

Teach Yourself **VISUALLY** Power BI®

Alexander Loth



Visual
A Wiley Brand

Teach Yourself
VISUALLY™

Power BI®

by Alexander Loth

Teach Yourself VISUALLY™ Power BI®

Copyright © 2023 by John Wiley & Sons, Inc. All rights reserved.

Published by John Wiley & Sons, Inc., Hoboken, New Jersey.

Published simultaneously in Canada and the United Kingdom.

ISBN: 978-1-119-90377-2

ISBN: 978-1-119-90378-9 (ebk.)

ISBN: 978-1-119-90379-6 (ebk.)

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 750-4470, or on the web at www.copyright.com. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at www.wiley.com/go/permission.

Trademarks: Wiley, Visual, the Visual logo, Teach Yourself VISUALLY, Read Less - Learn More, and related trade dress are trademarks or registered trademarks of John Wiley & Sons, Inc., and/or its affiliates. Power BI is a registered trademark of Microsoft Corporation. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc., is not associated with any product or vendor mentioned in this book. *Teach Yourself Visually™ Power BI®* is an independent publication and is neither affiliated with, nor authorized, sponsored, or approved by, Microsoft Corporation.

LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY: WHILE THE PUBLISHER AND AUTHOR HAVE USED THEIR BEST EFFORTS IN PREPARING THIS BOOK, THEY MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS BOOK AND SPECIFICALLY DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES REPRESENTATIVES OR WRITTEN SALES MATERIALS. THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR YOUR SITUATION. YOU SHOULD CONSULT WITH A PROFESSIONAL WHERE APPROPRIATE. FURTHER, READERS SHOULD BE AWARE THAT WEBSITES LISTED IN THIS WORK MAY HAVE CHANGED OR DISAPPEARED BETWEEN WHEN THIS WORK WAS WRITTEN AND WHEN IT IS READ. NEITHER THE PUBLISHER NOR AUTHORS SHALL BE LIABLE FOR ANY LOSS OF PROFIT OR ANY OTHER COMMERCIAL DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES.

For general information on our other products and services or for technical support, please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

If you believe you have found a mistake in this book, please bring it to our attention by emailing our reader support team at wileysupport@wiley.com with the subject line "Possible Book Errata Submission."

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic formats. For more information about Wiley products, visit our web site at www.wiley.com.

Library of Congress Control Number: 2023933153

Cover images: © merovingian/Getty Images

Cover design: Wiley

Sources: Microsoft Corporation: Chapter 1 opener, Figures 1.1 to 1.16, Chapter 3 opener, Figures 3.1 to 3.24, Figures 4.1 to 4.35, Figures 7.1 to 7.24, and Figures 8.1 to 8.36.

About the Author

Alexander Loth is a distinguished digital strategist and data scientist with over 14 years of experience advising numerous large companies on their digital transformations. He has a background in computational nuclear research, having worked at the European Organization for Nuclear Research (CERN) before transitioning to the tech industry.

Alexander holds an Executive MBA from the Frankfurt School of Finance & Management and is also a lecturer on the subject of digital society at the same institution. He has worked for several industry leaders, including Tableau (now part of Salesforce), Capgemini, and SAP. Since 2019, he has been a valuable member of the Microsoft team.

In addition to his industry experience, Alexander has an impressive academic background. He studied at the China Europe International Business School (CEIBS) in Shanghai and conducted postgraduate research at the University of the West of England's Department of Computer Science, focusing on machine-learning algorithms for geo-distributed petabyte-scale big data processing, data science, and cybersecurity.

Alexander's passion for sharing his knowledge and experience with others is evident in his role as co-founder of Futura Analytics, a fintech advisory. He has also written extensively on topics such as digital transformation, artificial intelligence, blockchain, and business analytics, and is the author of the best-selling books *Visual Analytics with Tableau* and *Decisively Digital*.

To stay up to date on the latest industry developments and insights, be sure to follow Alexander Loth on his blog at alexloth.com, on Twitter [@xlth](https://twitter.com/xlth), and on LinkedIn at www.linkedin.com/in/aloth.

Author's Acknowledgments

I am deeply grateful to the numerous individuals who have helped bring this book to fruition. Their support, insights, and encouragement have been invaluable to me throughout this journey. They include the people at Wiley and my colleagues at Microsoft.

I would especially like to thank Sarah Hellert, who has edited several titles in the Teach Yourself VISUALLY series and provided valuable advice and practical guidance beyond expectation on this book; Jonathan Bartleson, for his sharp eye for technical detail in the book; and Christine O'Connor, who pulled the threads together for this book. I also express my deepest gratitude to Jim Minatel, who published this and my previous books with Wiley, for his many years of excellent cooperation.

Finally, I want to thank my family for their unwavering patience, encouragement, and support throughout this process. Their love and support have sustained me through many long hours and challenging moments.

Thank you to everyone who has contributed to this project. Your efforts have made this book a reality, and I am deeply grateful for your support.

How to Use This Book

Who This Book Is For

This book is for the reader who has never used this particular technology or software application. It is also for readers who want to expand their knowledge.

The Conventions in This Book

1 Steps

This book uses a step-by-step format to guide you easily through each task. Numbered steps are actions you must do; bulleted steps clarify a point, step, or optional feature; and indented steps give you the result.

2 Notes

Notes give additional information — special conditions that may occur during an operation, a situation that you want to avoid, or a cross reference to a related area of the book.

3 Icons and Buttons

Icons and buttons show you exactly what you need to click to perform a step.

4 Tips

Tips offer additional information, including warnings and shortcuts.

5 Bold

Bold type shows command names, options, and text or numbers you must type.

6 Italics

Italic type introduces and defines a new term.

CHAPTER
6
Creating Advanced Data Visualizations

Create a Treemap Chart

Power BI Desktop enables you to create treemap charts to visualize your data. A *treemap* is a visual that represents the categories in a dataset as colored rectangles arranged within a large rectangle that portrays the entire data set. The size of the rectangles varies to indicate their data values. Within the larger rectangle, Power BI Desktop arranges the category rectangles in descending order of size from top left to bottom right.

Create a Treemap Chart

Note: This section uses the Chapter 6 - Treemap.pbix database, available at www.wiley.com/go/tytpowerbi.

- 1 Open the Chapter 6 - Treemap.pbix database file.
- Note:** If the Fields pane and the Visualizations pane are collapsed, expand them.
- 2 Click **Build Visual** (🔍).
- The Build Visual tab appears.
- 3 Click **Treemap** (📊).
- Power BI adds a treemap visual to the canvas.
- 4 Click **Expand** (🔍) to the left of TransactionTable.
- The TransactionTable listing expands.
- 5 Click **Sales** (📊) changes to (📊).
- The Sales field appears in the Values box.
- 6 The Sales data appears in the treemap visual as a blue rectangle.
- 7 Drag the lower-right handle down and to the right to enlarge the visual.

The visual appears at the larger size.

- 7 Click **Country** (📊) changes to (📊).
- The Country field appears in the Category box.
- The Country data appears in the treemap visual, creating a separate rectangle for each of the five countries in the category.
- 8 Click **Save** (💾).
- Power BI Desktop saves your changes.
- 9 Click **Close** (✕).
- The file closes.

TIP

What are treemap visuals good for?

A treemap visual can be a good tool for getting a quick visual comparison between the categories in a dataset. For example, you might create a treemap visual to analyze the sales performance of your company's different reps; or you might use a treemap to visualize the different file types — such as audio files, video files, and productivity files — that are filling up shared disk storage.

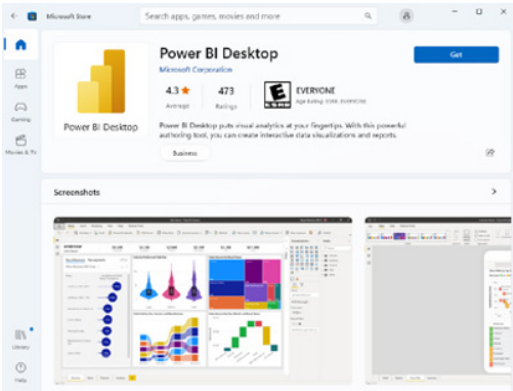
Treemaps excel at providing a quick visual comparison. They are less well suited to precise comparisons, but you can alleviate this shortcoming by including data labels that show the values of the categories.

Table of Contents

Chapter 1

Getting Started with Power BI

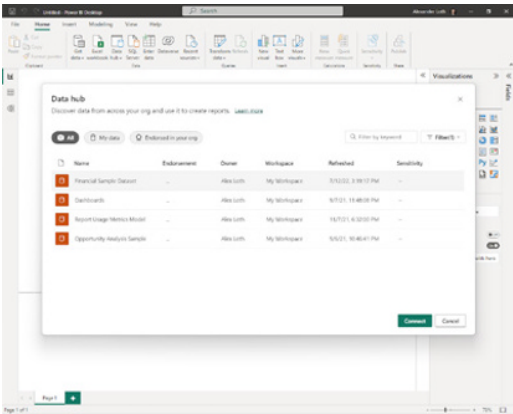
What Is Power BI?	4
Understanding the Different Components of Power BI.....	6
Understanding Power BI as Part of the Power Platform	7
Install Power BI Desktop.....	8
Start and Pin Power BI Desktop	10
Explore the Power BI Workspace.....	12



Chapter 2

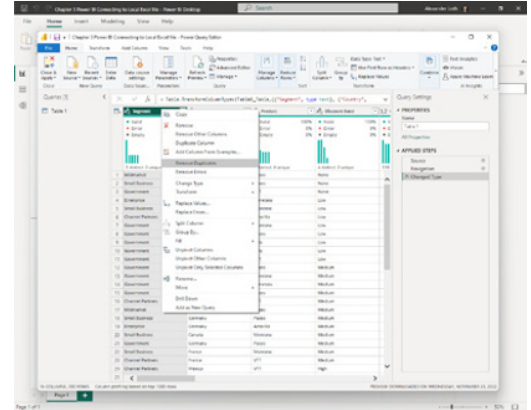
Connecting Power BI to Your Data

Grasp How Power Query Editor Works with Power BI Desktop.....	18
Connect Power BI Desktop to a Local File	20
Save, Close, and Open Power BI Reports	22
Start Working with the Sample Dataset	24
Connect to a Power BI Dataset.....	28
Connect to a SharePoint List	30
Connect to a SQL Server Database.....	34



Chapter 3 Cleaning and Shaping Data

Remove Duplicate Values	40
Replace Values in a Column	42
Split a Column Using a Delimiter	44
Group Data	46
Add a Calculated Column	48
Add an Index Column	50



Chapter 4 Modeling Data in Model View

Create Dimension Tables	54
Create Relationships Between Tables	58
Create a Star Schema	62
Create a Hierarchical Schema	64
Using the Properties Pane	70

Manage relationships

Active	From Table (Column)	To Table (Column)
☒	Fact_Transaction_Table (Discount Band)	Dim_Discount_Band (Discount Band)
☒	Fact_Transaction_Table (Product)	Dim_Product (Product)
☒	Fact_Transaction_Table (Sale Price)	Dim_Country (Country)
☒	Fact_Transaction_Table (Segment)	Dim_Segment (Segment)

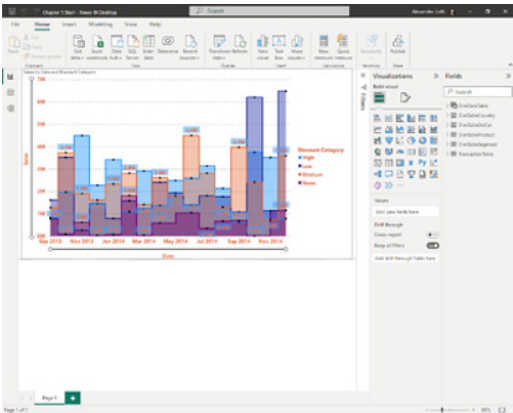
New... Autodetect... Edit... Delete

Close

Table of Contents

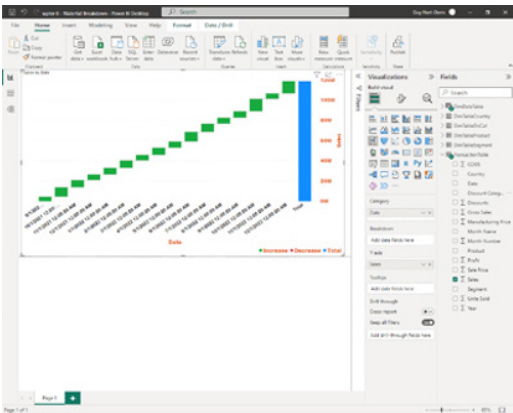
Chapter 5 Creating Basic Visualizations

Create a Bar Chart.....	74
Apply Filters to Visuals	76
Format the Y-Axis of a Bar Chart	78
Format the X-Axis of a Bar Chart	80
Add and Format the Data Category of a Bar Chart	82
Move a Bar Chart’s Legend and Add Gridlines	84
Add a Zoom Slider and Update Bar Colors	86
Add Data Labels to a Bar Chart	88
Add an Image to the Plot Area Background.....	90
Create a Line Chart or Area Chart.....	92
Format the Axes of a Line or Area Chart	94
Add a Legend to a Line or Area Chart.....	96
Move the Legend and Add Gridlines to a Line or Area Chart.....	98
Add a Zoom Slider and Steps to a Line or Area Chart...	100
Add Data Markers and Labels to a Line or Area Chart	102
Format the Data Labels of a Line or Area Chart.....	104



Chapter 6 Creating Advanced Data Visualizations

Create and Format a Gauge Chart.....	108
Create and Format a KPI Visual	112
Create a Matrix Visual.....	116
Format a Matrix Visual	118
Format the Values and Column Headers of a Matrix Visual	120
Format the Row Headers of a Matrix Visual	122
Format the Row Subtotals and Grand Totals of a Matrix Visual	124



Format the Specific Column and Cell Elements of a Matrix Visual	126
Create a Waterfall Chart	128
Format a Waterfall Chart	130
Format the X-Axis and Legend of a Waterfall Chart.....	132
Add and Format Breakdowns in a Waterfall Chart	134
Create, Format, and Label a Funnel Chart.....	136
Create a Pie Chart or Donut Chart	140
Format a Pie Chart or Donut Chart	142
Create a Treemap Chart	144
Format a Treemap Chart	146

Chapter 7 Showing Geographic Data on Maps

Create a Proportional Symbol Map	150
Create a Choropleth Map	152
Add Conditional Formatting to a Choropleth Map	154
Enable Power BI's Preview Features	156
Create an Isarithmic Map	158
Create a Skyscraper Map.....	160

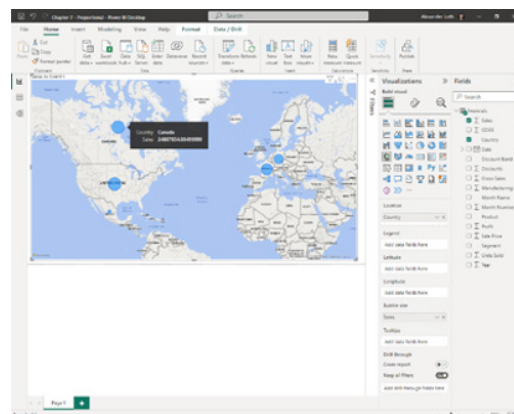
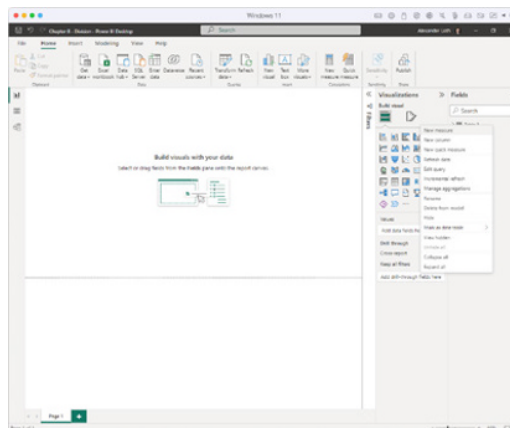


Table of Contents

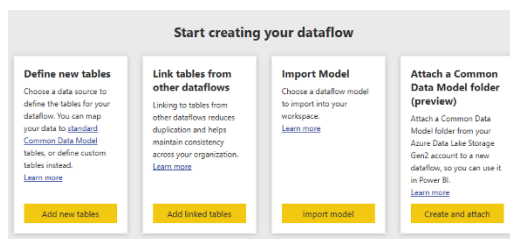
Chapter 8 Using Calculated Columns and DAX

Understanding DAX and Why You Should Use It.....	164
Add All Numbers in a Column.....	166
Perform Division	168
Check a Condition	170
Count the Number of Cells in a Column.....	172
Return the Average of All Numbers in a Column.....	174
Join Two Text Strings into One Text String	176
Apply Conditional Formatting in Tables	178



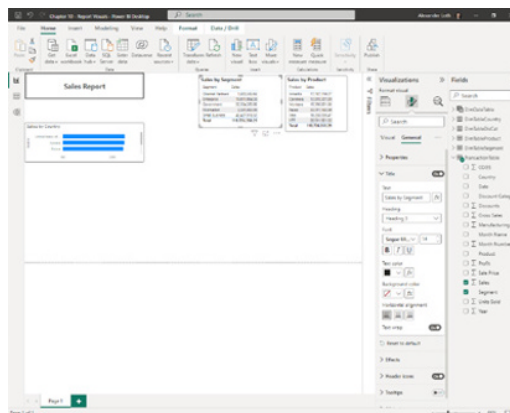
Chapter 9 Using Analytics and Machine Learning

Identify Outliers	184
Find Groups of Similar Data by Clustering	186
Create a Dataflow.....	188
Apply Binary Prediction with AutoML	192



Chapter 10 Creating Interactive Reports

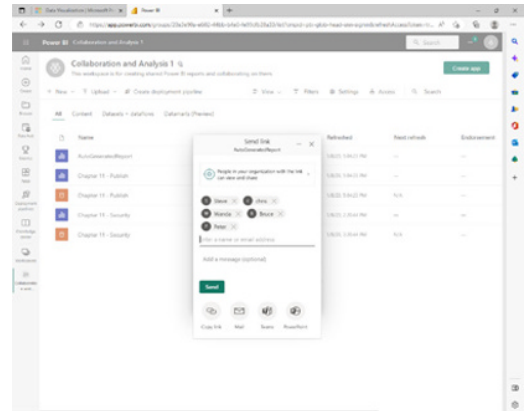
Planning to Create a Report.....	198
Start a Report and Add a Title.....	200
Add Visuals to a Report	202
Add Slicers to a Report	206
Control Which Visuals and Slicers Interact	208
Enable and Control Drill-Through Actions.....	210
Split a Page into Sections	214
Add Bookmarks and Navigation to a Report	218



Chapter 11 Publishing Reports and Dashboards

Set Up a Workspace.....	224
Ask Questions About the Data.....	226
Publish a Report to the Power BI Service.....	228
Set Up Row-Level Security.....	230
Add Tiles to a Dashboard	232
Share a Dashboard	234
Schedule Data Refreshes	236
Publish a Report to the Web	238

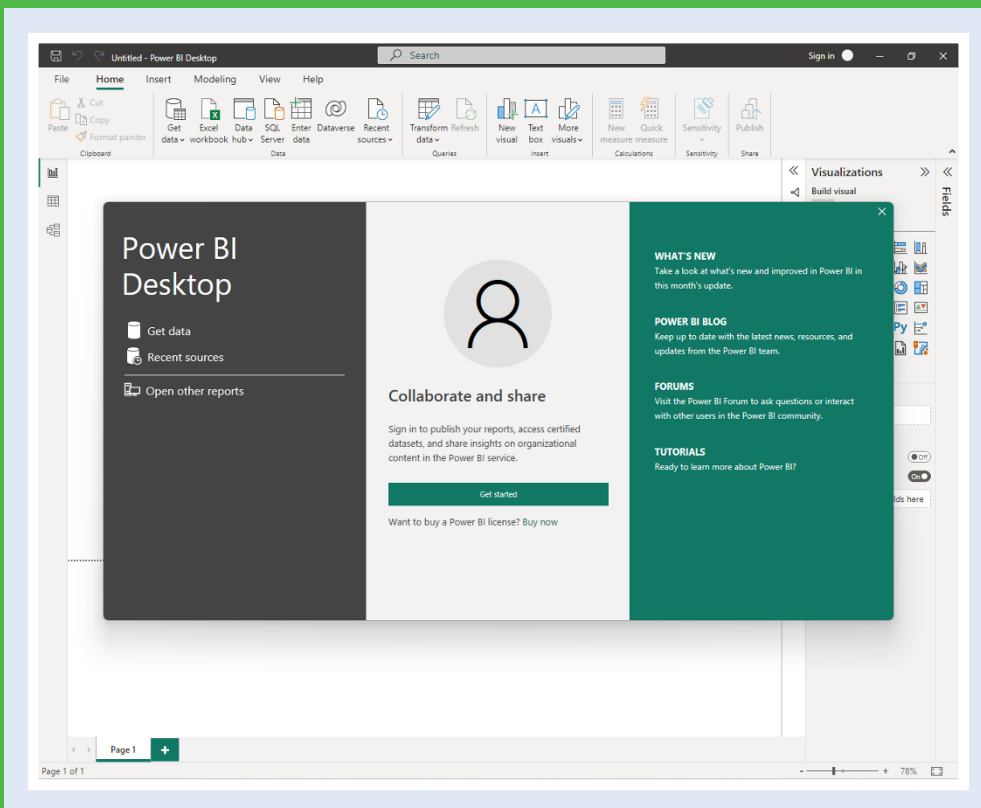
Index.....	240
------------	-----



CHAPTER 1

Getting Started with Power BI

Power BI enables you to create visual analytics from data, allowing you to understand even complex data structures and effectively communicate insights gained. You need neither special mathematical skills nor programming experience to understand and acquire Power BI skills.



What Is Power BI? 4

Understanding the Different Components of Power BI. . . . 6

Understanding Power BI as Part of the Power Platform . . . 7

Install Power BI Desktop 8

Start and Pin Power BI Desktop 10

Explore the Power BI Workspace 12

What Is Power BI?

Power BI is a data-visualization app that enables you to analyze data without technical expertise or programming knowledge. BI is a standard abbreviation for *business intelligence*. Instead of needing to type in complex data queries, you can create your queries by clicking and dragging items in Power BI's graphical interface. This ease of use allows you to quickly find insights in your data and to share them with others.

You do not have to know from the start what you are looking for or how you want to present the results. Rather, Power BI takes you on a journey through your data and helps you discover relationships you did not expect to exist through visual analysis. This approach is fundamentally different from other tools, whose use requires that you already know at the beginning of your analysis which data you want to present in which form.

Power Query, an Essential Part of Power BI

Power BI also offers complex techniques of data cleansing, data modeling, and data preparation with Power Query. *Power Query* is a data transformation and data preparation engine. Power Query has a graphical user interface for retrieving data from sources and a Power Query editor for applying transformations. You can use Power Query to perform ETL processing on data. *Extract, Transform, Load*, or *ETL*, is a process that unifies data from multiple, possibly differently structured, data sources.

Power BI's Vast Variety of Data Sources

Power BI Desktop enables you to connect to a wide variety of data sources. You can use data stored in Excel workbooks or in text files in the comma-separated values format, CSV. You can use data from databases such as Access or SQL Server. You can access data in *data cubes*, which are multidimensional arrays containing values. You can also connect to data warehouses, clusters of computers running the Apache Hadoop computing framework, or various cloud services such as Google Analytics.

After connecting to the appropriate data source, you interact with the Power BI user interface to query the data with a few mouse clicks and display the results in various charts and maps. You can then arrange these visualizations into dashboards to put them into meaningful context.

When communicating key insights, you have a variety of options depending on the product you use, from sharing interactive dashboards to embedding them in web pages. Power BI facilitates both the presentation of insights from data and the communication process, that is, data storytelling and interactive dashboards, without requiring any programming skills.

Data Analysis and Excel

Data analysis and visualization have always been an important topic in the professional environment and a fundamental tool for business decision-making. In this environment, Microsoft Excel quickly became popular and established itself as one of the most important tools for data analysis. However, with the exponential growth of data in the world, often referred to as *big data*, and the growth of the culture of analytics and data science, Excel is reaching its limits and is being replaced by more efficient tools for data analysis such as Power BI.

Power BI, the Big Leap from Excel

Year after year, companies are focusing more on data and how to get value from it in order to sell more products, attract more customers, and increase the efficiency of the process. In this scenario, a tool that handles a large amount of data and is able to analyze data quickly and easily to present information clearly to businesses becomes essential. To address this need, Microsoft has developed Power BI, a visualization tool that is capable of handling large and complex amounts of data while changing the way you deal with charts or visualizing data.

Excel has excellent features and allows the user to work easily and effectively to analyze data. Excel is the most widespread spreadsheet tool, where it can indisputably show its full power. With the introduction of Pivot Tables in Excel in 1994 and Power Query functions in Excel 2010, Excel gained functions for editing and analyzing data in tables up to 1 million rows. Nevertheless, Excel's strength remains the calculation of complex formulas more than the processing of large amounts of data. Excel also brings good functionalities for analysis and good graphical visualizations. Ultimately, even with smaller data sets, Power BI offers better performance, more comprehensive analytics and visualizations, and the ability to share dashboards or apps across the enterprise for a "one-stop solution." In these cases, Power BI proves to be extremely useful with advantages over Excel, making data analysis more agile and efficient.

With a wide range of graphics and widgets, a good ability to handle big data, integration with different platforms and ease of use, and centralization of different data sources, Power BI is proving to be increasingly popular, both among experienced Excel users and beginners new to the world of data.

How This Book Guides You into Power BI

This book is designed to provide you with a step-by-step introduction to creating visual analytics, enabling you to understand even complex data structures and effectively communicate insights gained. Therefore, this book is of interest to a variety of audiences, such as people who have access to and want to understand data, executives who make decisions based on data, analysts and developers who create visualizations and dashboards, and aspiring data scientists.

You need neither special mathematical skills nor programming experience to understand this book and develop skill in using Power BI effectively. The book is suitable for beginners and for users who want to approach the topic of data visualization and analysis in a practical way, without extensive theoretical treatises.

Understanding the Different Components of Power BI

Microsoft groups various software products and services for data analysis under the umbrella name Power BI. For this book's purposes, the three key Power BI components are Power BI Desktop, the Power BI cloud service, and the Power BI Report Server.

Power BI Desktop is a desktop application that you use to create analyses and reports from data sources. You can then make these analyses and reports available to consumers via either the Power BI cloud service or the Power BI Report Server — or indeed both. This section explains how the different Power BI components and licensing models interact with reports.

Power BI Desktop

Power BI Desktop is a free application for Windows that is popular among analysts and business users. On the one hand, Power BI Desktop allows you to connect to local files, such as Excel and CSV, and save report files locally. On the other hand, Power BI Desktop allows you to connect to many external data sources and store them on your own report server or the Power BI cloud service. The focus of this book is Power BI Desktop, which allows you to quickly create advanced analytics and reports and gain data-driven insights.

Power BI Pro

Power BI Pro is a user-based license for the Power BI service that lets you share reports and analytics with other users. You can use collaborative functions and integrate a role and rights concept. You can also embed published reports in other applications such as Microsoft SharePoint, Microsoft Teams, or other Microsoft Power Platform applications. At the time of this writing, the Pro license cost \$9.99 per user per month; see powerbi.microsoft.com/en-us/pricing for current pricing. Power BI Pro is already included in the Microsoft 365 Enterprise E5 subscription plan.

Power BI Premium

Power BI is a platform for data analysis and is used by small companies as well as large, publicly traded corporations. Power BI Premium is used to provide

company-wide visualizations and dashboards, which can also be operated in the web browser and can also be embedded in the company intranet. As of this writing, Microsoft offers a free 30-day trial for Power BI Premium; go to powerbi.microsoft.com/en-us/power-bi-premium and click **Try Power BI for free**.

Power BI Embedded

With Power BI Embedded, you can integrate reports and analyses on your website and make them available to your customers without them having to log in to the Power BI service. Power BI Embedded uses a different licensing model: Your company pays for Power BI capacity that you make available for your customers to use, rather than customers needing to have their own Power BI accounts.

Power BI Report Server

The Power BI Report Server is a server platform on which you can publish and view reports in the same way as Power BI Premium. However, this is not a cloud platform but a so-called “on-premise” solution that you can integrate into your own network.

Power BI Mobile

Power BI Mobile is an application for iOS and Android smartphones and tablets and Windows devices that lets you access your data and the Power BI service on the go.

Power BI is part of Microsoft's Power Platform, a set of tools for creating data-driven solutions to business needs. In addition to Power BI, Power Platform includes the Power Apps development environment, the Power Automate framework, the Power Virtual Agents tool for creating chatbots, and the Power Pages tool for building business-oriented websites quickly.

Power Apps

Power Apps is a development environment with little or no code, where you can develop your own applications to solve various business challenges. For example, you could develop a Power App that accesses a SharePoint list for data display and data entry. You could then deploy that app to your organization's iPhones, iPads, and Android devices.

Power Automate

Power Automate is a framework that allows end users to create "flows" that automate organizational processes. For example, you might develop a flow that automatically sends an email notification to supervisors when an employee submits a particular electronic form.

Power Virtual Agents

Power Virtual Agents is a no-code tool that lets you create chatbots to communicate with customers and employees.

Using the Power Platform

Each of these components — Power Apps, Power Automate, and Power Virtual Agents — can be used by Power BI to provide insights that drive your work forward. What follows are some examples of how each component might work with Power BI.

For example, in Power Apps, you could set up an application that allows an inspector to take notes in the field and upload that data to a SQL Server database. A Power BI report could also connect to that SQL Server database, retrieve the information uploaded by the Power App, and update the report based on the new data added by the multiple inspectors in the field using the Power App.

As another example, consider *virtual agents*, which are software programs that provide customer service to humans and mimic a customer service representative. With virtual agents, large amounts of data are collected as end users interact with your chatbots. All of this data is collected and stored, which means Power BI can generate reports on it. This creates an end-to-end reporting solution that allows your business to get textual insights into what your customers really want from your business.

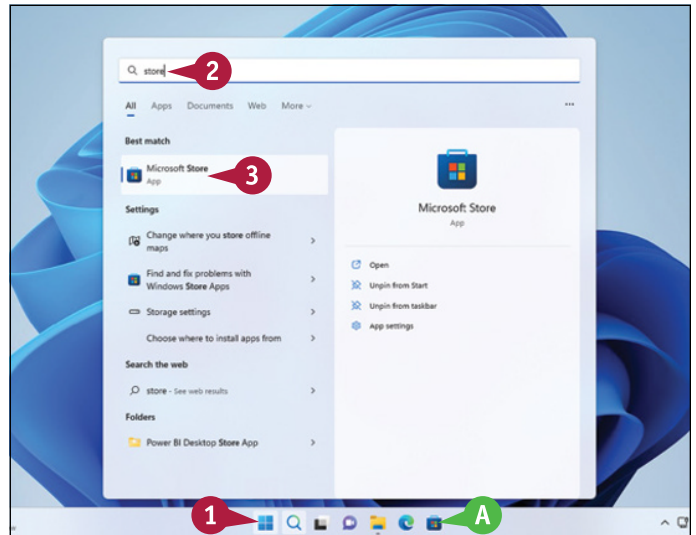
Install Power BI Desktop

You can install Power BI Desktop in only a few minutes and begin creating visual data analytics. Before you start installing Power BI Desktop, make sure that your computer meets the necessary system requirements; see the tip for details.

The requirements of Power BI Desktop on your system are comparable to other Microsoft Office applications. However, how much data you connect and how many visualizations you display at the same time also play a major role. For complex analyses and large amounts of data, you will get a more comfortable experience with a powerful processor and more memory.

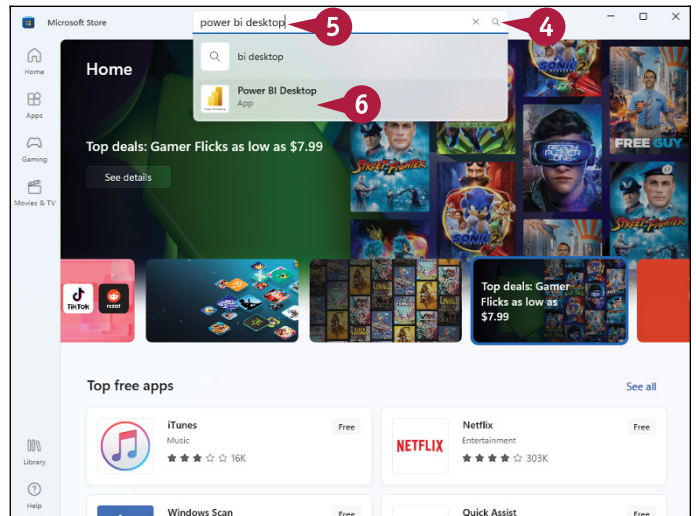
Install Power BI Desktop

- A** If Microsoft Store (📦) appears on the taskbar, click **Microsoft Store** (📦) and go to step 4.
- 1** In Windows, click **Start** (🏠).
The Start menu opens.
- 2** Type **store**.
The search results appear.
- 3** Click **Microsoft Store** (📦).



The Microsoft Store app opens.

- 4** Click **Search** (🔍).
The Search field becomes active.
- 5** Type **power bi desktop**.
The search results appear.
- 6** Click **Power BI Desktop** (📦).

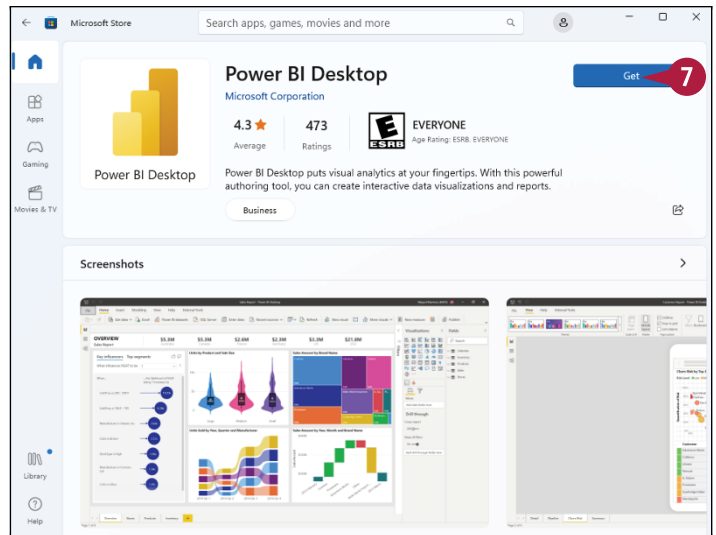


Getting Started with Power BI

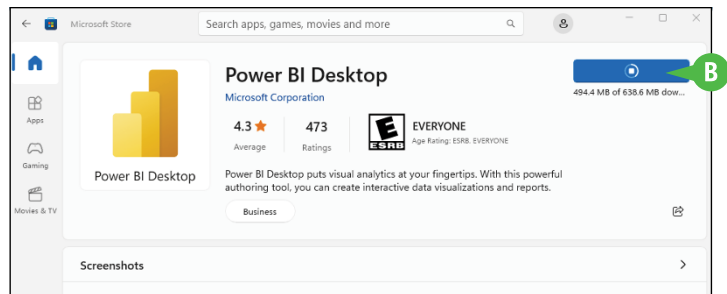
The product page for Power BI Desktop appears.

Note: To determine whether Power BI Desktop will run on your computer, scroll down to the System Requirements section on the product page and look for the message *This product should work on your device*. See the tip for more information on system requirements.

7 Click **Get**.

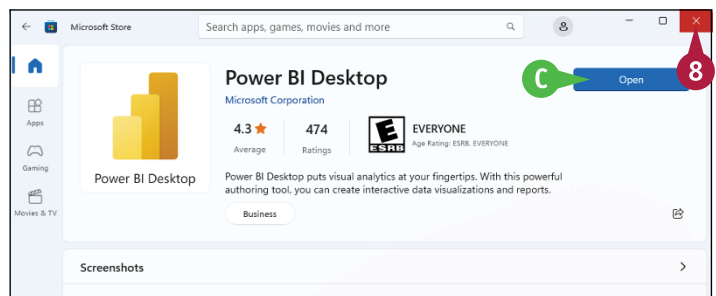


B Power BI Desktop begins downloading and installing on your computer.



When the download and installation is complete, the Open button appears.

C You can click **Open** to open Power BI Desktop directly from the Microsoft Store app.



8 Click **Close** (X).

The Microsoft Store app closes.

TIP

What are the system requirements for Power BI Desktop?

To run Power BI Desktop, you need a PC running Windows 10 version 14393.0 or later, such as Windows 11, with at least 2 GB of disk space free. Microsoft recommends a Windows 10 PC with a minimum of 2 GB of RAM, but for reasonable performance, 4 GB is a realistic minimum, and 8 GB or more will give better performance. Windows 11 requires at least 4 GB of RAM; for good performance, treat 8 GB as a realistic minimum, and get 16 GB or more if possible.

Start and Pin Power BI Desktop

After you have successfully installed Power BI Desktop, as described in the previous section, you can launch the app from the Windows Start menu. If you want to launch Power BI Desktop more quickly in the future, you can pin Power BI Desktop to your Start menu, making it always appear there. For even faster launching without opening the Start menu, you can pin Power BI Desktop to the taskbar.

This section shows Windows 11. If your computer has Windows 10, the Start menu is located in the lower-left corner of the screen by default.

Start and Pin Power BI Desktop

Start Power BI Desktop

- 1 Click **Start** (🪟).

The Start menu opens.

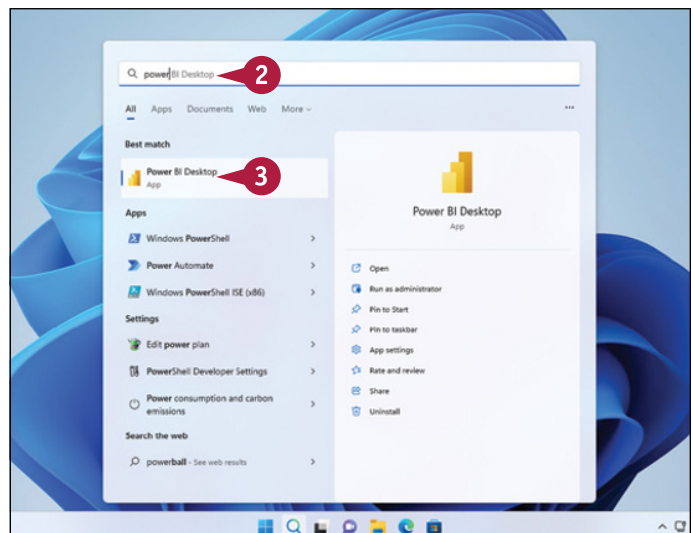
- A If Power BI Desktop (📊) appears in the Recommended section, click **Power BI Desktop** (📊) and go to step 4.



- 2 Start typing **power bi desktop**.

The Start menu displays search results as you type.

- 3 Click **Power BI Desktop** (📊).



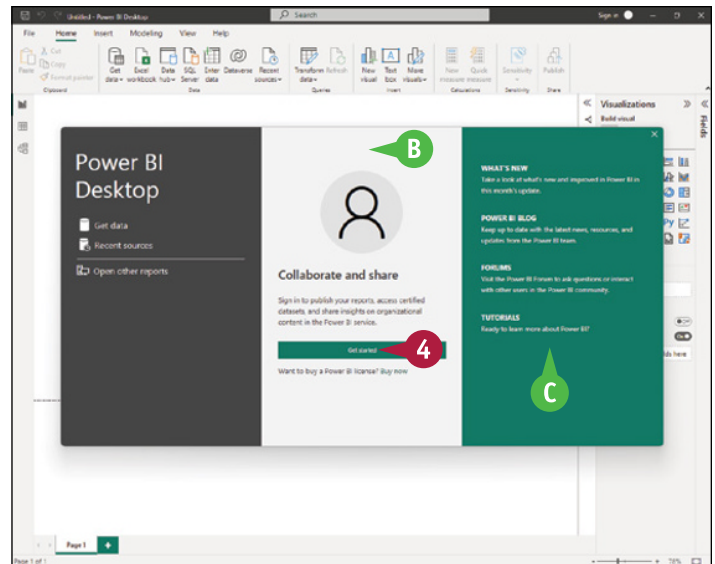
Getting Started with Power BI

Power BI Desktop opens.

- B** The Power BI Desktop splash screen appears.
- C** The right pane contains links you can click to display various types of information about Power BI.
- 4** Click **Get Started**.

The splash screen closes.

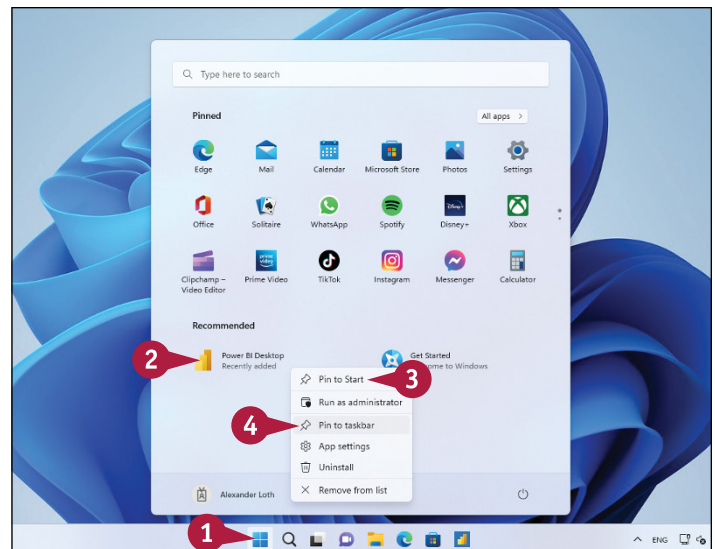
You can now start using Power BI Desktop.



Pin Power BI Desktop

- 1** Click **Start** (🪟).
- The Start menu opens.
- 2** Right-click **Power BI Desktop** (📁).
- 3** To pin Power BI Desktop to the Start menu, click **Pin to Start** (📌).
- 4** To pin Power BI Desktop to the taskbar, click **Pin to taskbar** (📌).

After pinning the Power BI Desktop icon to the Start menu or the taskbar, you can start Power BI Desktop quickly by clicking the icon on the Start menu or the taskbar.



TIP

Is Power BI available for the Mac or Linux?

As of this writing, Power BI Desktop is available only for Windows, so Mac users and Linux users cannot install and use Power BI Desktop natively. On either macOS or Linux, you can install virtual-machine software, such as Parallels Desktop for macOS, from www.parallels.com, or the free VirtualBox for either macOS or Linux, from www.virtualbox.org. Install Windows on the virtual machine, and then install Power BI Desktop. Another approach is to use a cloud PC, such as Microsoft's Windows 365 Cloud PC service, which you can access from macOS, Linux, Windows, iOS and iPadOS, Android, and most other current operating systems.

Explore the Power BI Workspace

Like many of Microsoft's professional apps, Power BI Desktop has a ribbon-driven interface rather than menus. If you are familiar with Microsoft apps such as Word or Excel, the Power BI Desktop ribbon will look familiar; if not, you can quickly master how to use it.

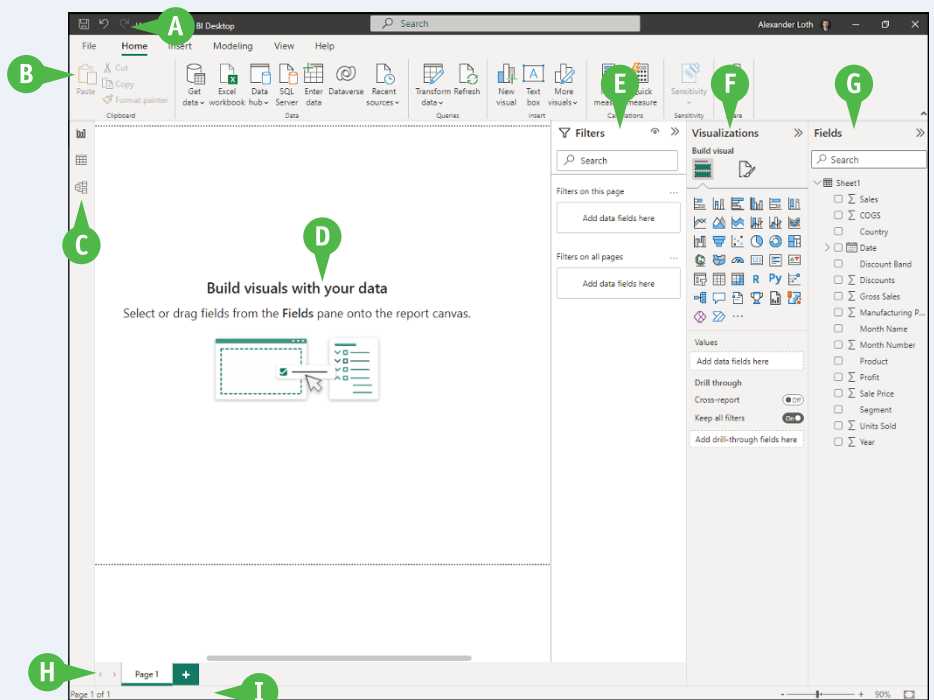
Below the ribbon is the Canvas, the area on which you create visualizations. To the left of the Canvas is the View bar; to the right of the Canvas are the Filters pane, the Visualizations pane, and the Fields pane, which you can collapse and expand as needed. At the bottom of the Power BI Desktop window is the status bar.

A Quick Access Toolbar

The Quick Access toolbar provides easy access to the Save, Undo, and Redo commands.

B Ribbon

The ribbon is the primary interface element for giving commands. The ribbon contains six fixed tabs: File, Home, Insert, Modeling, View, and Help. Other tabs, such as the Format tab and the Data/Drill tab, are context sensitive and appear only when you have selected an object with which such a tab is associated.



C View Bar

The View bar, on the left side of the Power BI Desktop window, enables you to switch between three views: Report, Data, and Model. By default, Report view is selected.

D Canvas

The Canvas is the area on which you create and manipulate your visualizations.

E Filters Pane

In the Filters pane, you can filter data fields to limit the analysis to the relevant data range. You can control whether the filtering applies to a single visualization, a single page, or all pages of your file. You can expand the Filters pane, the Visualizations pane, and the Fields pane by clicking **Expand** (⟨⟨), and you can collapse them by clicking **Collapse** (⟩⟩).

F Visualizations Pane

In the Visualizations pane, you can create a new data visualization, change the chart type of an existing visualization, and adjust the formatting. A series of icons shows you the available visualization types and helps to quickly select the desired chart. Here, also depending on the selected visualization, you can assign data fields or calculation results to the visualizations and add visual features such as tool tips, drill-through references, and additional analyses. You can also load various other powerful visualizations from the Microsoft Store.

G Fields Pane

The Fields pane gives you an overview of which data fields and calculations are available in your source. A sum sign, Σ , in front of a field name indicates a field that Power BI has evaluated as being suitable for summation or aggregation.

H Tab Bar

The tab bar below the Canvas enables you to create new pages and navigate from one to another. Click **Add** (+) to add a page. Click a page's tab to display that page. When there are more pages than can appear on the tab bar, click **Go to Start** (◀) or **Go to End** (▶) to scroll the displayed tabs left or right.

I Status Bar

The status bar, at the bottom of the Power BI Desktop window, displays current information, such as the page number and the number of pages, and contains the zoom slider, the Zoom Menu button (such as 90%), and the Fit to Page button (📐).

continued ►