

Power BI Introduction

Venkata Reddy Konasani

Contents

- What is Power BI?
- Main components in Power BI
- User Interface
- Getting the data inside Power BI

Reset Report

1/1/2020

5/31/2020

Region

☐ Midwest

☐ Northeast

☐ South

☐ West

State

☐ Alabama

☐ Arizona

☐ Arkansas

☐ California

☐ Colorado

☐ Connecticut

☐ District of Columbia

☐ Florida

☐ Georgia

☐ Hawaii

☐ Idaho

☐ Illinois

☐ Indiana

☐ Iowa

☐ Kansas

☐ Kentucky

☐ Louisiana

☐ Maryland

☐ Massachusetts

☐ Michigan

☐ Minnesota

☐ Mississippi

Sales Channel

☐ Distributor

☐ In-Store

☐ Online

☐ Wholesale

\$44.4M

Total Sales

\$12.7M

Total Profit

110K

Total Quantity

28.6%

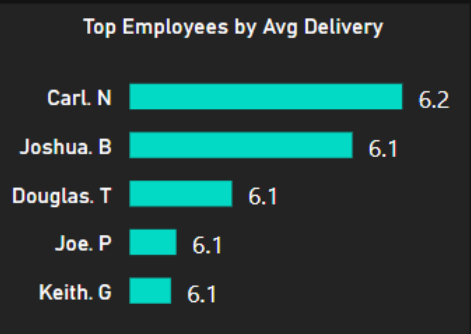
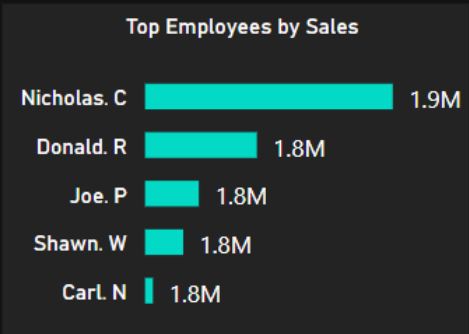
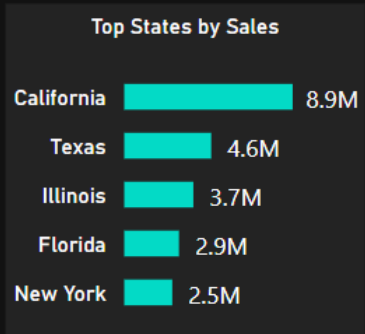
Profit Margins

20.00K

Order

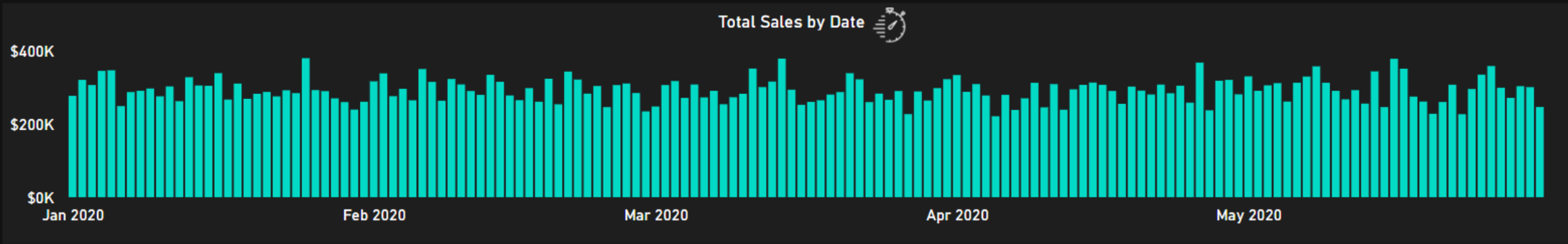
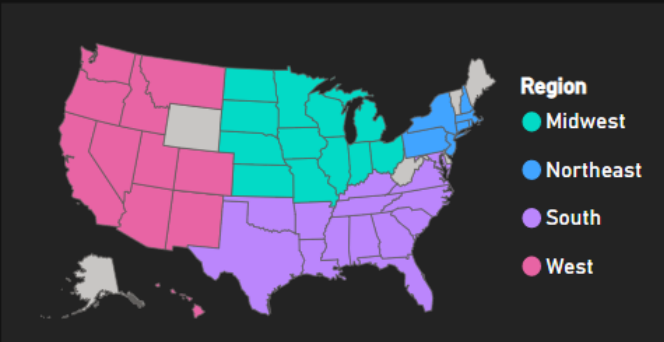
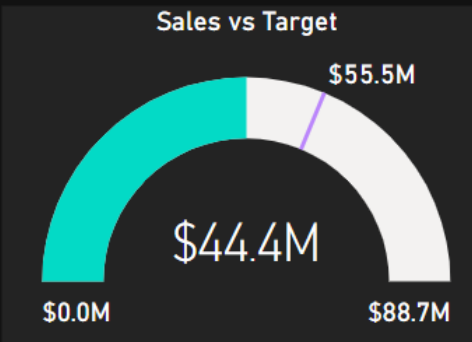
6.00

Average Delivery Days



Product Name	Sales	% of Total	Profit	Quantity	Avg Delivery
Computers	\$0.92M	2.08%	\$0.26M	2,282	6.02
Cookware	\$1.02M	2.31%	\$0.29M	2,570	5.97
Dining Furniture	\$0.97M	2.19%	\$0.28M	2,413	5.88
Dinnerware	\$0.88M	1.98%	\$0.25M	2,192	5.90
Festive	\$0.93M	2.11%	\$0.27M	2,322	6.00
Floor Lamps	\$0.97M	2.19%	\$0.28M	2,373	6.12
Floral	\$0.93M	2.10%	\$0.27M	2,354	5.97
Furniture Cushions	\$0.89M	2.01%	\$0.26M	2,166	5.91
Total	\$44.37M	100.00%	\$12.68M	110,402	6.00

Year	Total Sales	% Total	Sales Target	MOM %	Cumm Total	Total Quantity
2020	\$44.37M	100.00%	\$55.46M			110,402
January	\$9.07M	20.44%	\$11.34M		\$9.07M	22,464
February	\$8.56M	19.29%	\$10.70M	-5.64%	\$17.63M	21,360
March	\$8.94M	20.16%	\$11.18M	4.50%	\$26.57M	22,381
April	\$8.62M	19.43%	\$10.77M	-3.61%	\$35.19M	21,376
May	\$9.18M	20.69%	\$11.47M	6.47%	\$44.37M	22,821
Total	\$44.37M	100.00%	\$55.46M			110,402



Paste Cut Copy Format painter

Clipboard

Segoe UI 9

B *I* U A A A

Formatting

Get data Excel SQL Enter data Recent source

Data

Transform data Refresh data New visual Text box More visuals

Queries Insert

New measure Quick measure

Calculations

Publish

Share



OVERVIEW

Sales Report

\$5.3M

Australia

\$5.3M

Canada

\$2.6M

France

\$2.3M

Germany

\$3.3M

UK

\$21.8M

USA

Key influencers

Top segments



What influences NPS to be

7



?

When ...

...the likelihood of NSAT
being 7 increases by

UnitPrice is 298.5 - 299.94



10.20x

UnitPrice is 197.45 - 199.45



10.20x

Manufacturer is Litware, INC.



10.20x

Color is Brown



10.20x

StockType is High



10.20x

Manufacturer is Contoso,
Ltd

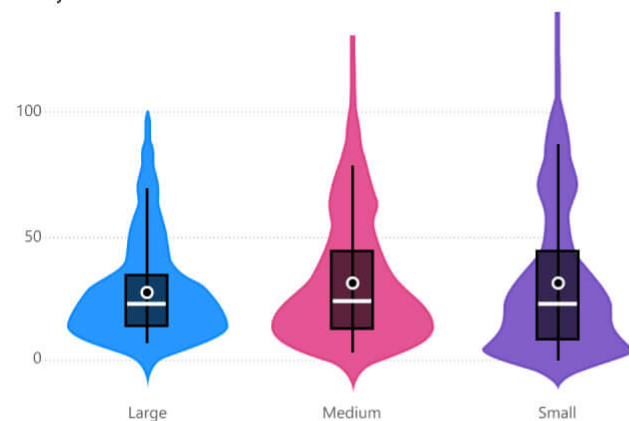
10.20x

Color is Silver

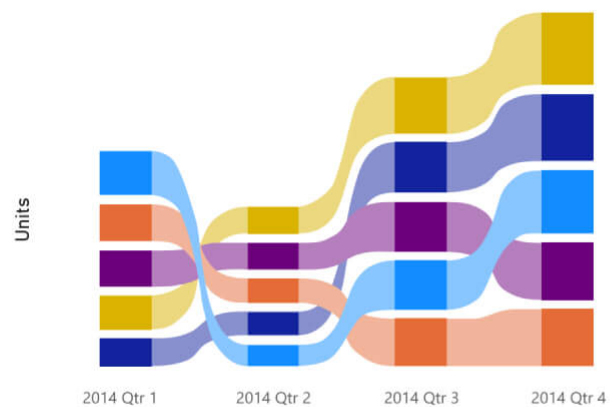


10.20x

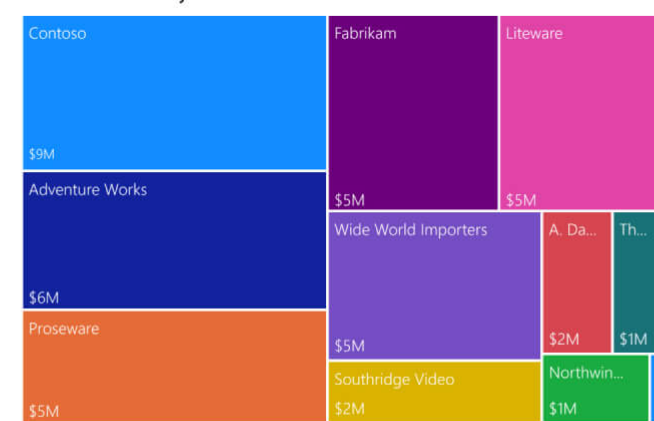
Units by Product and Sale Size



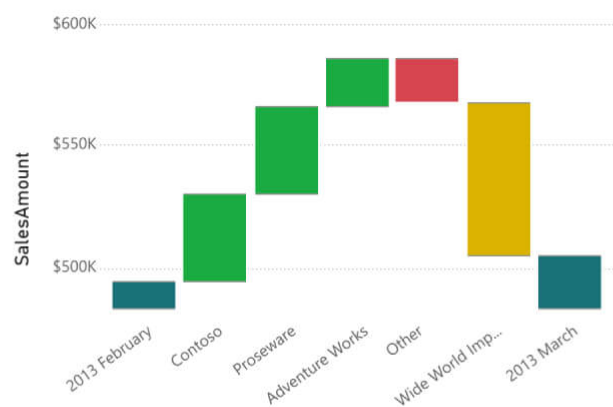
Sales Amount by Year, Month and Brand Name



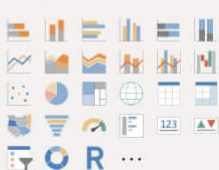
Sales Amount by Brand Name



Sales Amount by Year, Month and Brand Name



Visualizations



Values

Drag data fields here

Drillthrough

Keep all filters

Off

Drag data fields here

COVID-19 Coronavirus

27.02.2020

27.03.2020

Time Range

Continent

Country

State

Cumulated

Alle

Alle

Alle

B||uminate

Confirmed

593.291!
(+63700 +12 %)

Deaths

27.198!
(+3228 +13 %)

Existing

430.806!
(+51155 +13 %)

Recovered

130.659✓
(+8693 +7 %)

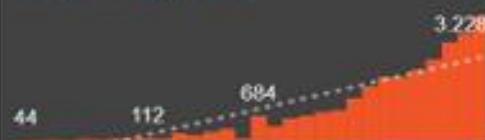
Distribution



Countries / State

189

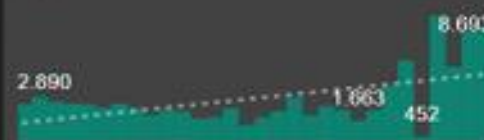
Day over Day (DoD)



DoD



DoD



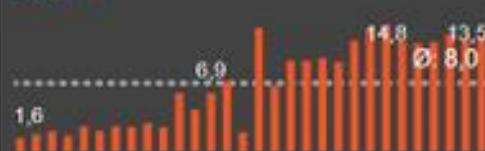
Trend



Map



DoD %



DoD %



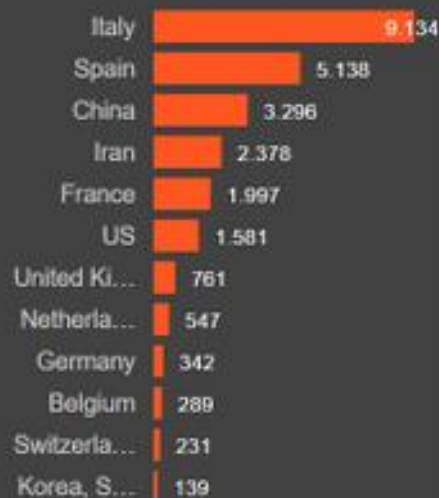
DoD %



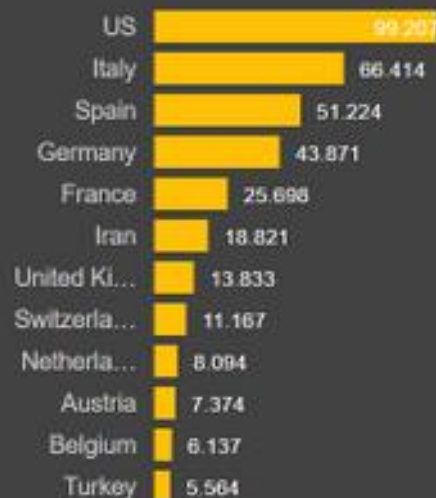
100% by Date



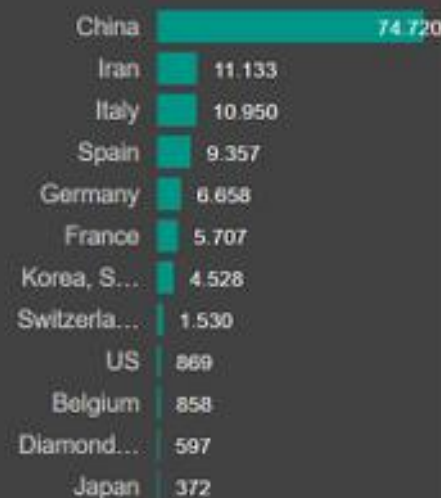
Actual by Country



Actual by Country



Actual by Country



100% by Country



Confirmed

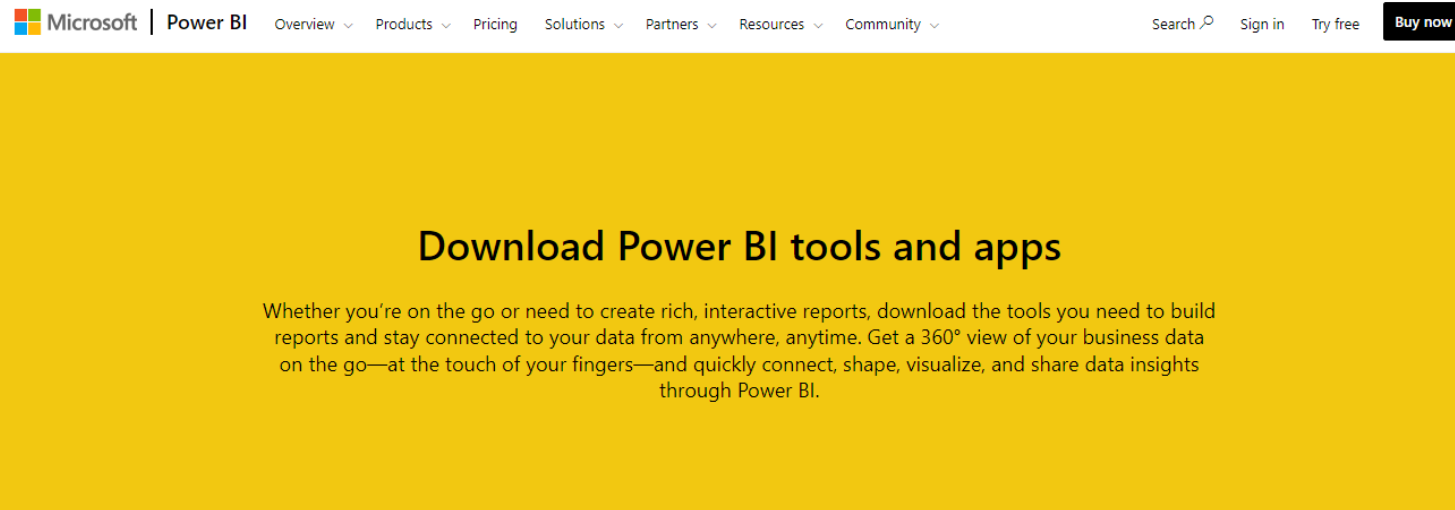
What is Power BI?

- Microsoft Power BI is a tool that converts our data into interactive insights.
- Using Power BI we can easily connect various data sources, create dashboards and share it with anyone
- Power BI is simple
- We can create visualizations very fast
- It is very comprehensive, it has got multiple options for handling data and customizing reports.

Elements of Power BI

- Power BI Desktop - Create your reports here
 - Power BI service - Upload and View here
 - Power BI Mobile - Can also be accessed on Mobile
-
- Our course is mainly on the Power BI Desktop

Download and Install Power BI



The screenshot shows the Microsoft Power BI website. At the top is a navigation bar with the Microsoft logo, 'Power BI', and links for Overview, Products, Pricing, Solutions, Partners, Resources, and Community. On the right are search, sign in, try free, and buy now buttons. The main content area has a yellow background with the heading 'Download Power BI tools and apps'. Below this is a paragraph: 'Whether you're on the go or need to create rich, interactive reports, download the tools you need to build reports and stay connected to your data from anywhere, anytime. Get a 360° view of your business data on the go—at the touch of your fingers—and quickly connect, shape, visualize, and share data insights through Power BI.'



Microsoft Power BI Desktop

With the Power BI Desktop you can visually explore your data through a free-form drag-and-drop canvas, a broad range of modern data visualizations, and an easy-to-use report authoring experience.

[Download >](#)

[Advanced download options >](#)



Microsoft Power BI Mobile

Access your data anywhere, anytime. These native apps provide live, interactive, mobile access to your important business information.



Microsoft on-premises data gateway

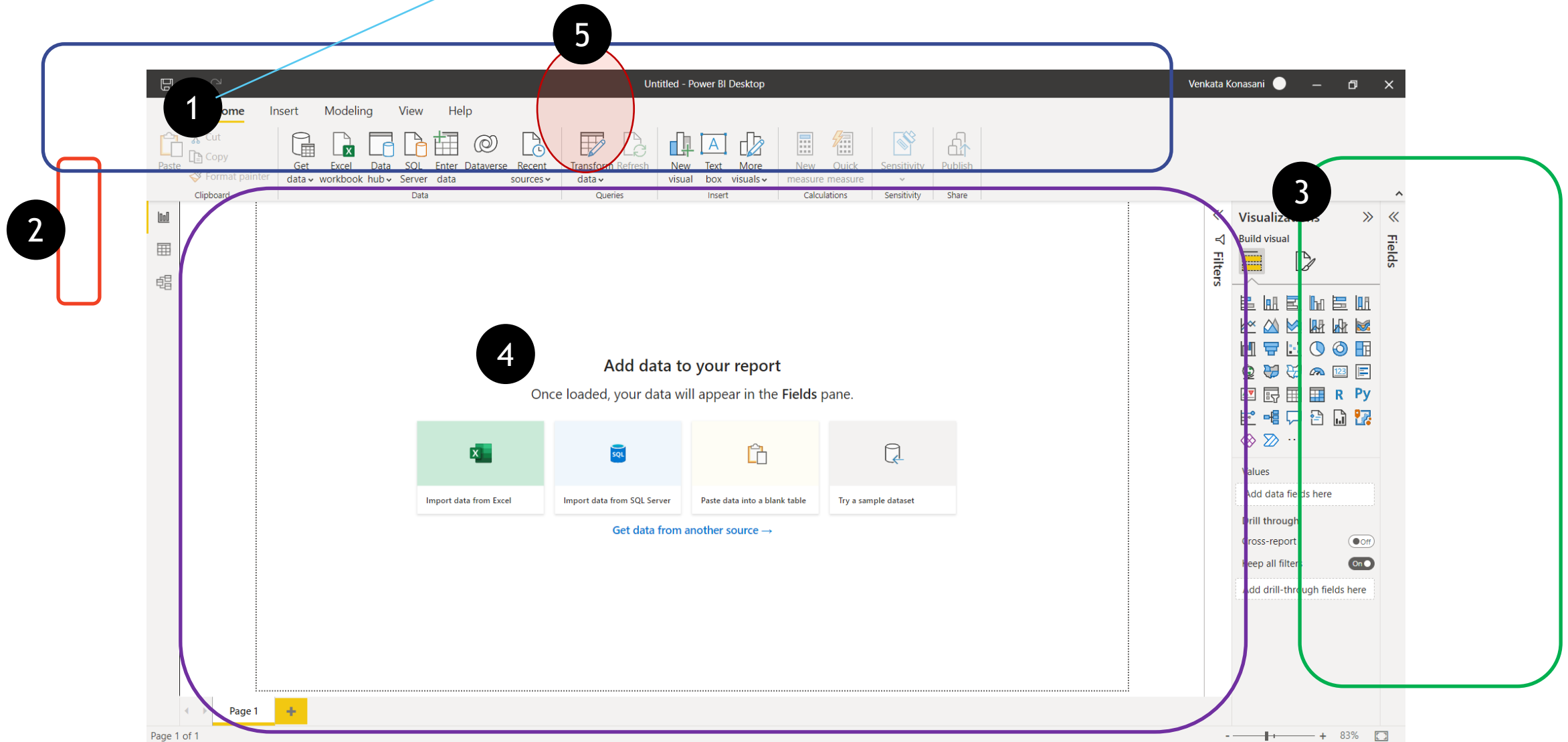
Keep your dashboards and reports up to date by connecting to your on-premises data sources—without the need to move the data.

[Download standard mode >](#)

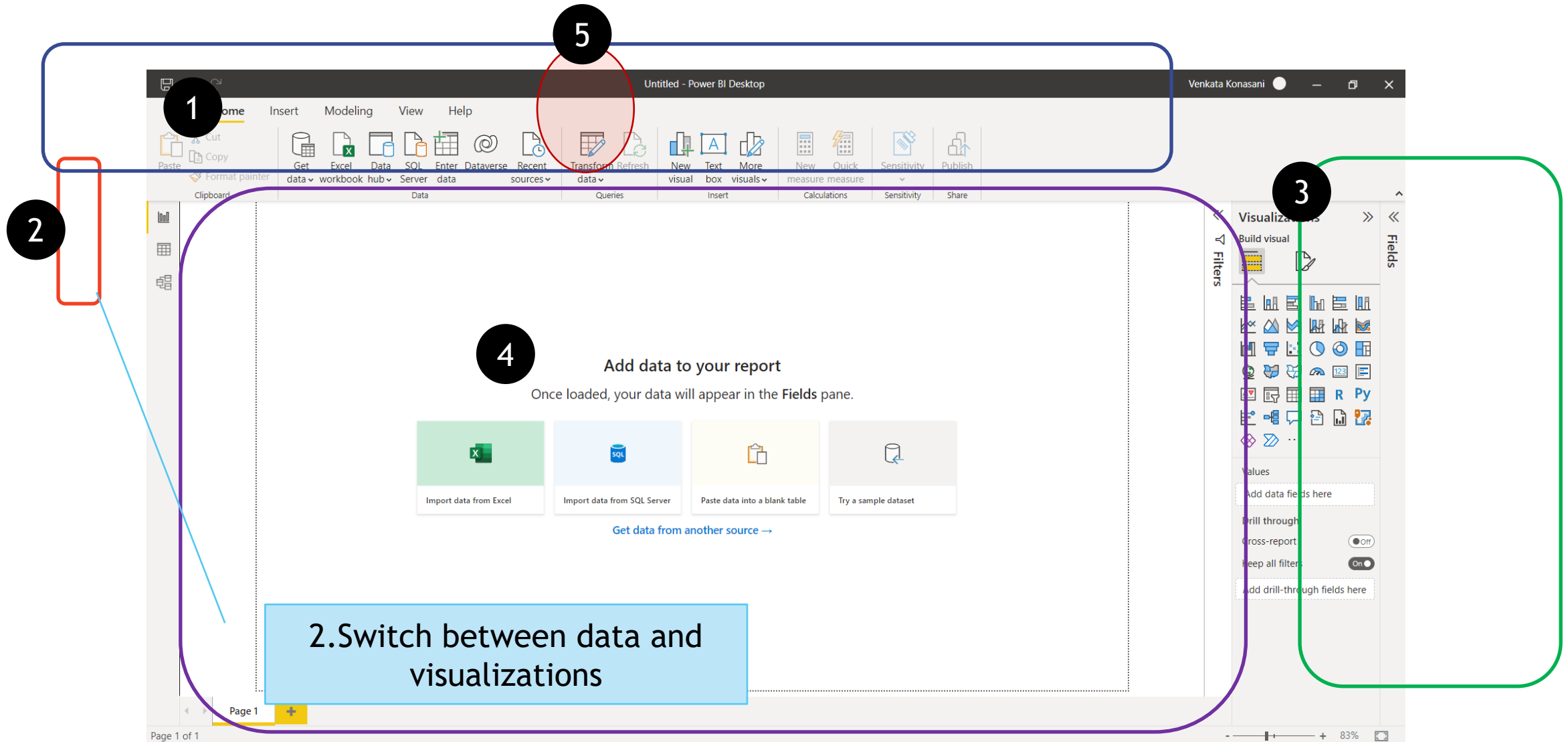
[Download personal mode >](#)

User Interface

1. Ribbon



User Interface

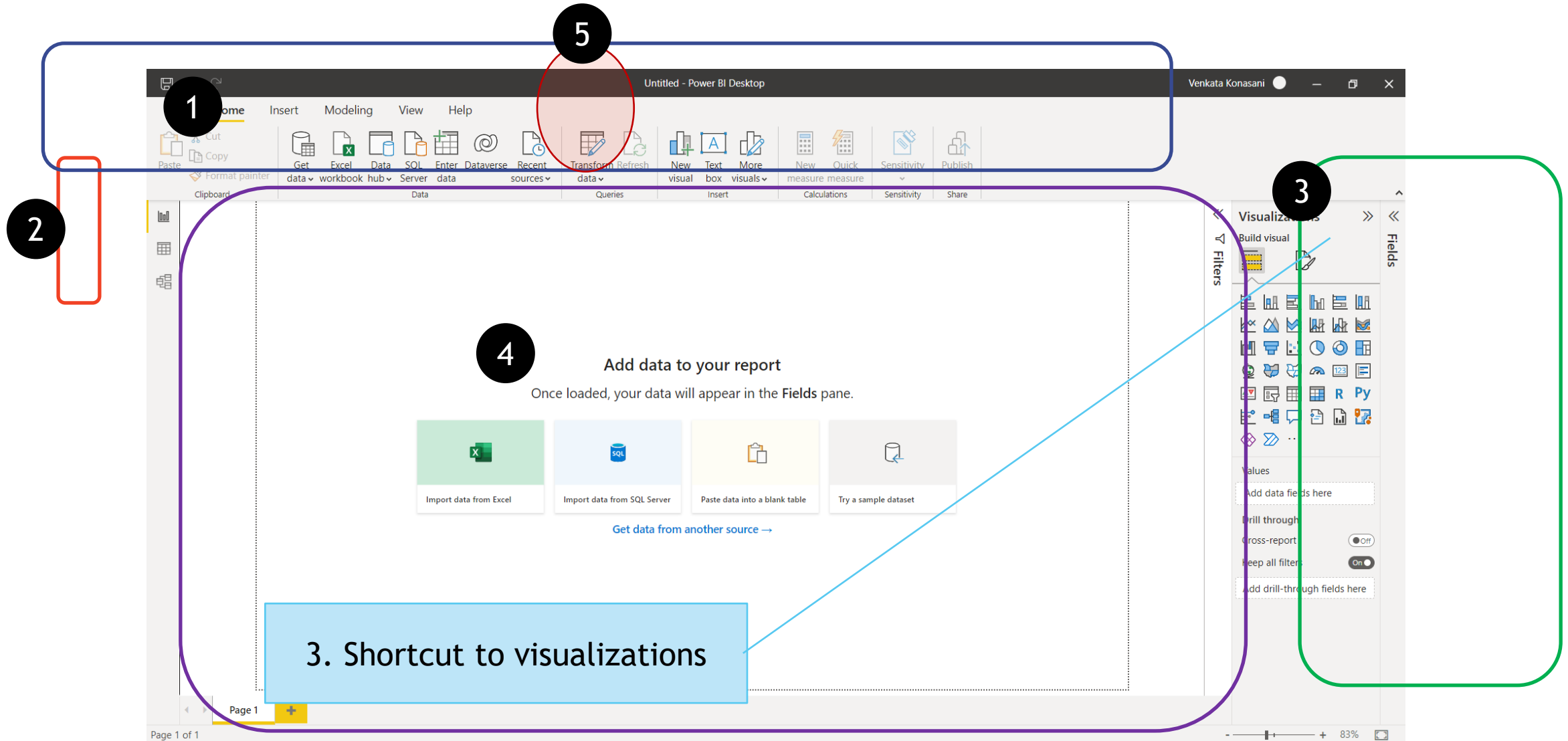


The screenshot displays the Power BI Desktop application window. The interface is divided into several key areas:

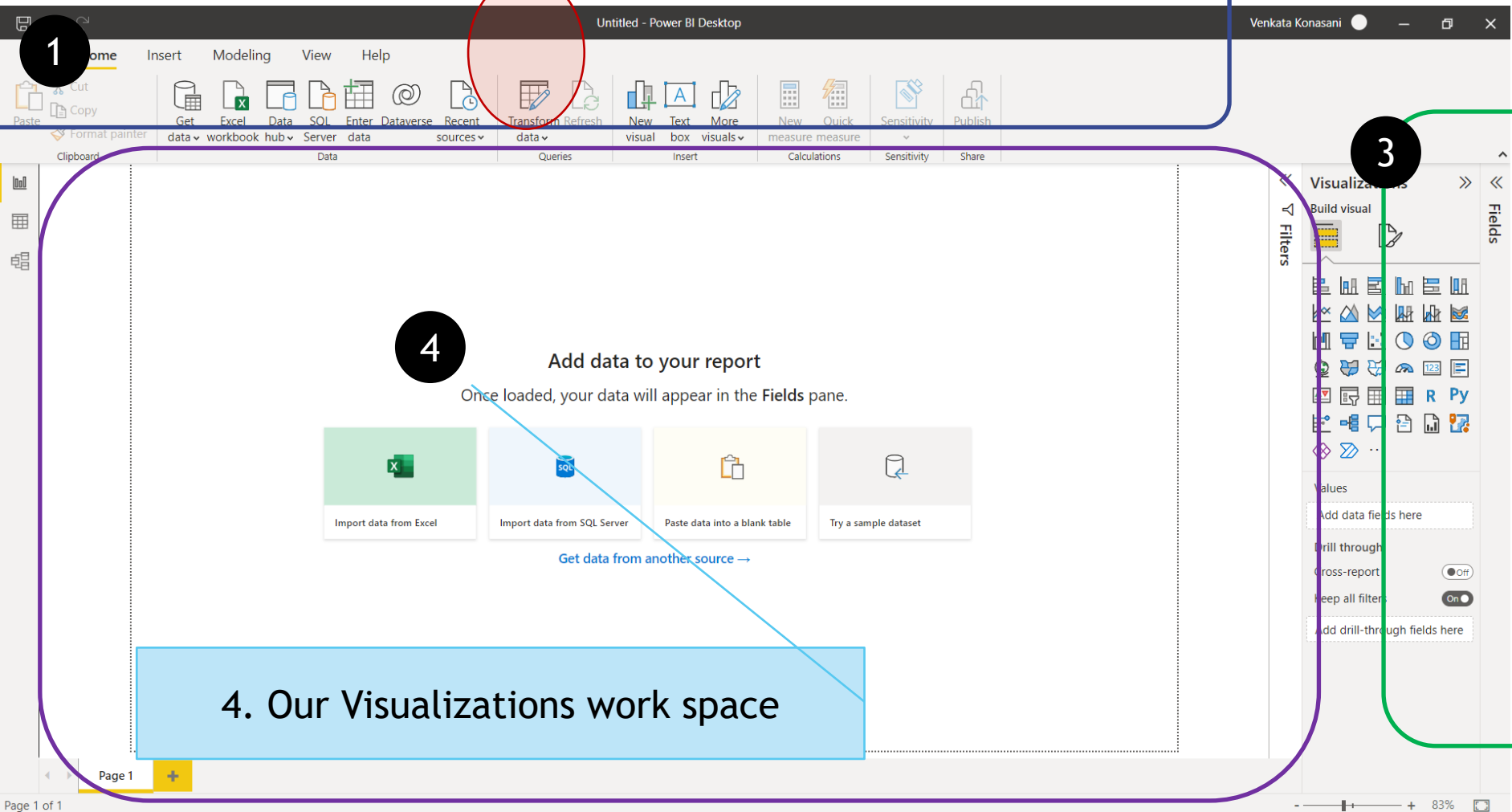
- 1. Home Tab:** The top ribbon menu, currently showing the 'Home' tab with options like 'Get', 'Excel', 'Data', 'SQL', 'Enter', 'Dataverse', 'Recent', 'Transform', 'Refresh', 'New', 'Text', 'More', 'Measure', 'Quick', 'Sensitivity', and 'Publish'.
- 2. Left Navigation Pane:** A vertical pane on the left side containing icons for 'Data', 'Visualizations', and 'Fields'.
- 3. Visualizations Pane:** A pane on the right side showing various chart and table icons for building visualizations.
- 4. Main Canvas:** The central workspace displaying the message 'Add data to your report' and 'Once loaded, your data will appear in the Fields pane.' Below this are four buttons: 'Import data from Excel', 'Import data from SQL Server', 'Paste data into a blank table', and 'Try a sample dataset'. A link 'Get data from another source' is also present.
- 5. Top Bar:** The top of the application window showing the title 'Untitled - Power BI Desktop' and the user name 'Venkata Konasani'.

2. Switch between data and visualizations

User Interface



User Interface

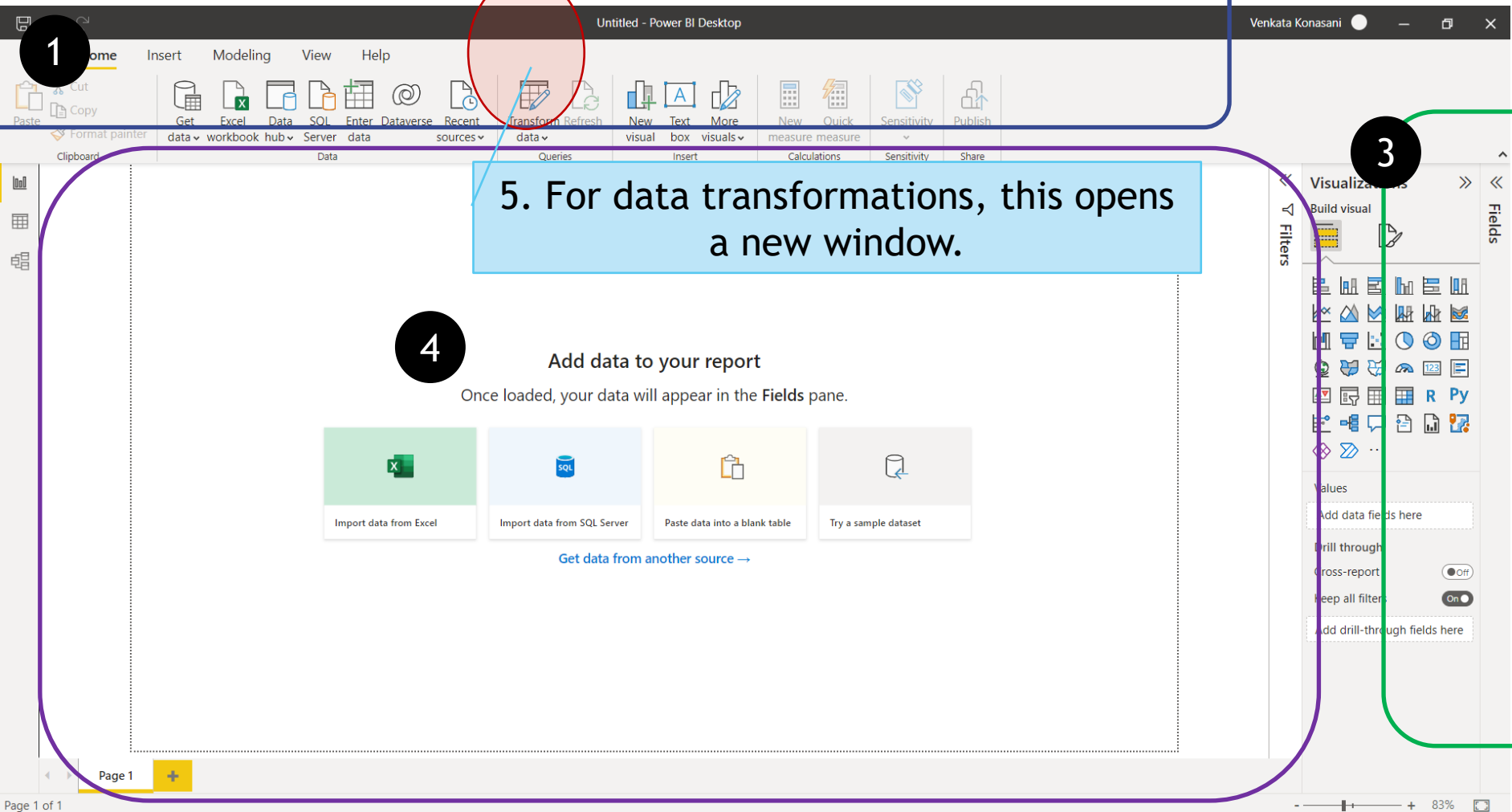


The screenshot displays the Power BI Desktop application window. The interface is divided into several key areas:

- 1**: The **Home** ribbon tab is selected in the top ribbon.
- 2**: The **Clipboard** pane is visible on the left side of the ribbon.
- 3**: The **Visualizations** pane is open on the right side, showing various chart and table icons.
- 4**: The main workspace area displays the "Add data to your report" prompt, which includes options to import data from Excel, SQL Server, or a sample dataset. A blue box at the bottom of the workspace is labeled "4. Our Visualizations work space".
- 5**: The **Transform** ribbon tab is highlighted in the top ribbon.

At the bottom of the window, the status bar shows "Page 1 of 1" and a zoom level of "83%".

User Interface



The screenshot displays the Power BI Desktop application window. The interface is divided into several key areas:

- 1. Home Tab:** The ribbon tab is selected, showing options like Get, Excel, Data, SQL, Enter, Datasource, Recent, and Transform Refresh.
- 2. Left Navigation Pane:** Contains icons for Reports, Datasets, and Dataflows.
- 3. Visualizations Pane:** Located on the right, it includes a 'Build visual' section with various chart and table icons, and a 'Fields' pane for managing data fields.
- 4. Add data to your report:** A central area with four buttons: 'Import data from Excel', 'Import data from SQL Server', 'Paste data into a blank table', and 'Try a sample dataset'. Below these is a link 'Get data from another source →'.
- 5. Transform Refresh:** A button in the ribbon that opens a new window for data transformations.

5. For data transformations, this opens a new window.

Page 1 of 1

The main steps in Power BI

1. **Load the Data** - From various sources. No need to pre-process
2. **Transform and Model the data** - Clean and Pre-process the data.
3. **Create Visualizations** - Create interactive visualizations
4. **Publish and share the reports** - Publish them on the server and share it with the world

Before you start

- You can NOT create a good BI report without understanding the underline business.
- While working on BI projects or any other Data science projects in general, focus on understanding the business problem, objective, and background before you start the analysis.
- Data visualization is NOT about creating attractive dashboards; it's about coming up with valuable insights that are not easy to extract from raw data.

Case Study : Healthcare

Stroke and Risk Factors

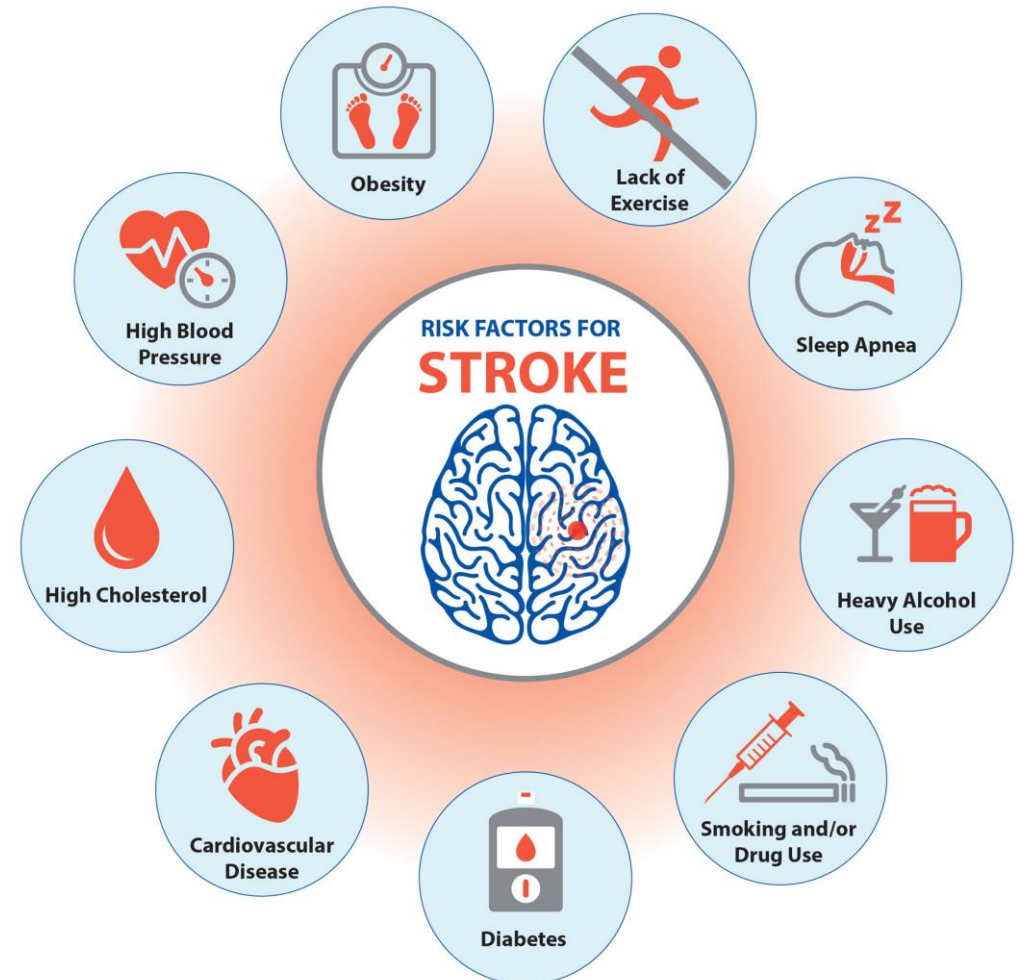
Stroke Case study

Step-1 : Understand the Problem Statement

Problem Statement

What are the leading factors causing Stroke?

- According to the World Health Organization (WHO) stroke is the 2nd leading cause of death globally. Responsible for approximately 11% of total deaths.
- We need to analyse whether the patient is likely to get stroke based on the input parameters like gender, age, various diseases, and smoking status.



What is Stroke?

An ischemic stroke occurs when the blood supply to part of the brain is interrupted or reduced, preventing brain tissue from getting oxygen and nutrients. Brain cells begin to die in minutes.

What are the symptoms of Stroke? -- Trouble speaking and understanding what others are saying. You may experience confusion, slur words or have difficulty understanding speech. -- Paralysis or numbness of the face, arm or leg. You may develop sudden numbness, weakness or paralysis in the face, arm or leg. This often affects just one side of the body. Try to raise both your arms over your head at the same time. If one arm begins to fall, you may be having a stroke. Also, one side of your mouth may droop when you try to smile. -- Problems seeing in one or both eyes. You may suddenly have blurred or blackened vision in one or both eyes, or you may see double. -- Headache. A sudden, severe headache, which may be accompanied by vomiting, dizziness or altered consciousness, may indicate that you're having a stroke. -- Trouble walking. You may stumble or lose your balance. You may also have sudden dizziness or a loss of coordination.

When to see a doctor? Think "**FAST**" and do the following:

-- **Face**. Ask the person to smile. Does one side of the face droop? -- **Arms**. Ask the person to raise both arms. Does one arm drift downward? Or is one arm unable to rise? -- **Speech**. Ask the person to repeat a simple phrase. Is his or her speech slurred or strange? -- **Time**. If you observe any of these signs, call 911 or emergency medical help immediately.

Source: <https://www.mayoclinic.org/diseases-conditions/stroke/symptoms-causes/syc-20350113>

The dataset information

- **The risk factors include but not limited to following:** -- Overweight -- Sedentary life -- Binge Drinking -- Diabetes -- Smoking -- High blood pressure -- High cholesterol -- Family history of stroke -- Cardiovascular diseases -- Age - people above age 55 are at higher risk -- Gender - men are at high risk of stroke than women
- In our dataset we have following variables relating to risk factors: Age, Gender, Hypertension (BP), Heart Disease (Cardiovascular disease), work type (sedentary lifestyle??), Glucose Level (Diabetes), bmi (overweight and sedentary lifestyle), and smoking. Overall, our dataset covers major risk factors which is a good sign.

Stroke Case study

Step-2: Load the Data and get the basic details

Get the data

Load the tables, ignore the sheets

Navigator

Display Options ▾

healthcare_dataset_stroke_data_v1.xlsx [4]

☐

General_Details_Sheet

☐

Risk_Factors_Sheet

☒

General_Details_table

☒

Risk_Factors_Table

Risk_Factors_Table

Patient_id	hypertension	heart_disease	avg_glucose_level	bmi
9046	0	1	228.69	36
51676	0	0	202.21	N/A
31112	0	1	105.92	32
60182	0	0	171.23	34
1665	1	0	174.12	2
56669	0	0	186.21	2
53882	1	1	70.09	27
10434	0	0	94.39	22
27419	0	0	76.15	N/A
60491	0	0	58.57	24
12109	1	0	80.43	29
12095	0	1	120.46	36
12175	0	0	104.51	27
8213	0	1	219.84	N/A
5317	0	1	214.09	28
58202	1	0	167.41	30
56112	0	1	191.61	37
34120	1	0	221.29	25
27458	0	0	89.22	37
25226	0	1	217.08	N/A
70630	0	0	193.94	22
13861	1	0	233.29	48
68794	0	0	228.7	26

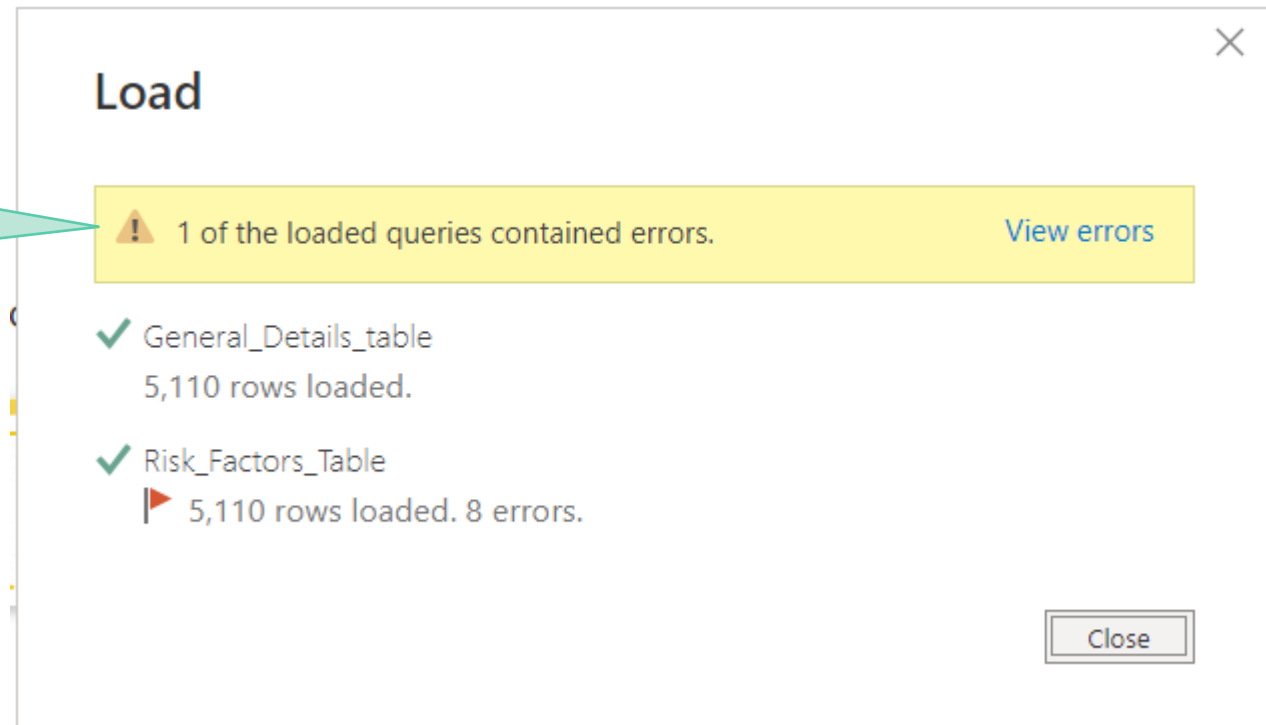
Load

Transform Data

Cancel



Getting the data

Errors can be handled later



Fields

- Have a quick look at the fields
- Are the field types correct?
- We can change the column types in the data transformation phase
- Look at the field icons

Fields		>>
<input type="text" value="Search"/>		
▼	 General_Details_table	
<input type="checkbox"/>	Σ age	
<input type="checkbox"/>	ever_married	...
<input type="checkbox"/>	gender	
<input type="checkbox"/>	Σ id	
<input type="checkbox"/>	Residence_type	
<input type="checkbox"/>	work_type	
▼	 Risk_Factors_Table	...
<input type="checkbox"/>	Σ avg_glucose_level	
<input type="checkbox"/>	bmi	
<input type="checkbox"/>	Σ heart_disease	
<input type="checkbox"/>	Σ hypertension	
<input type="checkbox"/>	Σ Patient_id	
<input type="checkbox"/>	smoking_status	
<input type="checkbox"/>	Σ stroke	

Have a Look at the data

id	gender	age	ever_married	work_type	Residence_type
60182	Female	49	Yes	WT -Private	Urban
60491	Female	78	Yes	WT -Private	Urban
12175	Female	54	Yes	WT -Private	Urban
5317	Female	79	Yes	WT -Private	Urban
62602	Female	49	Yes	WT -Private	Urban
1845	Female	63	Yes	WT -Private	Urban
47472	Female	58	Yes	WT -Private	Urban
17004	Female	70	Yes	WT -Private	Urban
71673	Female	79	Yes	WT -Private	Urban
45805	Female	51	Yes	WT -Private	Urban
28291	Female	79	Yes	WT -Private	Urban
5563	Female	77	Yes	WT -Private	Urban
72918	Female	53	Yes	WT -Private	Urban
14164	Female	72	Yes	WT -Private	Urban
70943	Female	80	Yes	WT -Private	Urban
11762	Female	76	Yes	WT -Private	Urban
8045	Female	74	Yes	WT -Private	Urban
17308	Female	72	Yes	WT -Private	Urban

Patient_id	hypertension	heart_disease	avg_glucose_level	bmi	smoking_status	stroke
63884	0	0	162.96	39.4	never smoked	0
67855	0	0	95.04	42.4	never smoked	0
25774	0	0	85.37	33	never smoked	0
24447	0	0	82.67	22.5	never smoked	0
48588	0	0	109.82	23.7	never smoked	0
70336	0	0	60.84	24.5	never smoked	0
45801	0	0	97.49	26.9	never smoked	0
36275	0	0	206.72	26.7	never smoked	0
11577	0	0	214.45	31.2	never smoked	0
36811	0	0	94.09	30.9	never smoked	0
58261	0	0	141.24	28.5	never smoked	0
28526	0	0	203.04	33.6	never smoked	0
7282	0	0	81.84	25.1	never smoked	0
1686	0	0	71.89	27.6	never smoked	0
59368	0	0	243.5	26.1	never smoked	0
18051	0	0	91.61	25.2	never smoked	0
40840	0	0	138.16	19.4	never smoked	0
10449	0	0	75.23	29	never smoked	0
61837	0	0	58.95	24.6	never smoked	0
9487	0	0	99.92	25.8	never smoked	0
49713	0	0	116.23	26.1	never smoked	0
28102	0	0	66.3	27.2	never smoked	0
62608	0	0	136.8	37.3	never smoked	0
40670	0	0	96.57	34.1	never smoked	0
4630	0	0	66.42	23.6	never smoked	0

Have a Look at the data

Patient_id	hypertension	heart_disease	avg_glucose_level	bmi	smoking_status	stroke
63884	0	0	162.96	39.4		
67855	0	0	95.04	42.4		
25774	0	0	85.37	33		
24447	0	0	82.67	22.5		
48588	0	0	109.82	23.7		
70336	0	0	60.84	24.5		
45801	0	0	97.49	26.9		
36275	0	0	206.72	26.7		
11577	0	0	214.45	31.2		
36811	0	0	94.09	30.9		
58261	0	0	141.24	28.5		
28526	0	0	203.04	33.6		
7282	0	0	81.84	25.1		
1686	0	0	71.89	27.6		
59368	0	0	243.5	26.1		
18051	0	0	91.61	25.2		
40840	0	0	138.16	19.4		
10449	0	0	75.23	29		
61837	0	0	58.95	24.6		
9487	0	0	99.92	25.8		
49713	0	0	116.23	26.1		
28102	0	0	66.3	27.2		

Sort ascending

Sort descending

Clear sort

Clear filter

Clear all filters

Text filters >

Search

- ☒ (Select all)
- ☒ (Blank)
- ☒ 10.3
- ☒ 11.3
- ☒ 11.5
- ☒ 12
- ☒ 12.3
- ☒ 12.8
- ☒ 13
- ☒ 13.2
- ☒ 13.3
- ☒ 13.4
- ☒ 13.5
- ☒ 13.7
- ☒ 13.8
- ☒ 13.9

Step-3: Transform the data; Prepare it for analysis

Coming up ..