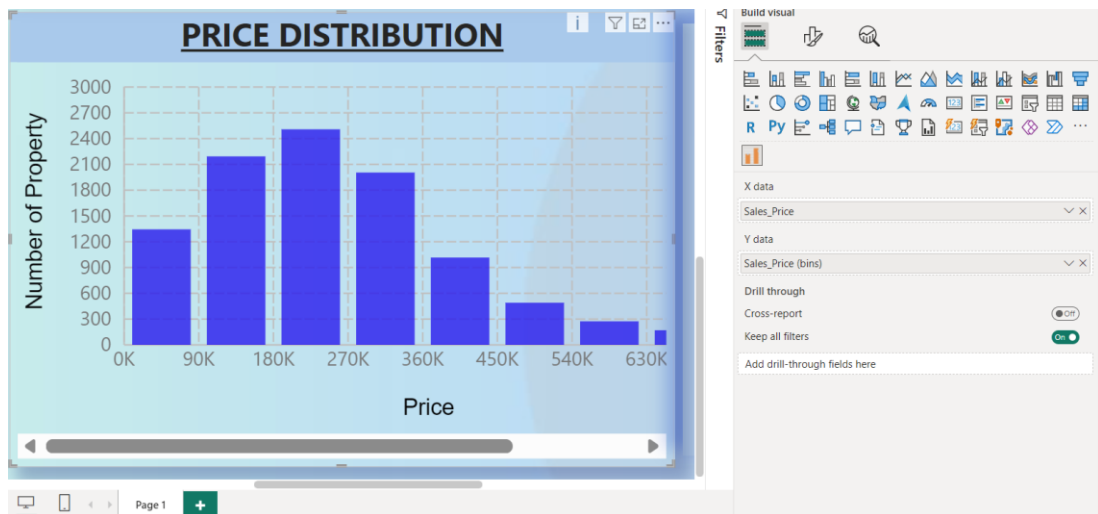
Price distribution

By using a histogram, we have created the price distribution visualization. This shows the distribution of property prices.

Given figure you can see,

X axis – Sales price

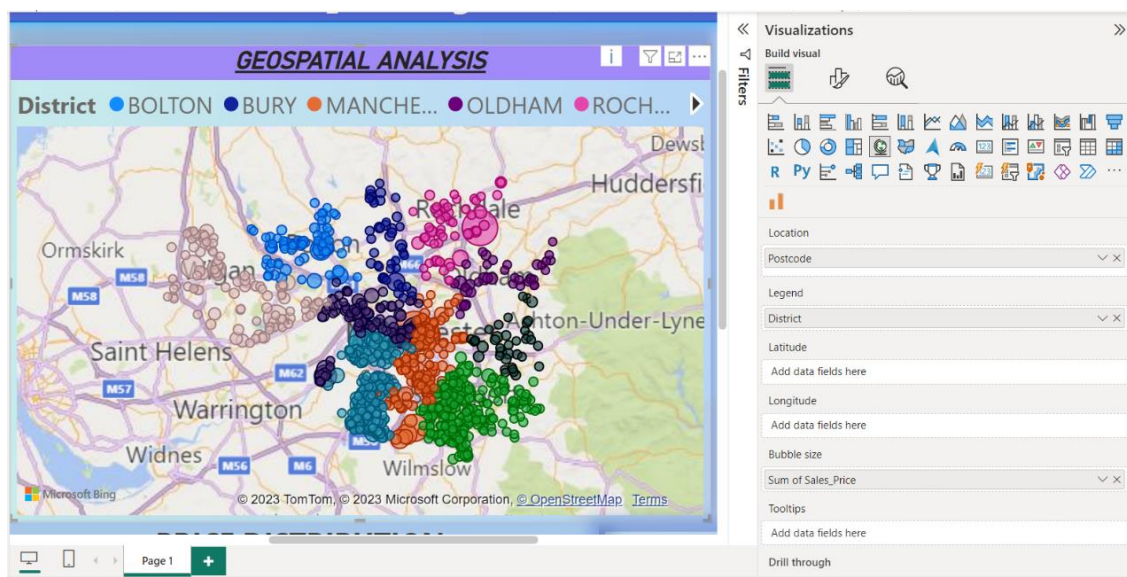
Y axis – Sales price (bins)



Geospatial Analysis

This map shows the sales distribution across the region.

In here Location, legend and bubble size have filled to get this out turn.

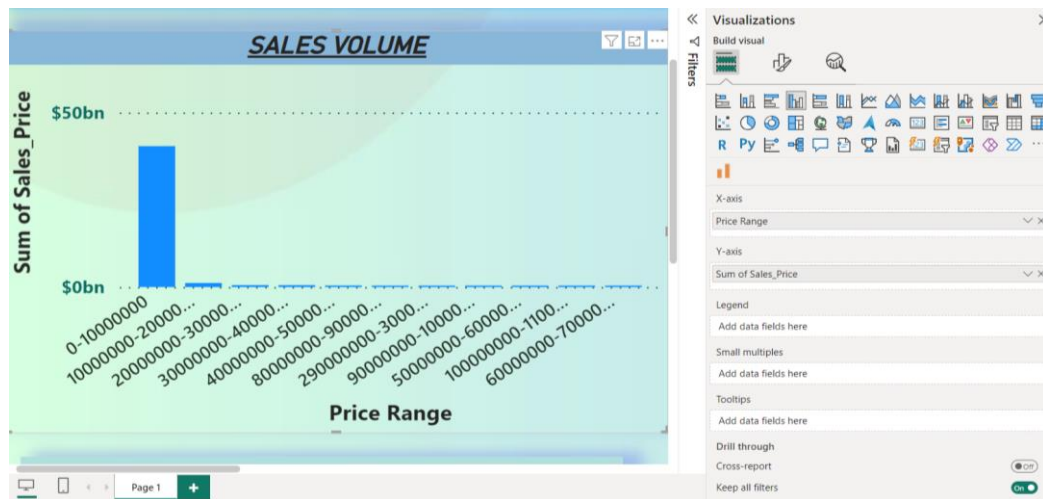


Sales Volume

Sales volume has depicted through the column chart.

X axis – Price range

Y axis – Sum of sales price



04. CONCLUSION

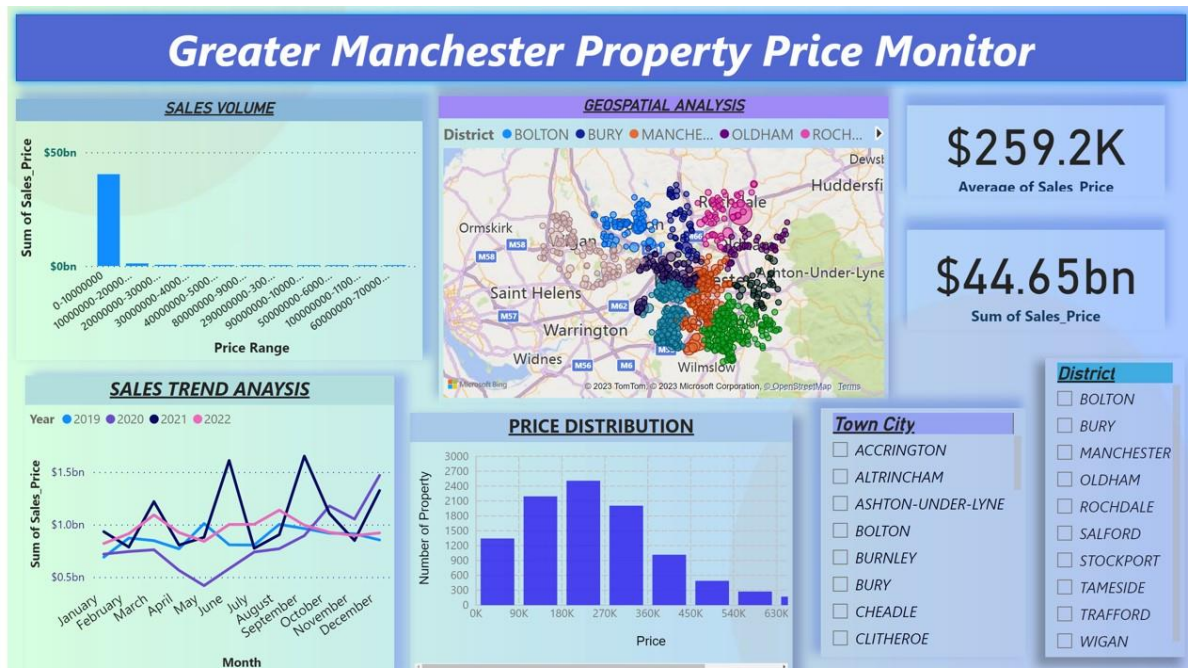


Figure 1: Dashboard

In conclusion, the database was built using raw data extracted from the UK Price Paid Dataset, which provides details on the UK property Manchester from 2019 to 2022. The raw data has been transformed into helpful information to comprehend the local property market in the UK. By incorporating the UK Price Paid Dataset, finally, the database constructed under the term "GreaterManchesterPricePaid."

The dashboard was created using data from the UK property market as well as software such as SQL. The dashboard provided a summary of how property sales in the United Kingdom were conducted in, 2019, 2020, 2021 and 2022. While the process needed to be clarified and simplified, a few useless and empty data points in the raw data set were removed.

Clients may obtain a clear image of how sales and transaction patterns vary from year to year or month to month by referring to the dataset and dashboard.

Power BI is a powerful tool for visually appealing data presentation. It provides plenty of visualisations, such as maps, and tables to help users navigate and analyse data. Filters and slicers are also included for dynamic exploration.

Power BI has data volume limitations, complicated information transformations, limited visual customization, and a reliance on Internet Explorer. For optimal performance, modern browsers such as the Microsoft Edge or Google Chrome are recommended. Furthermore, because Power BI is heavily reliant on online connectivity, offline access to reports is limited.