Rotman

Master of Management Analytics

INTRO TO JMP – PART 2

Bootcamp (https://tdmdal.github.io/mma-jmp-2021/)

August 9, 2021 Prepared by Jay / TDMDAL

Rotman School of Management
UNIVERSITY OF TORONTO

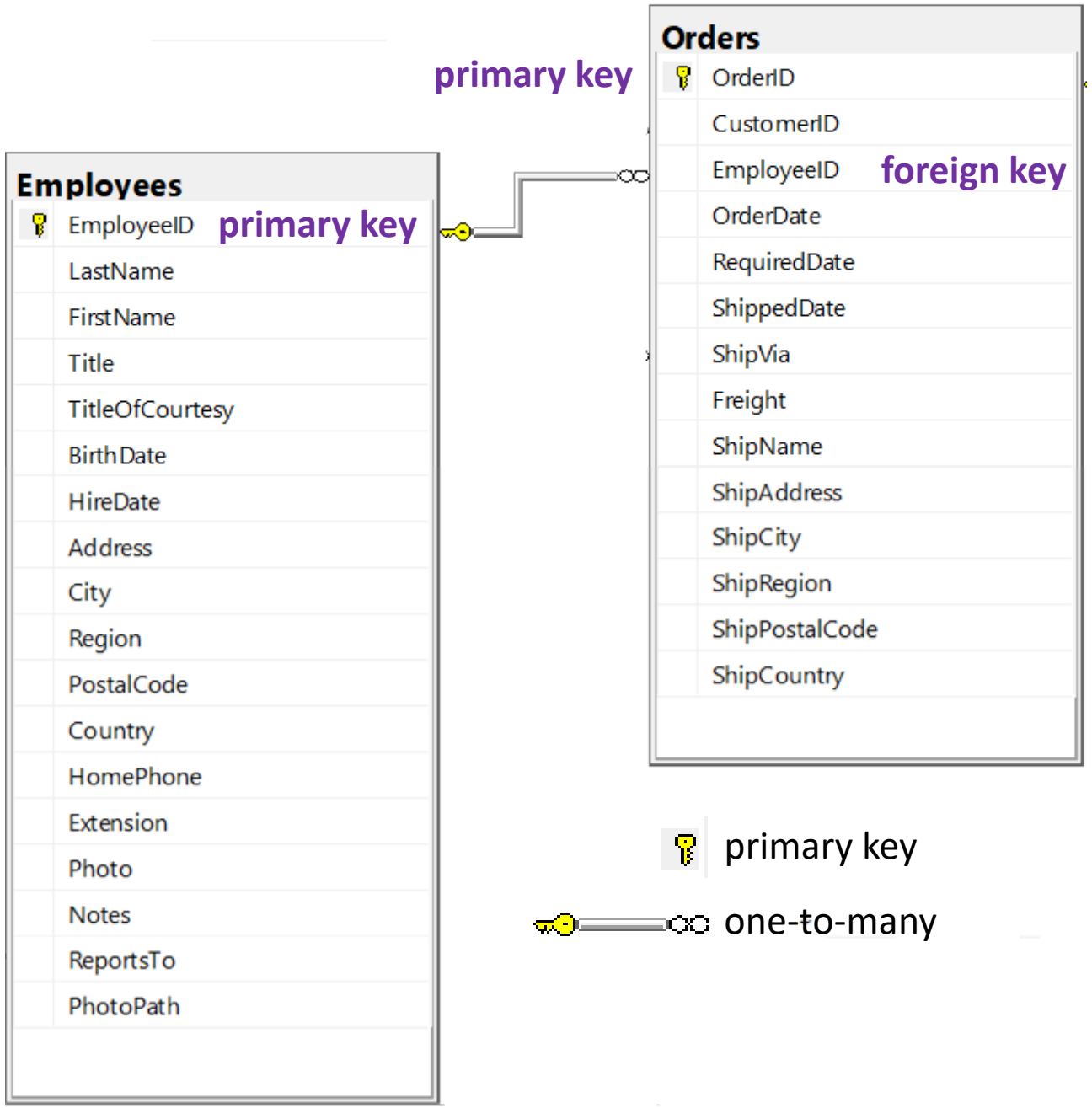
Plan

- Session 1
  - Workflow overview
  - Basic data manipulation
- Session 2
  - **Join data tables**
  - JMP graphing
- Session 3
  - Modelling
  - JMP Journal
  - JMP Scripting Language

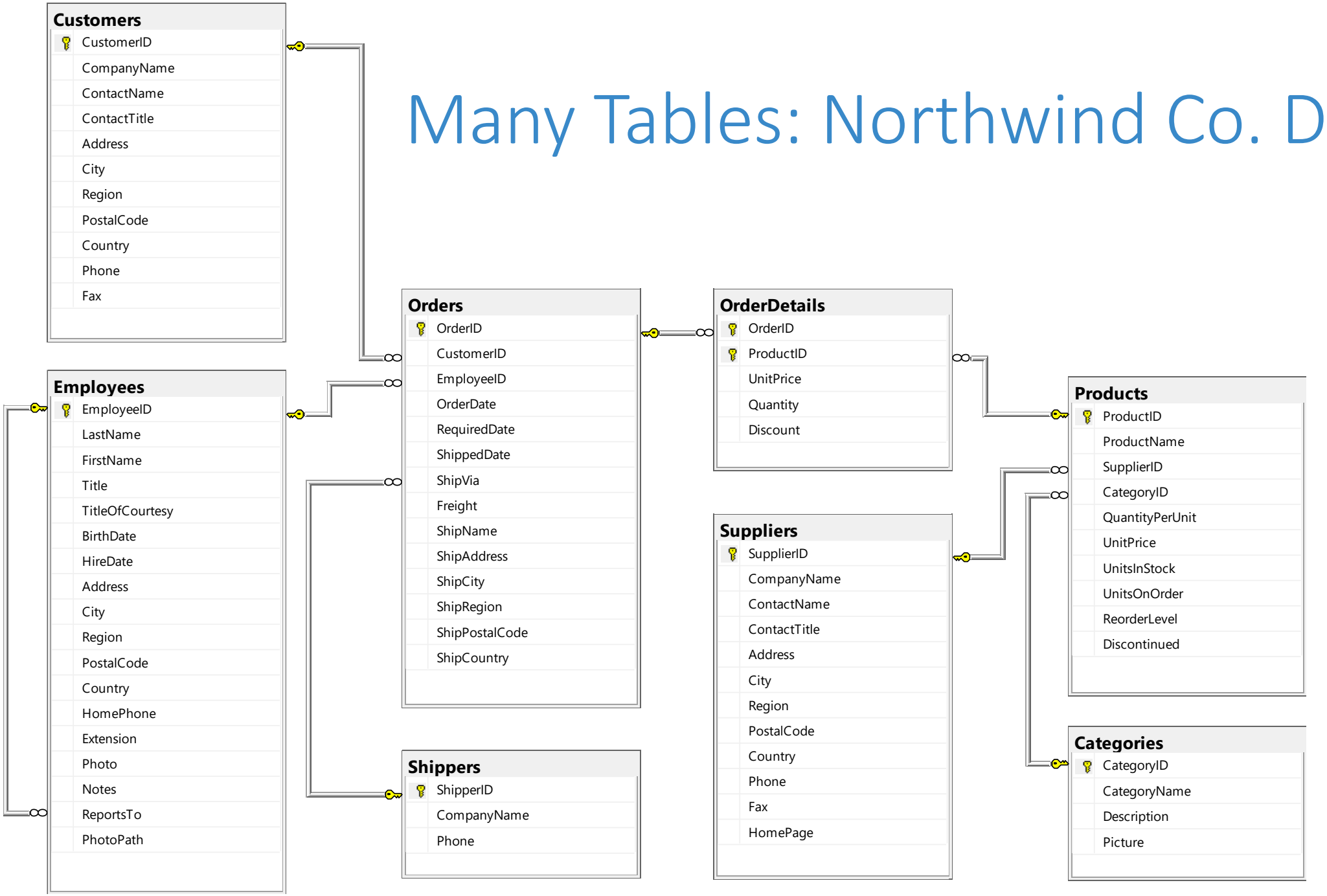
Join Data Tables

- Relationship between data tables
  - one-to-one
  - one-to-many
  - many-to-many

- Database terminology
  - **primary key**: uniquely identifies an observation in its own table
  - **foreign key**: uniquely identifies an observation in another table



Many Tables: Northwind Co. DB



Join – Inner Join

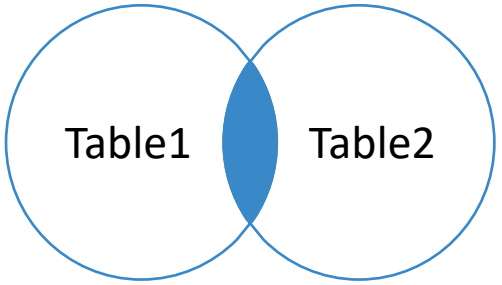


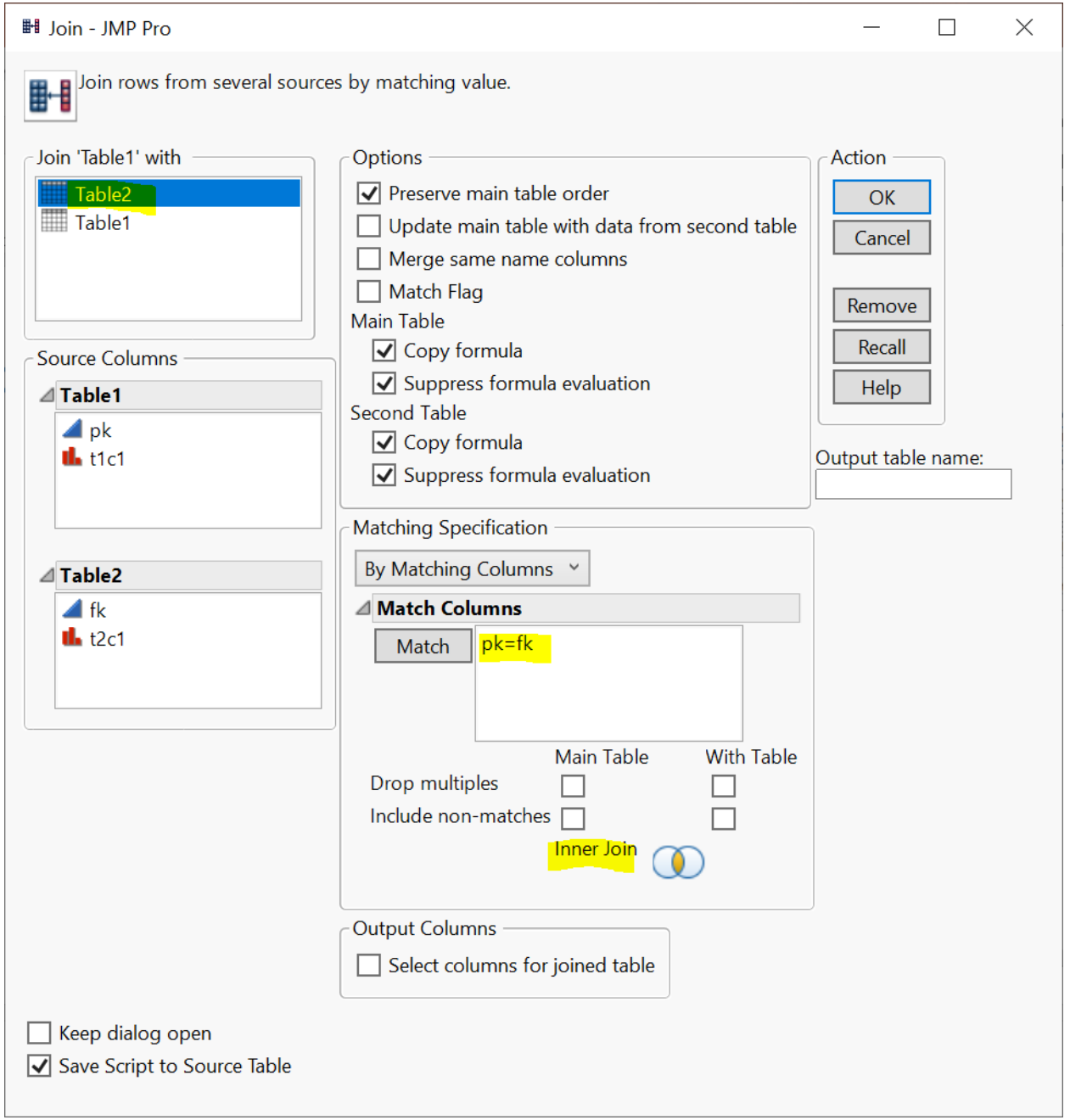
Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
1	a	1	c
1	a	1	d



Join – Left (Outer) Join

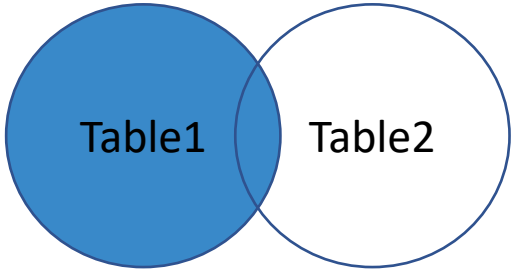


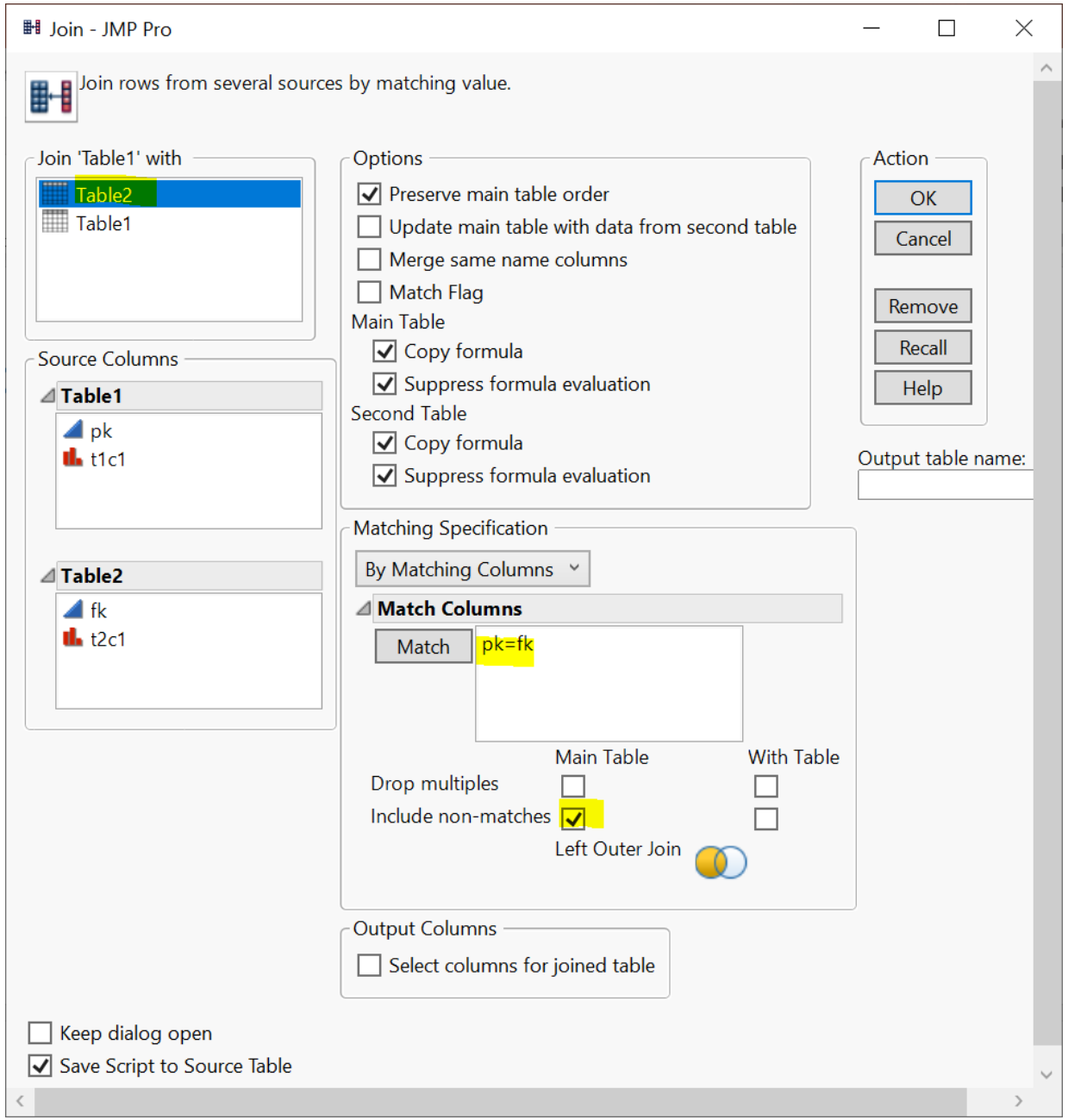
Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
1	a	1	c
1	a	1	d
2	b		



Join - Left (Outer) Join With Exclusion (Demo)

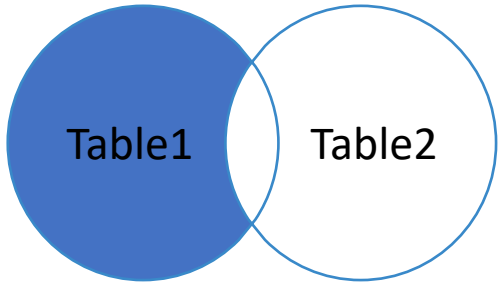


Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
2	b		

- step 1: left (outer) join
- step 2: filter rows (row selection)
  - fk is missing
- step 3: subset table according to filtering result

Join – Right Outer Join*

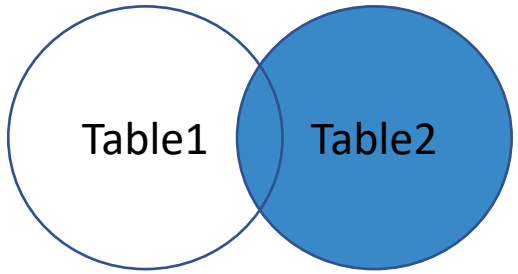


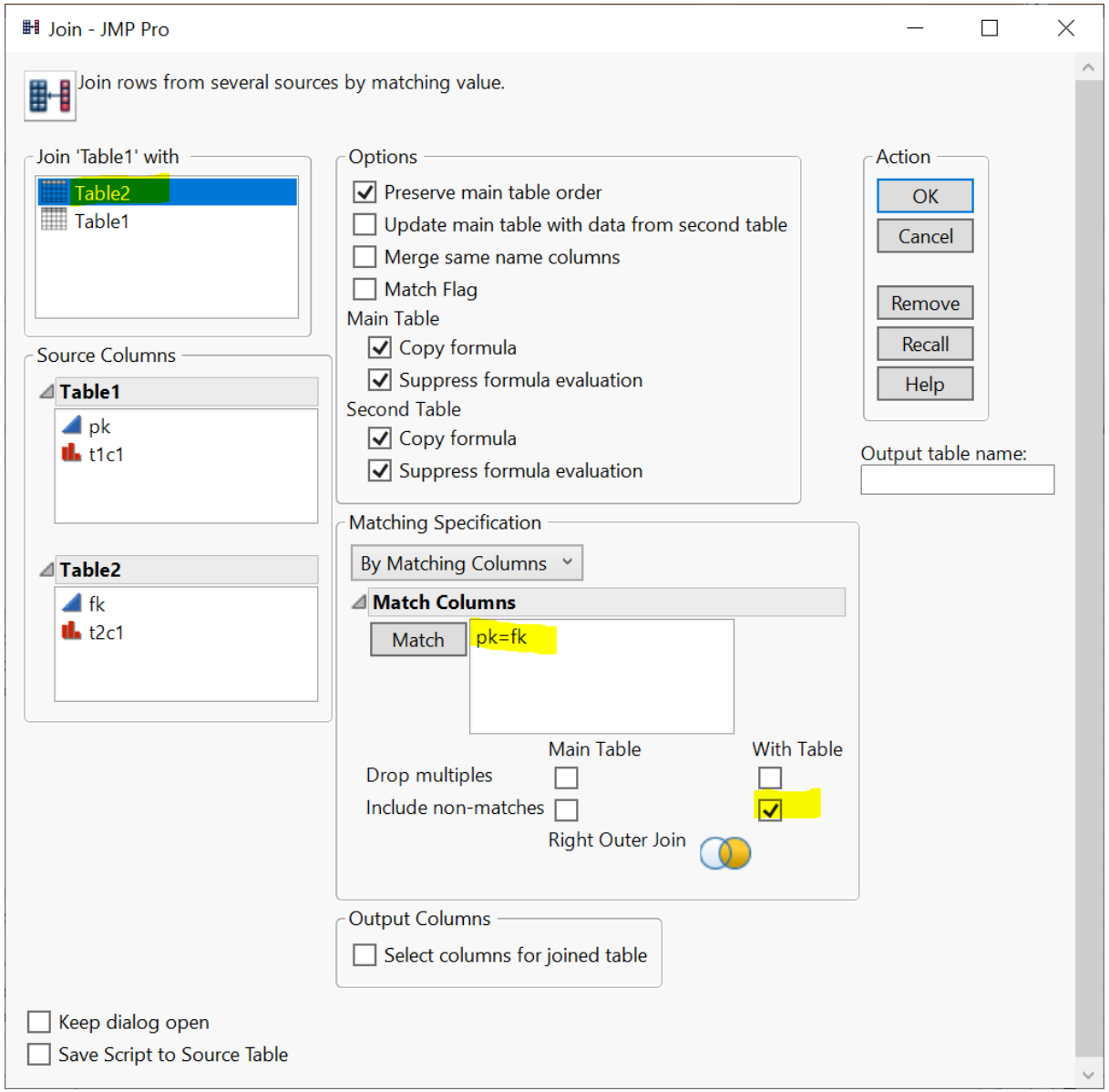
Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
1	a	1	c
1	a	1	d
		3	e



Join - Right Outer Join With Exclusion*

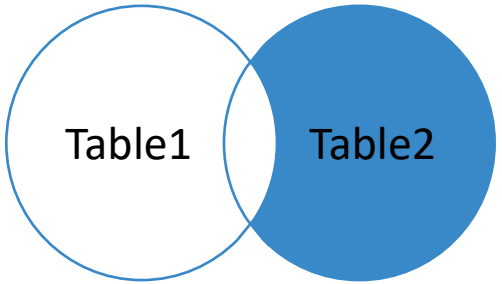


Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
		3	e

- step 1: right (outer) join
- step 2: filter rows (row selection)
  - pk is missing
- step 3: subset table according to filtering result

Join – Full Outer Join

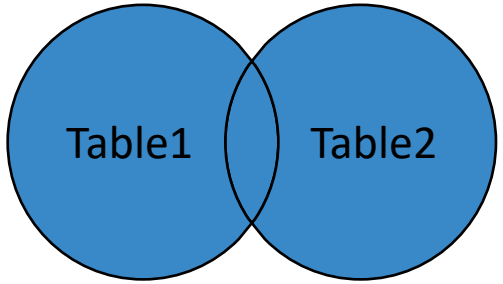


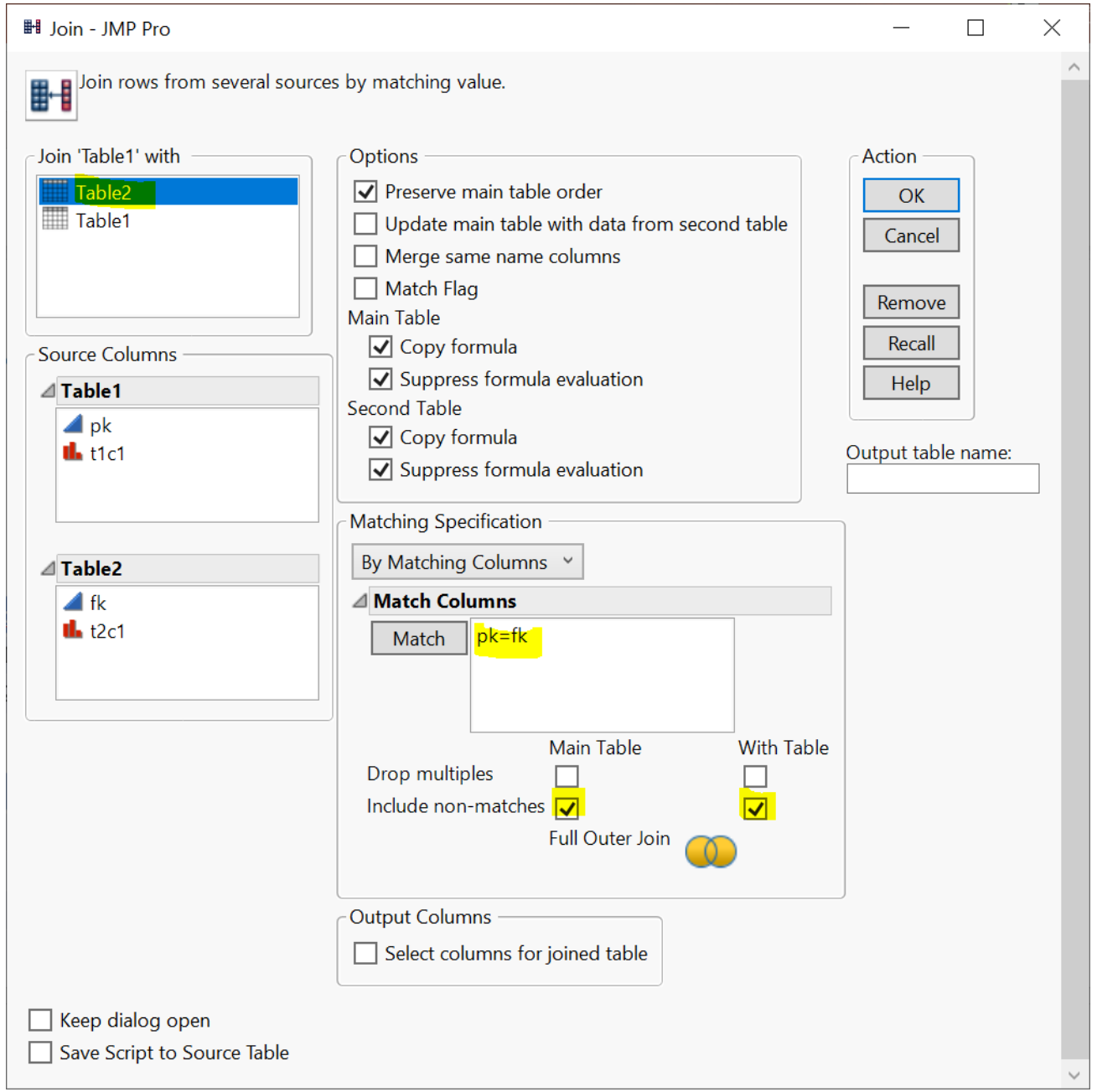
Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
1	a	1	c
1	a	1	d
2	b		
		3	e



Join – Full Outer Join with Exclusion

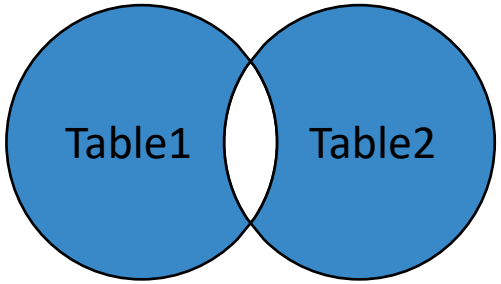


Table1

pk	t1c1
1	a
2	b

Table2

fk	t2c1
1	c
1	d
3	e

pk	t1c1	fk	t2c1
2	b		
		3	e

- step 1: Full (outer) join
- step 2: filter rows (row selection)
  - pk is missing **OR** fk is missing
- step 3: subset table according to filtering result

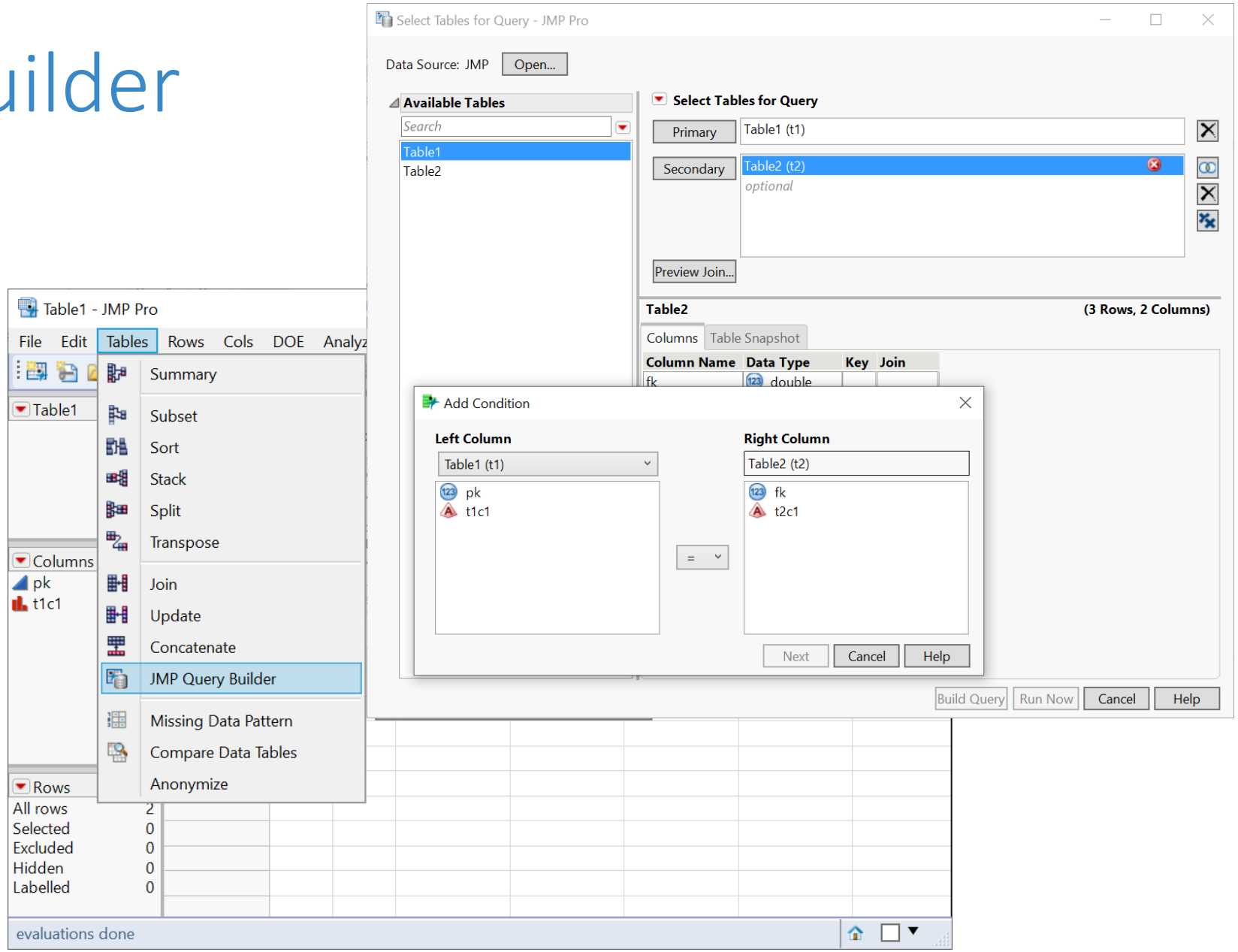
Your Turn (Hands-on)

- Load the Table1.jmp and Table2.jmp data tables
  - The two tables are inside data\basics\ folder

- Implement the Full Outer Join with Exclusion case

JMP Query Builder

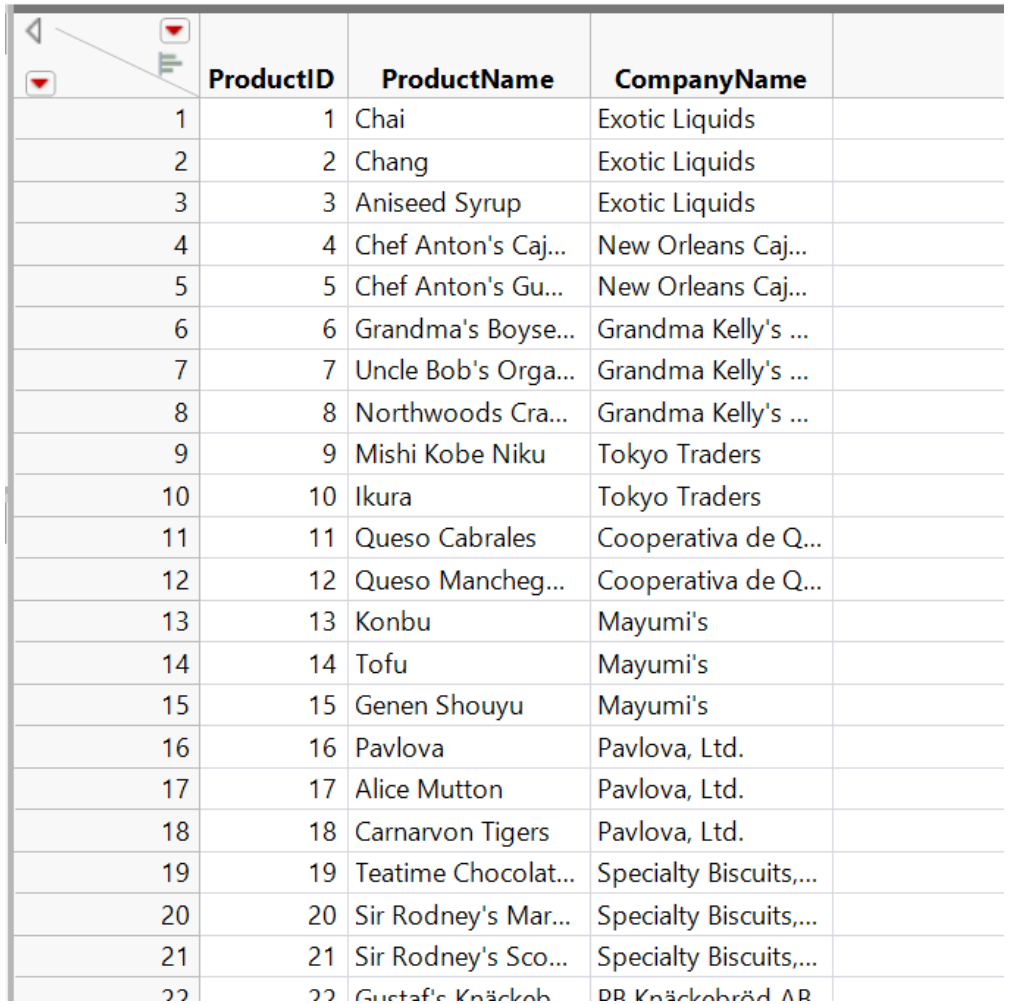
- Similar as the Join menu
- Learn on your own
  - query builder will make more sense after you complete the SQL bootcamp



Your Turn (Hands-on)

- Show all products and their associated suppliers
  - Use tables from Northwind Co.
  - Display the `ProductID`, `ProductName`, and `CompanyName` of the Suppliers

- **Before you start**, let's talk about JMP Project



	ProductID	ProductName	CompanyName
1	1	Chai	Exotic Liquids
2	2	Chang	Exotic Liquids
3	3	Aniseed Syrup	Exotic Liquids
4	4	Chef Anton's Caj...	New Orleans Caj...
5	5	Chef Anton's Gu...	New Orleans Caj...
6	6	Grandma's Boyse...	Grandma Kelly's ...
7	7	Uncle Bob's Orga...	Grandma Kelly's ...
8	8	Northwoods Cra...	Grandma Kelly's ...
9	9	Mishi Kobe Niku	Tokyo Traders
10	10	Ikura	Tokyo Traders
11	11	Queso Cabrales	Cooperativa de Q...
12	12	Queso Mancheg...	Cooperativa de Q...
13	13	Konbu	Mayumi's
14	14	Tofu	Mayumi's
15	15	Genen Shouyu	Mayumi's
16	16	Pavlova	Pavlova, Ltd.
17	17	Alice Mutton	Pavlova, Ltd.
18	18	Carnarvon Tigers	Pavlova, Ltd.
19	19	Teatime Chocolat...	Specialty Biscuits,...
20	20	Sir Rodney's Mar...	Specialty Biscuits,...
21	21	Sir Rodney's Sco...	Specialty Biscuits,...
22	22	Gustaf's Knäckeb...	PB Knäckebröd AB

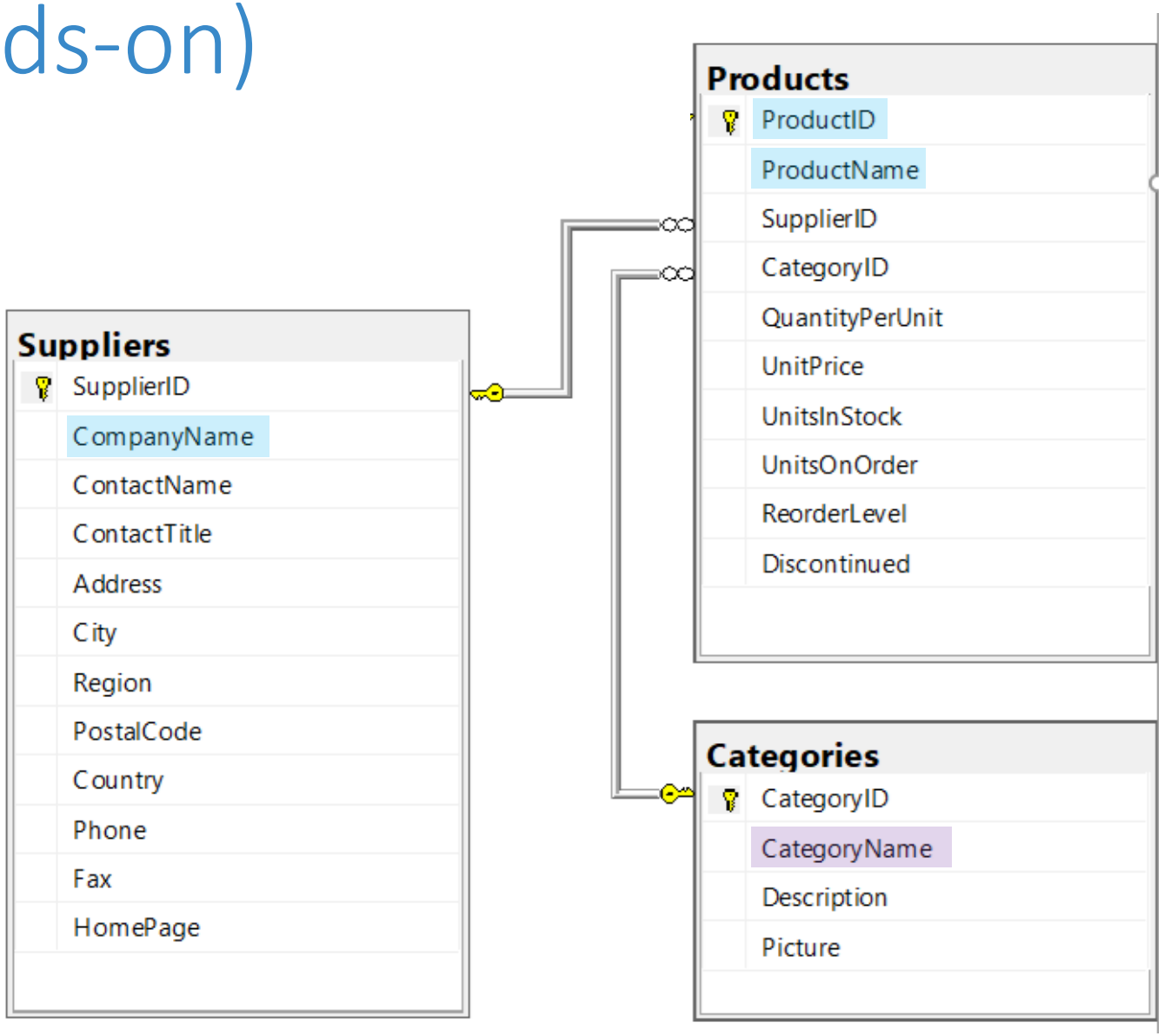
JMP Project (Demo)

- Organize your data analysis with project
  - data tables
  - reports
  - scripts
  - journals
  - …

- Getting-started resources
  - Short video: Creating, Navigating, Saving and Archiving Projects
  - Document: Create a Project

Your Turn Now (Hands-on)

- Show all products and their associated suppliers
  - Use tables from Northwind Co.
  - Display the **`ProductID`**, **`ProductName`**, and **`CompanyName`** of the Suppliers
- What if we also want to display the **`CategoryName`**

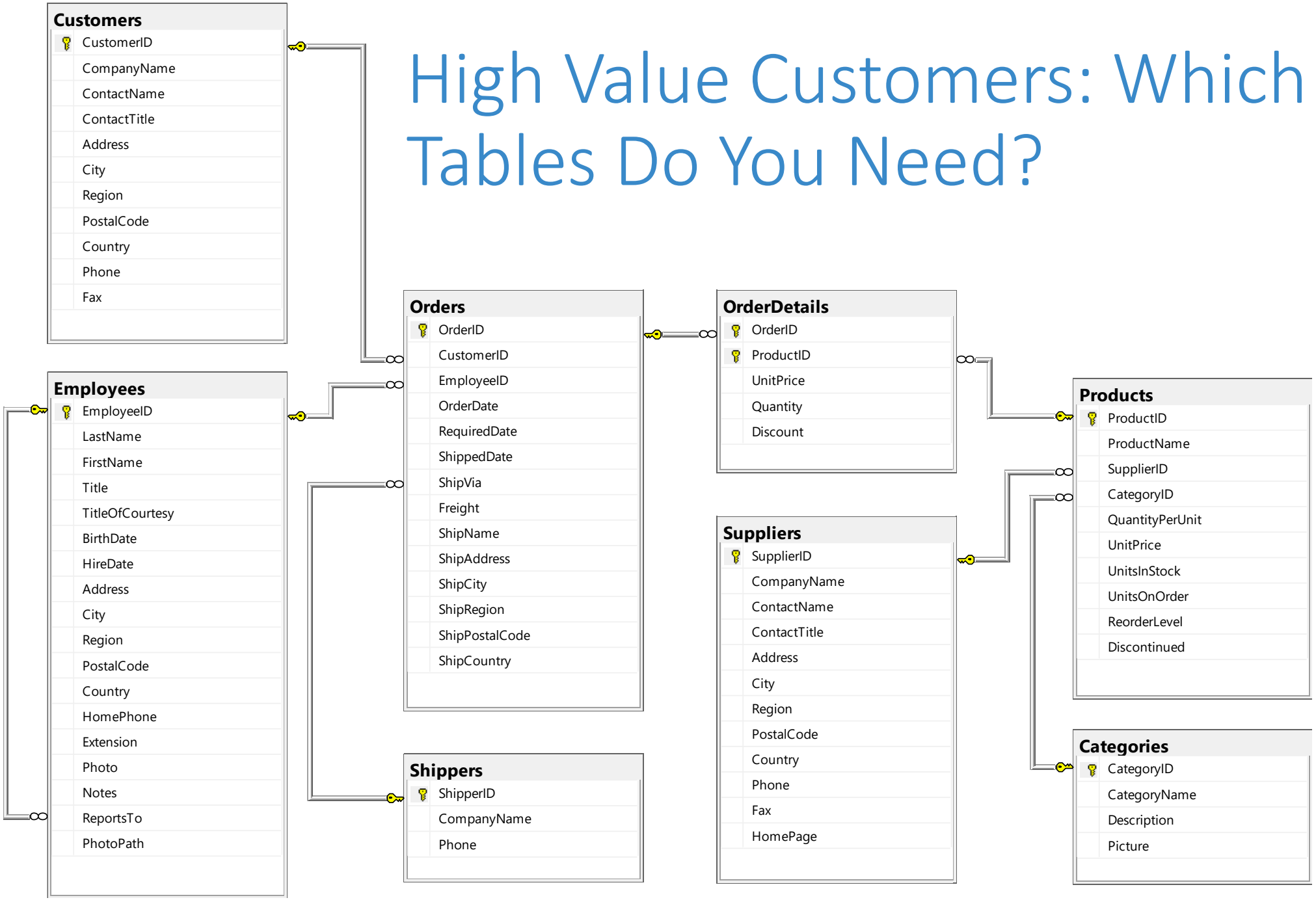


Your Turn (Hands-on): High Value Customers

- Find high value customers
  - We define high-value customers as those who have made total order >= $15,000 (ignore discount) in **2016**
  - Note: only consider orders in year 2016 (`OrderDate`)
  - Display `CustomerID` and its corresponding total order value

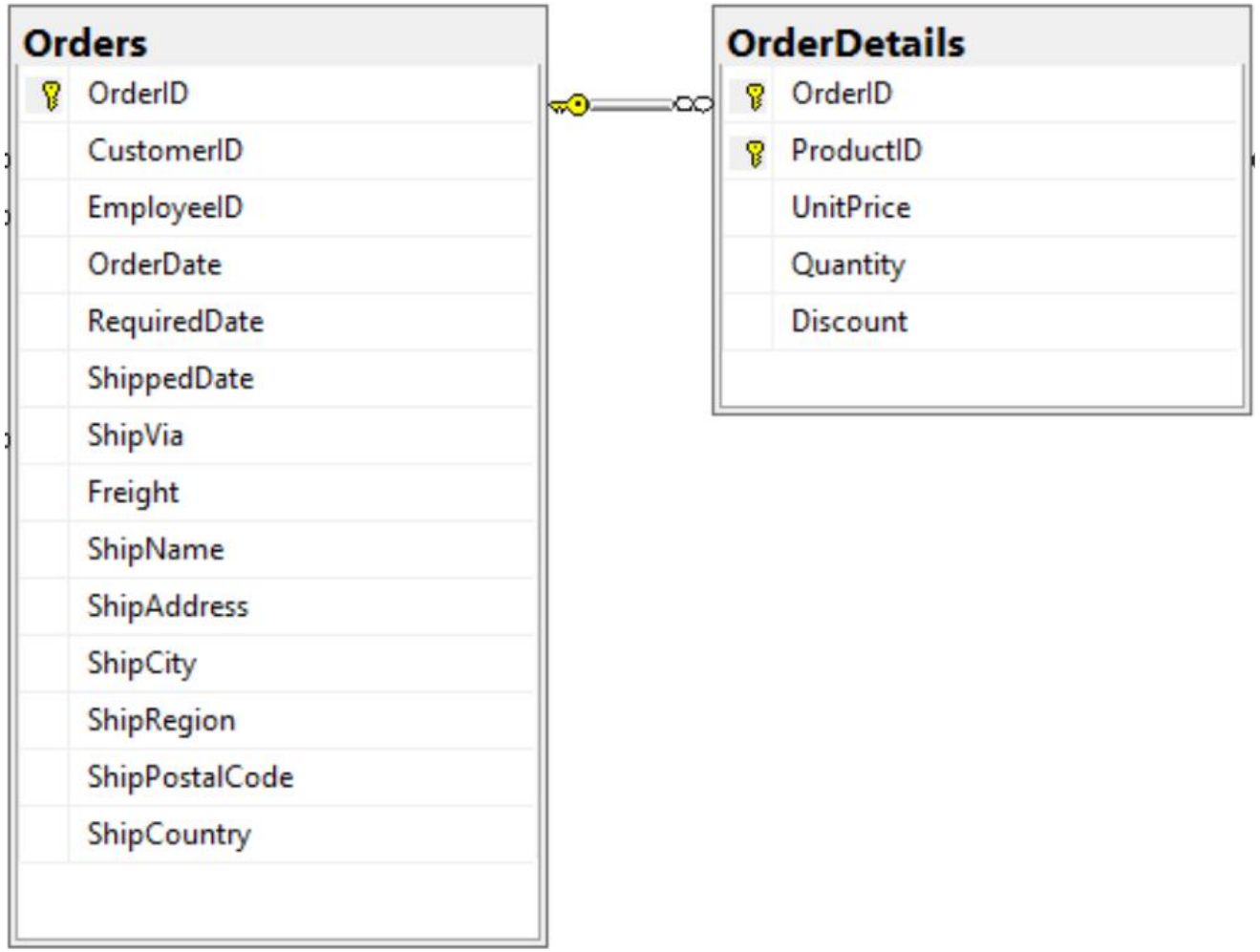
	CustomerID	Total
1	SAVEA	42806.25
2	ERNSH	42598.9
3	QUICK	40526.99
4	HANAR	24238.05
5	HUNGO	22796.34
6	RATTC	21725.6
7	KOENE	20204.95
8	FOLKO	15973.85
9	WHITC	15278.9

High Value Customers: Which Tables Do You Need?



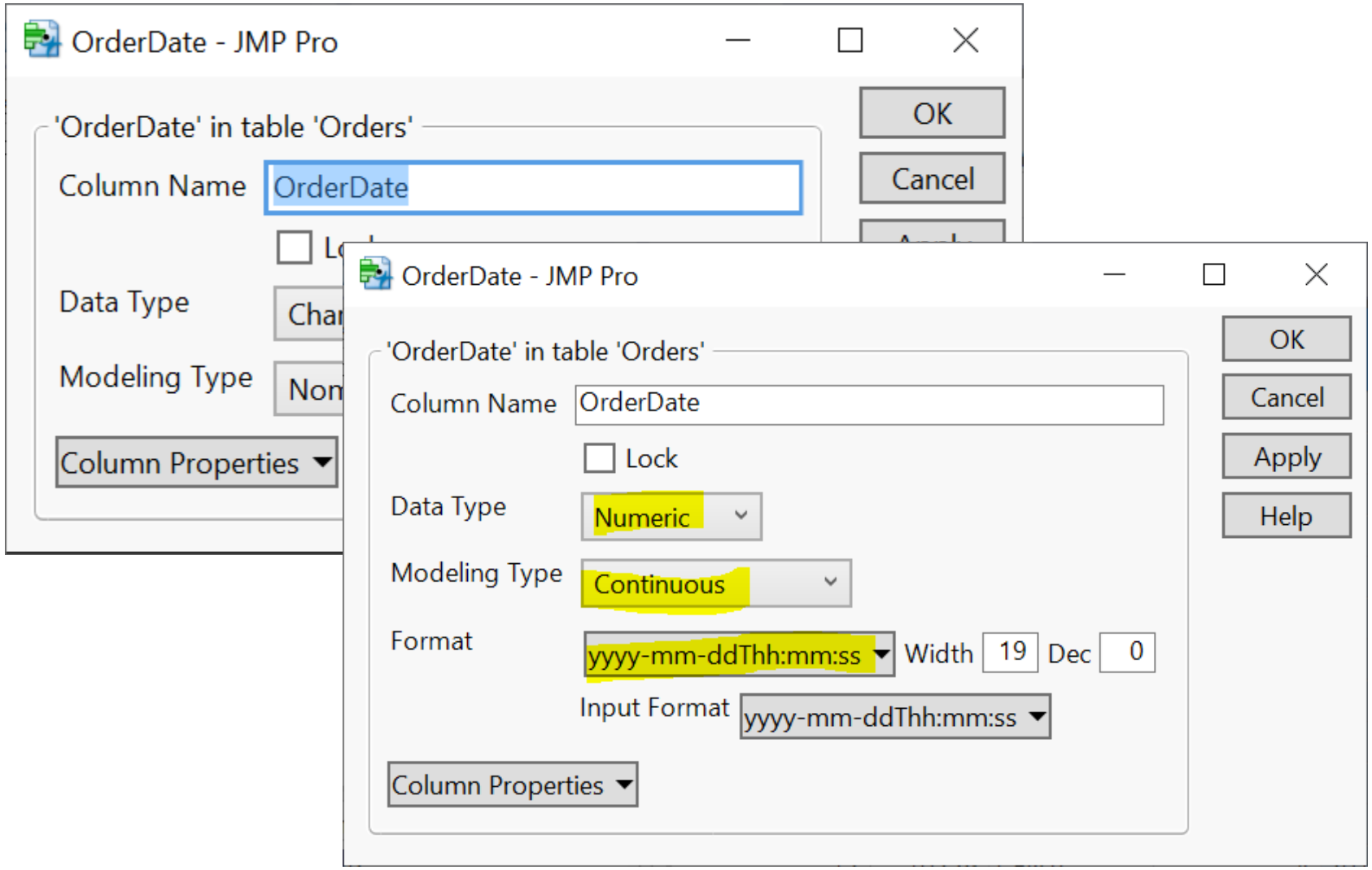
Your Turn (Hands-on): High Value Customers

- After you finish the exercise, reflect on the following
  - how many steps did you take?
  - Is there an optimal way (order of the steps) of doing this?
  - Can you reproduce the result easily
  - pros and cons of point-and-click



A Quick Detour – Date & Time

- Column Info
  - Data Type
  - Modeling Type
  - Format



Your Turn (Take home)

- Q1. Find customers that never placed an order

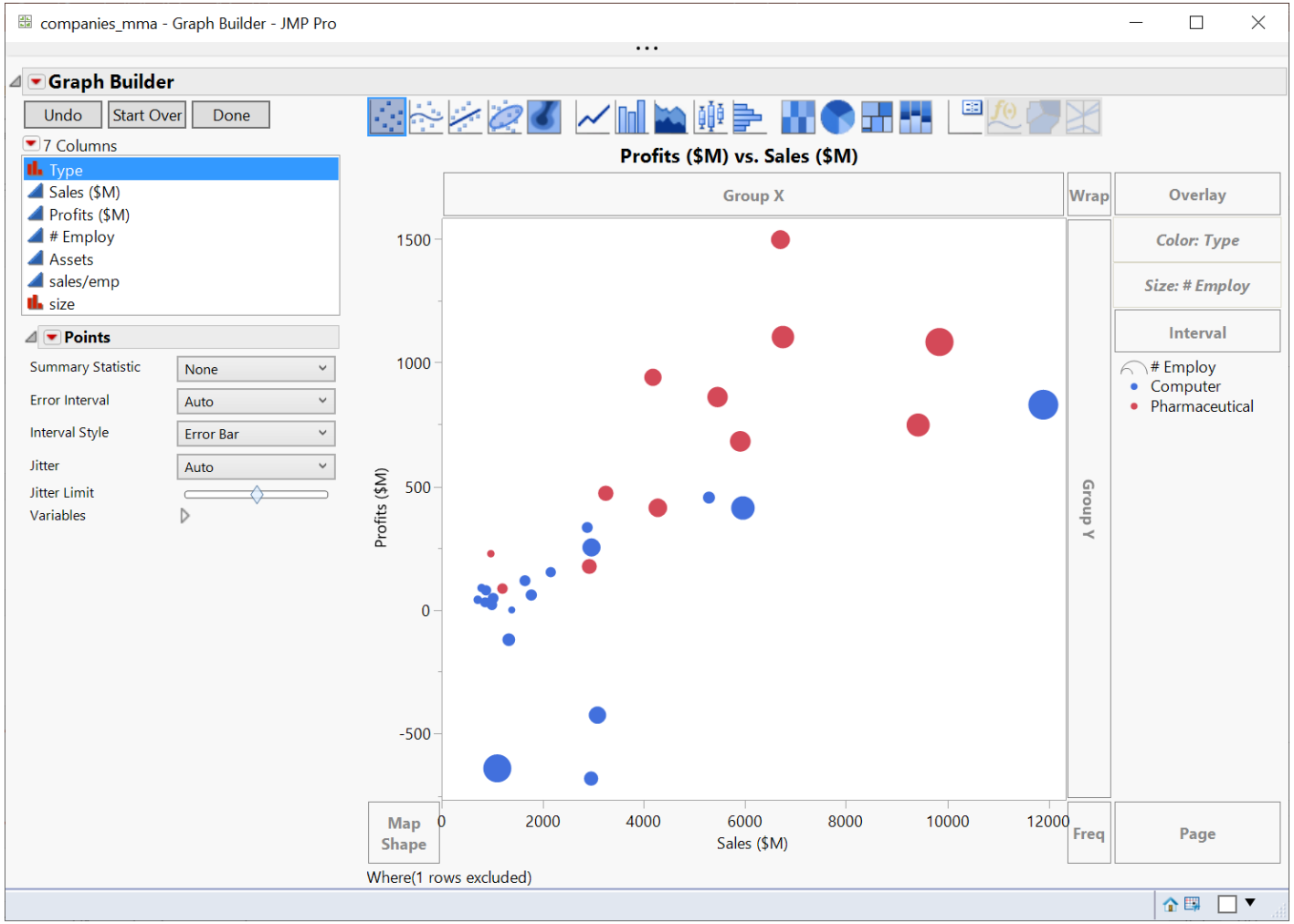
- Q2. Find customers who never placed an order from Margaret Peacock (EmployeeID 4)

Plan

- Session 1
  - Workflow overview
  - Basic data manipulation
- Session 2
  - Join data tables
  - **JMP graphing**
- Session 3
  - Modelling
  - JMP Journal
  - JMP Scripting Language

JMP Graphing (Demo)

- Graph Builder
- Labelling



https://www.jmp.com/support/help/en/15.2/#page/jmp/introduction-to-interactive-graphing.shtml#

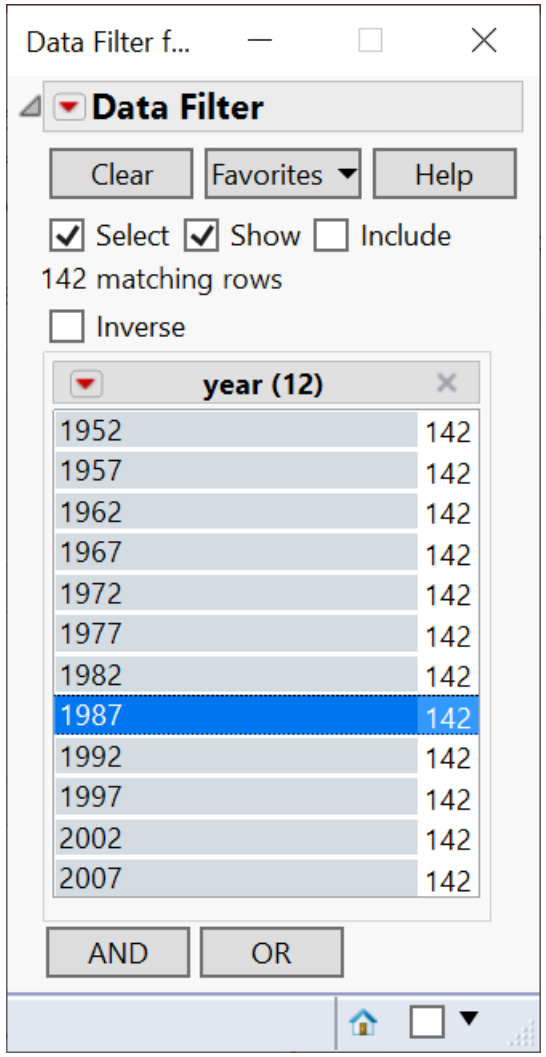
Your Turn (Hands-on)

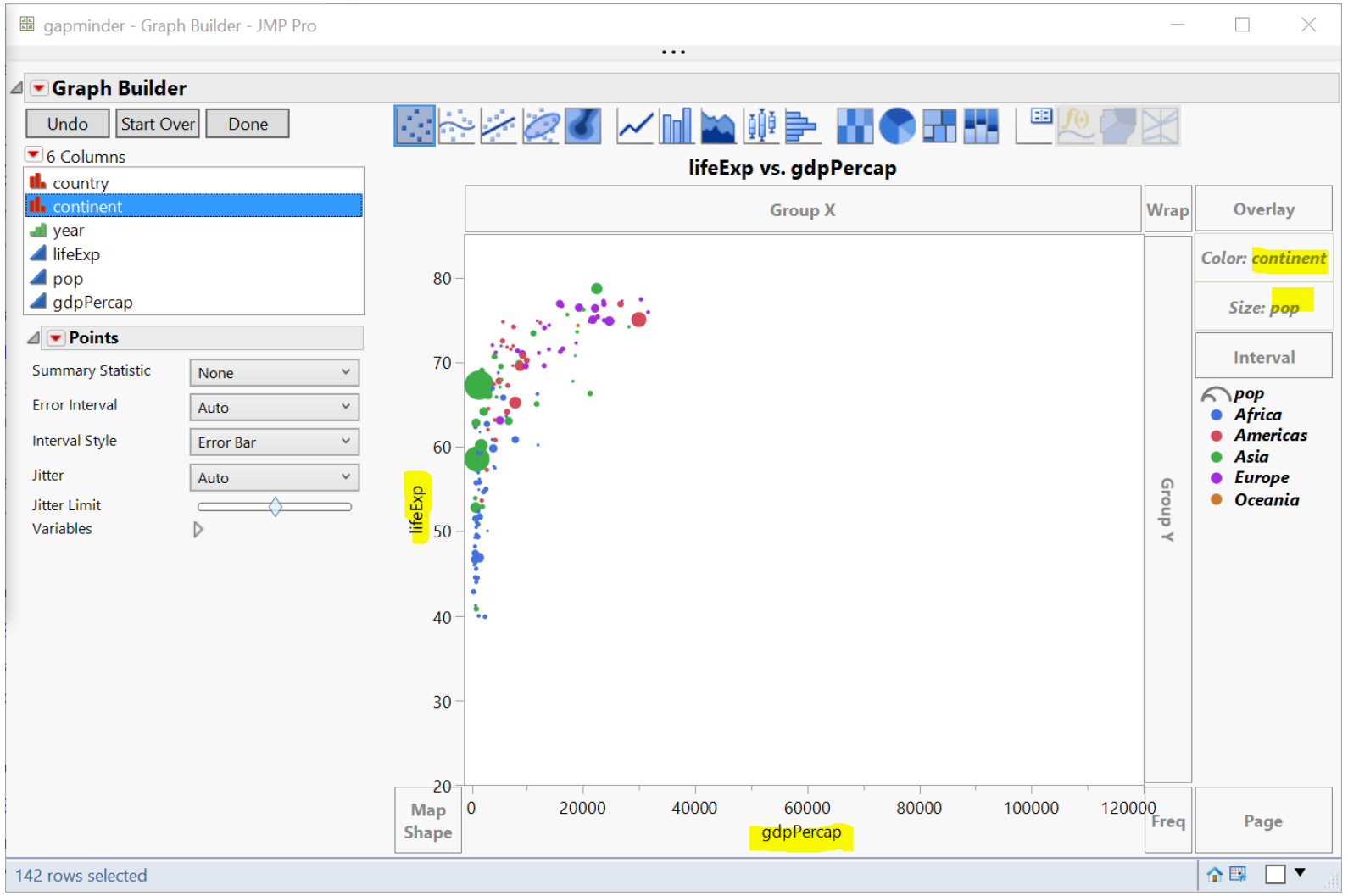
- Import the gapminder.csv file (data/basics/gapminder.csv)

- Create a Data Filter on the `year` column
  - First change the year col modeling type to nominal

- Use the Graph Builder to plot
  - `lifeExp` (Y) vs `gpdPerCap` (X)
  - Use `pop` for marker Size
  - Use `continent` for marker Color
  - Use the data filer on `year` to explore the change of Y vs X over the years

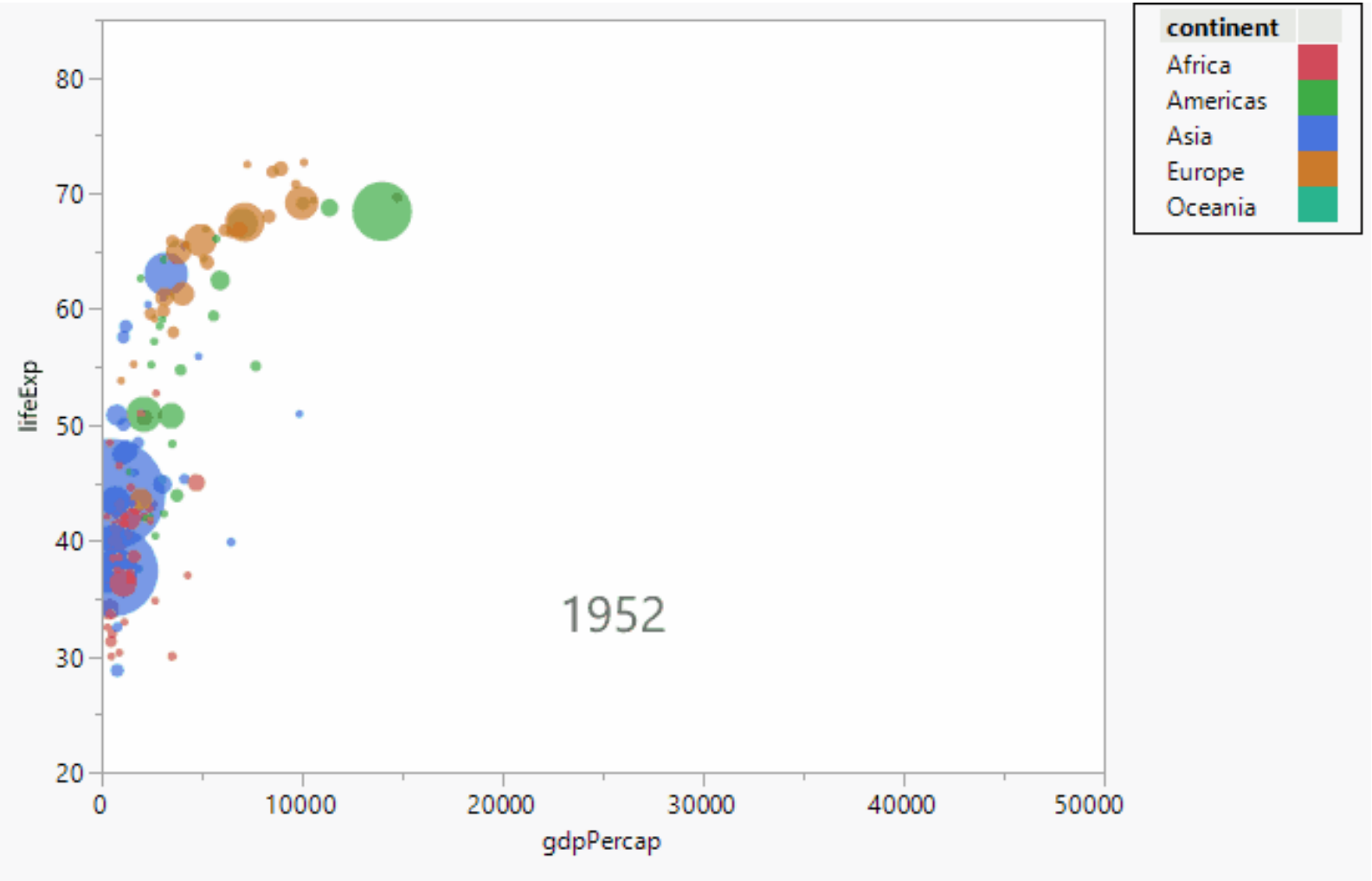
Your Turn (Hands-on)





Your Turn (Hands-on): Challenge

- How to animate the previous graph as a time lapse video?



Your Turn (Hands-on): Challenge

- How to animate the previous graph as a time lapse video?

- Hint
  - Method 1: Data Filter Animation
  - Method 2 (better): Bubble plot