Database Management Systems
Tableau

UNIVERSITY OF
MARYLAND

ROBERT H. SMITH
SCHOOL OF BUSINESS

DR. ADAM LEE

Outline

- Introduction to Tableau
- Tableau Desktop for Smith
- Access SQL Server Off-Campus

Tableau

- Founded in Mountain View, California in January 2003
- Tableau Desktop / Prep / Server / Online
- Release 2019

- Desktop Database
  - IBM DB2, Microsoft SQL Server, MongoDB, MySQL, Oracle, PostgreSQL, SAP Sybase, etc.
- Cloud/Big-Data Service
  - Apache (Hadoop, Hive, Pig, Spark, etc.), Amazon (AWS, Athena, Aurora, EMR, Redshift, etc.), Cloudera, Google (Analytics, BigQuery, Sheets, etc.), Salesforce, Teradata, etc.

Tableau

www.tableau.com

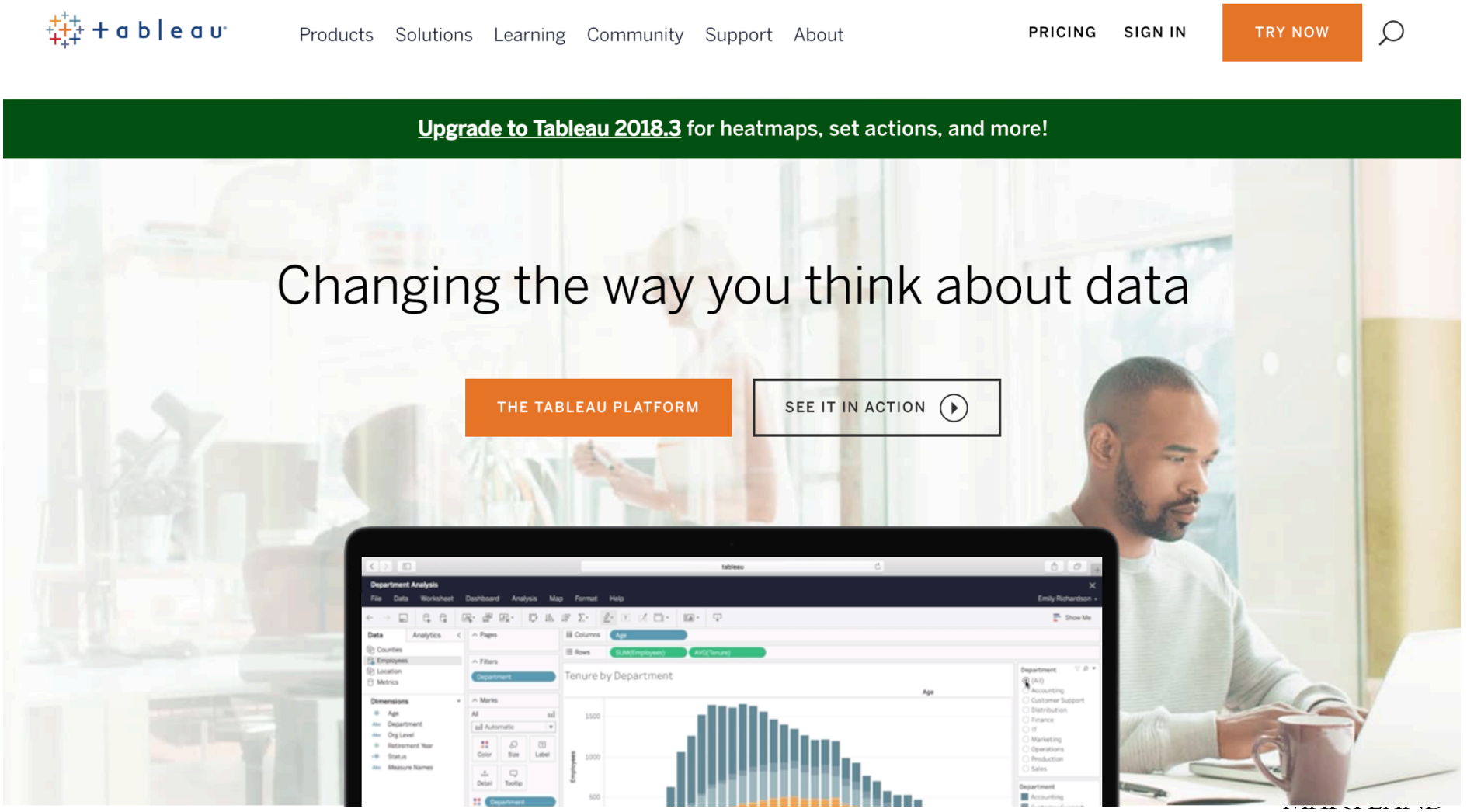

Tableau Products

- Tableau Desktop tableau.com/products/desktop
- Tableau Prep tableau.com/products/prep
- Tableau Server tableau.com/products/server
- Tableau Online tableau.com/products/cloud-bi
- Tableau Mobile tableau.com/products/mobile

- Tableau Public public.tableau.com
- Tableau Developer Program tableau.com/developer
- Embedded Analytics tableau.com/embedded-analytics

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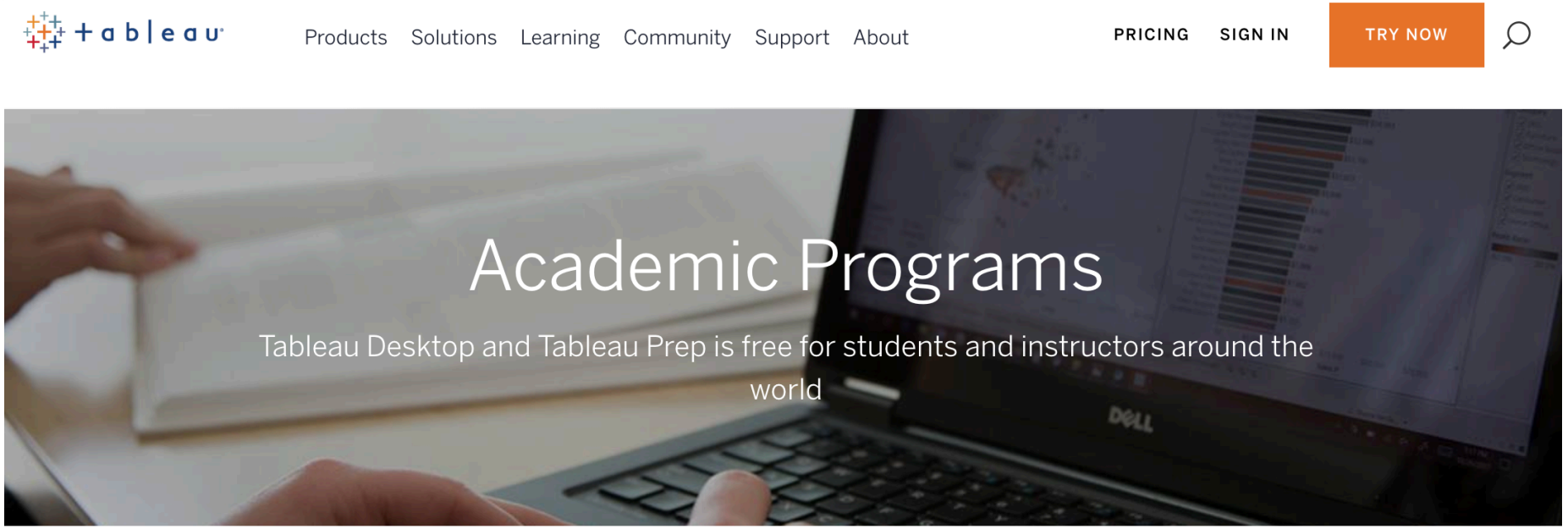
Tableau Academic Programs
tableau.com/academic



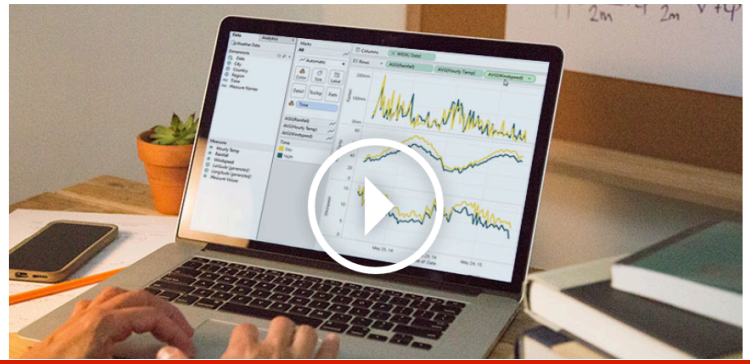
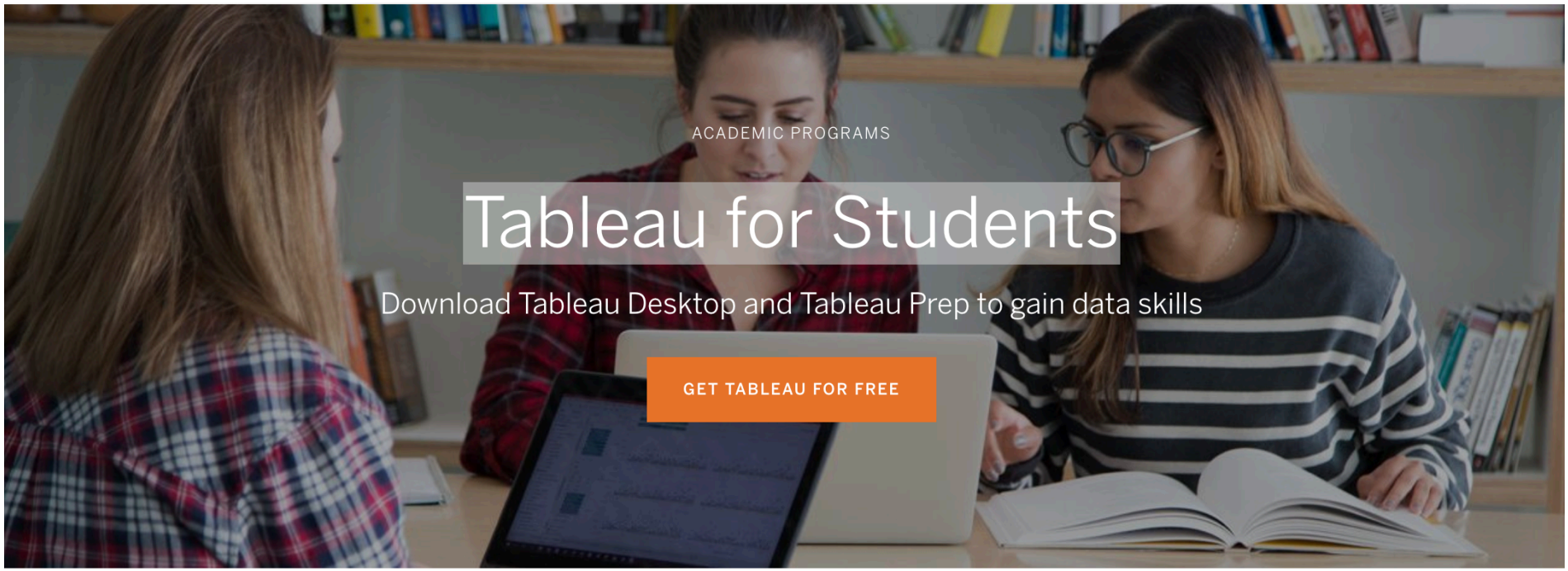


Tableau helps you see and understand your data

Whether you're a student creating scatter plots for a project or an educator instructing an economics course, Tableau will enhance learning and teaching

Tableau for Students
tableau.com/academic/students



Generation Data

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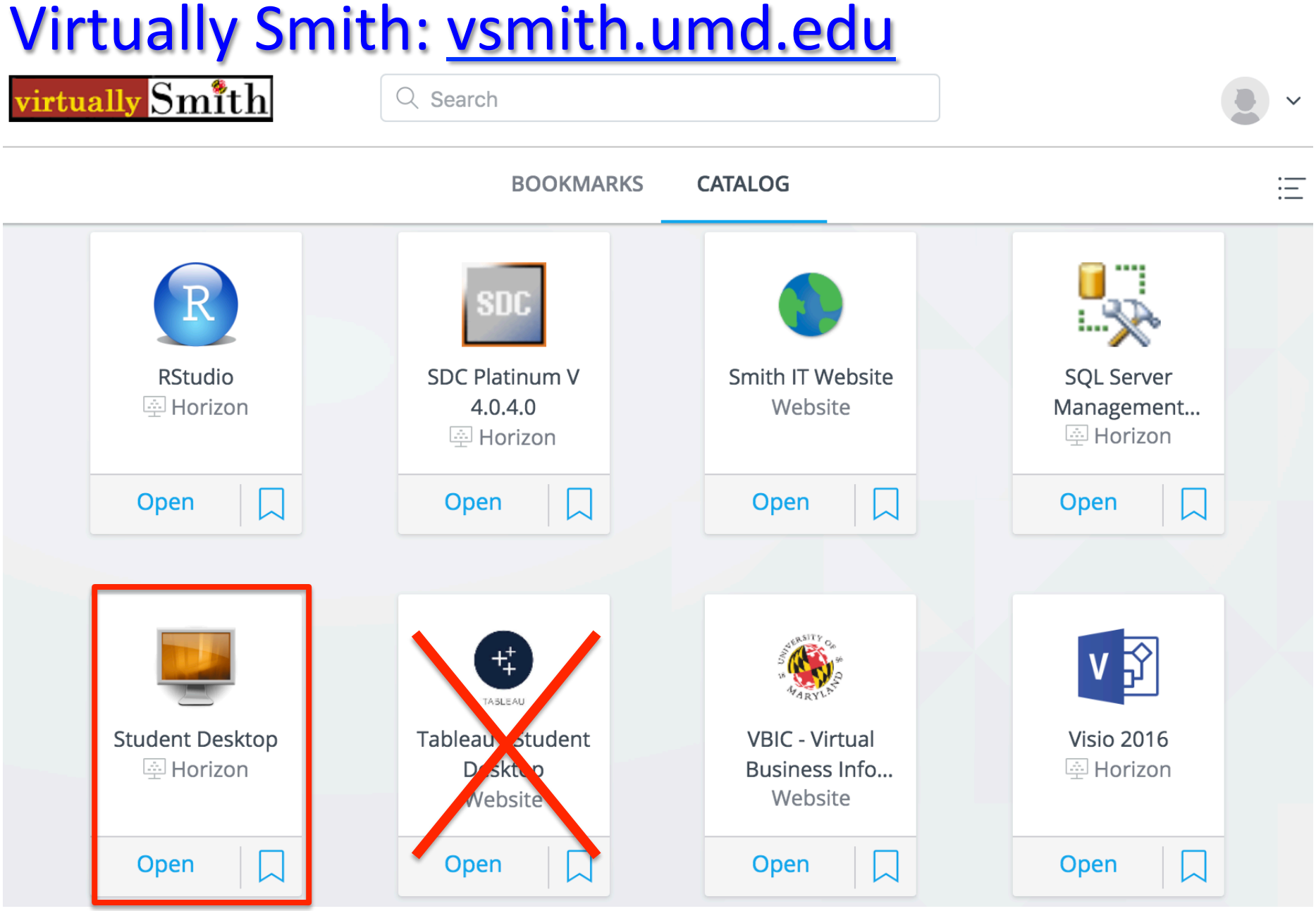
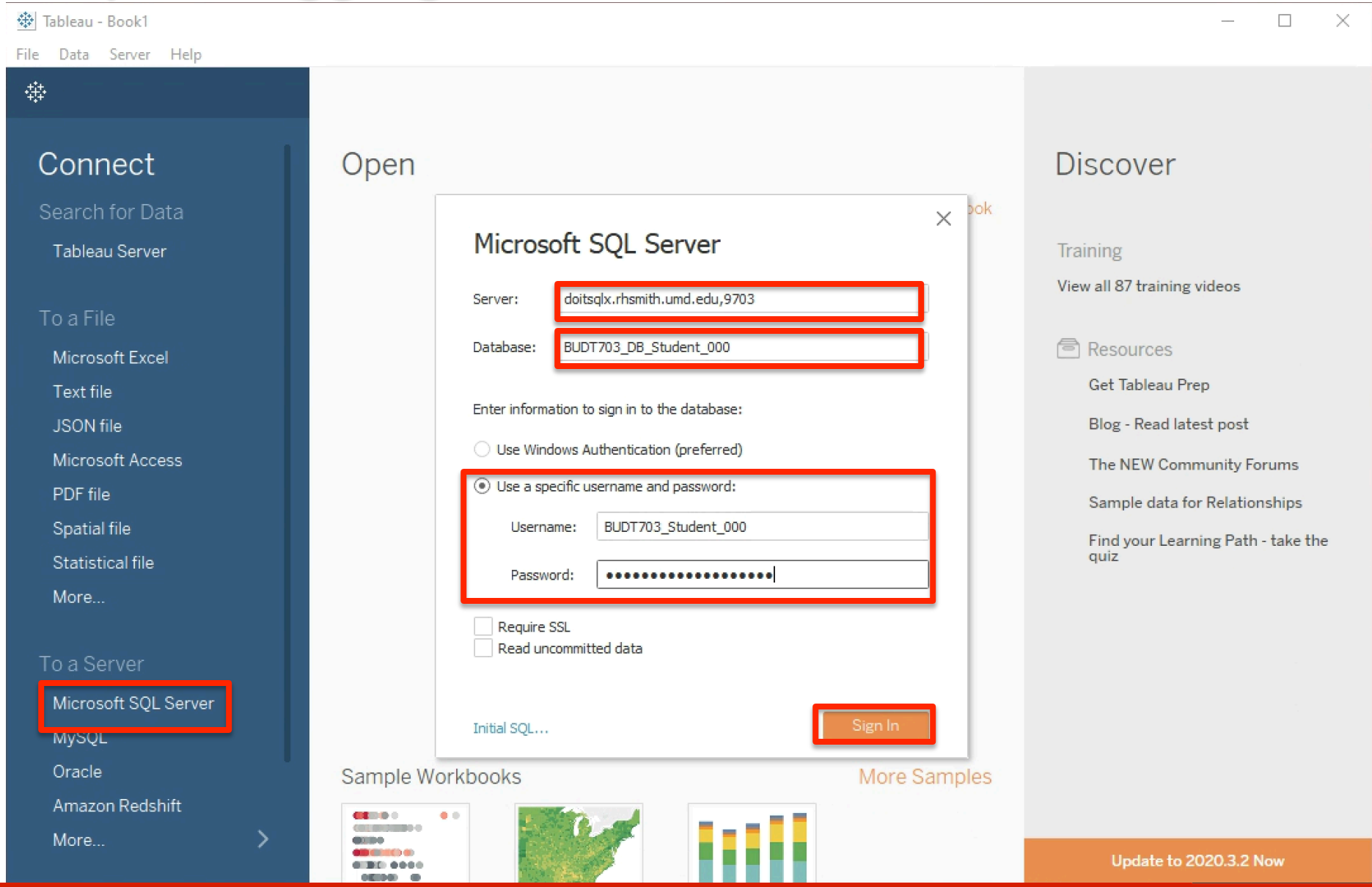
- Tableau Desktop for Smith
- Access SQL Server Off-Campus

Virtually Smith: vsmith.umd.edu

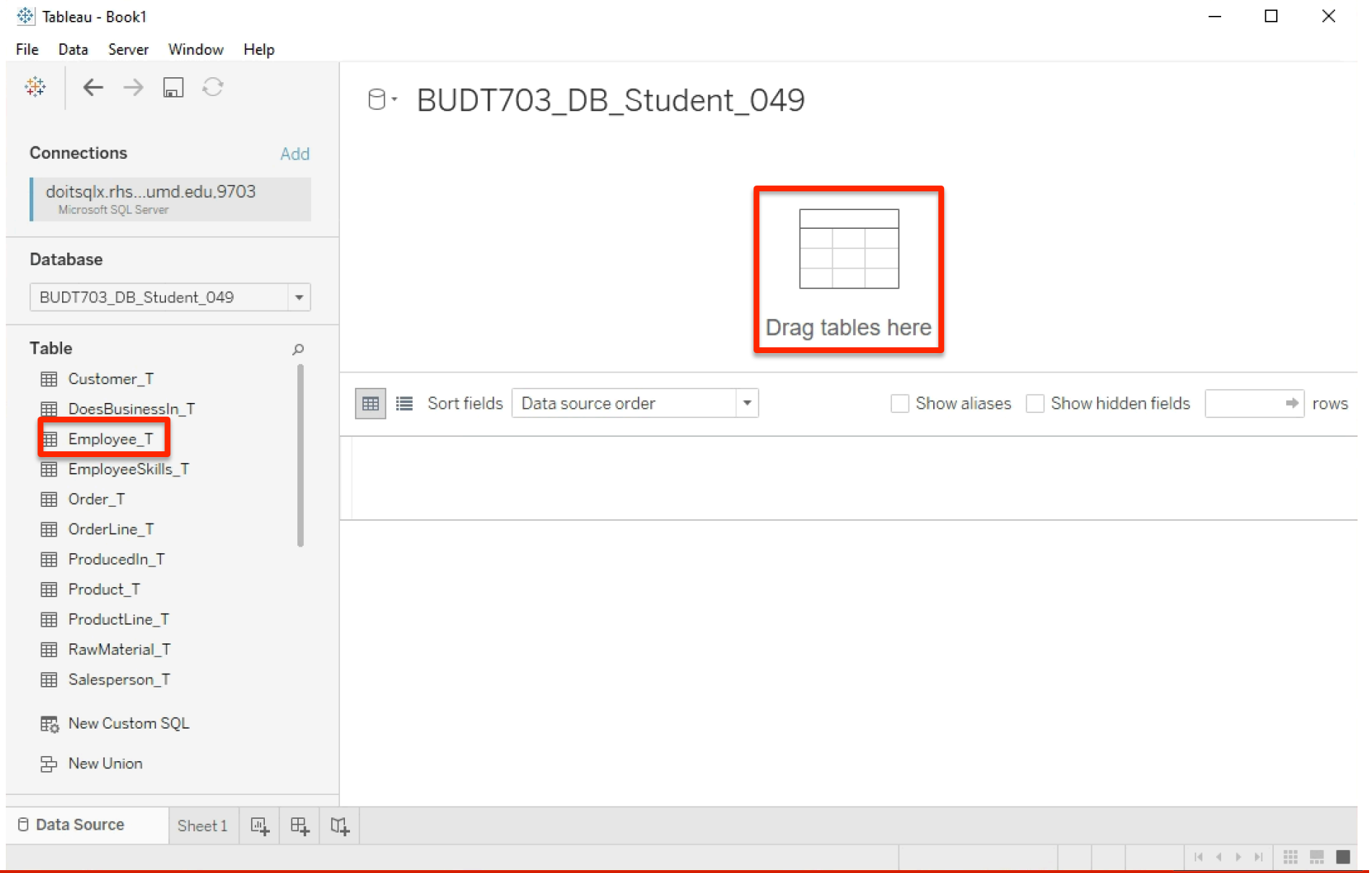


Starting Tableau 2019 on Student Desktop

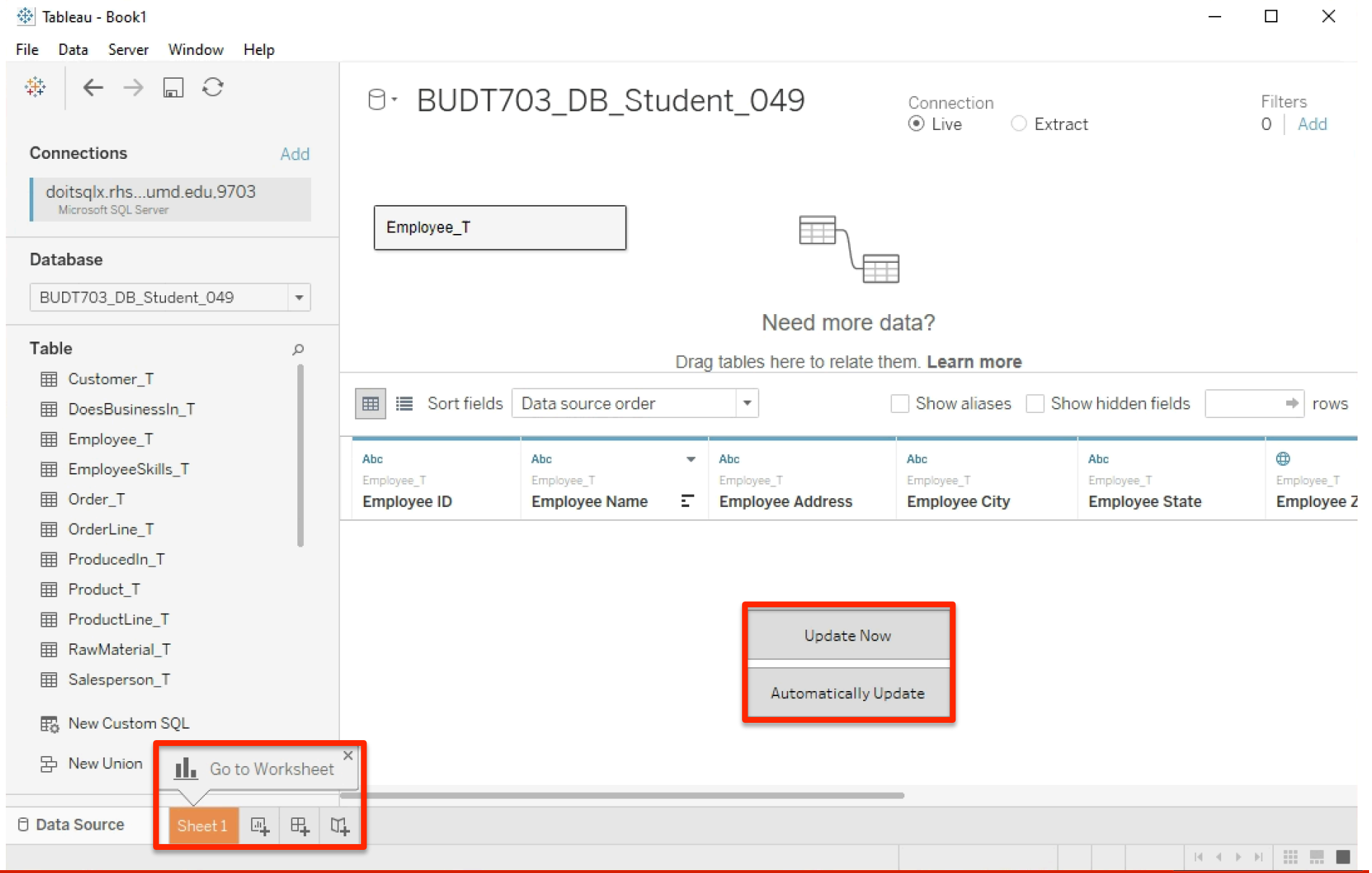
Step 1: Logging into Microsoft SQL Server



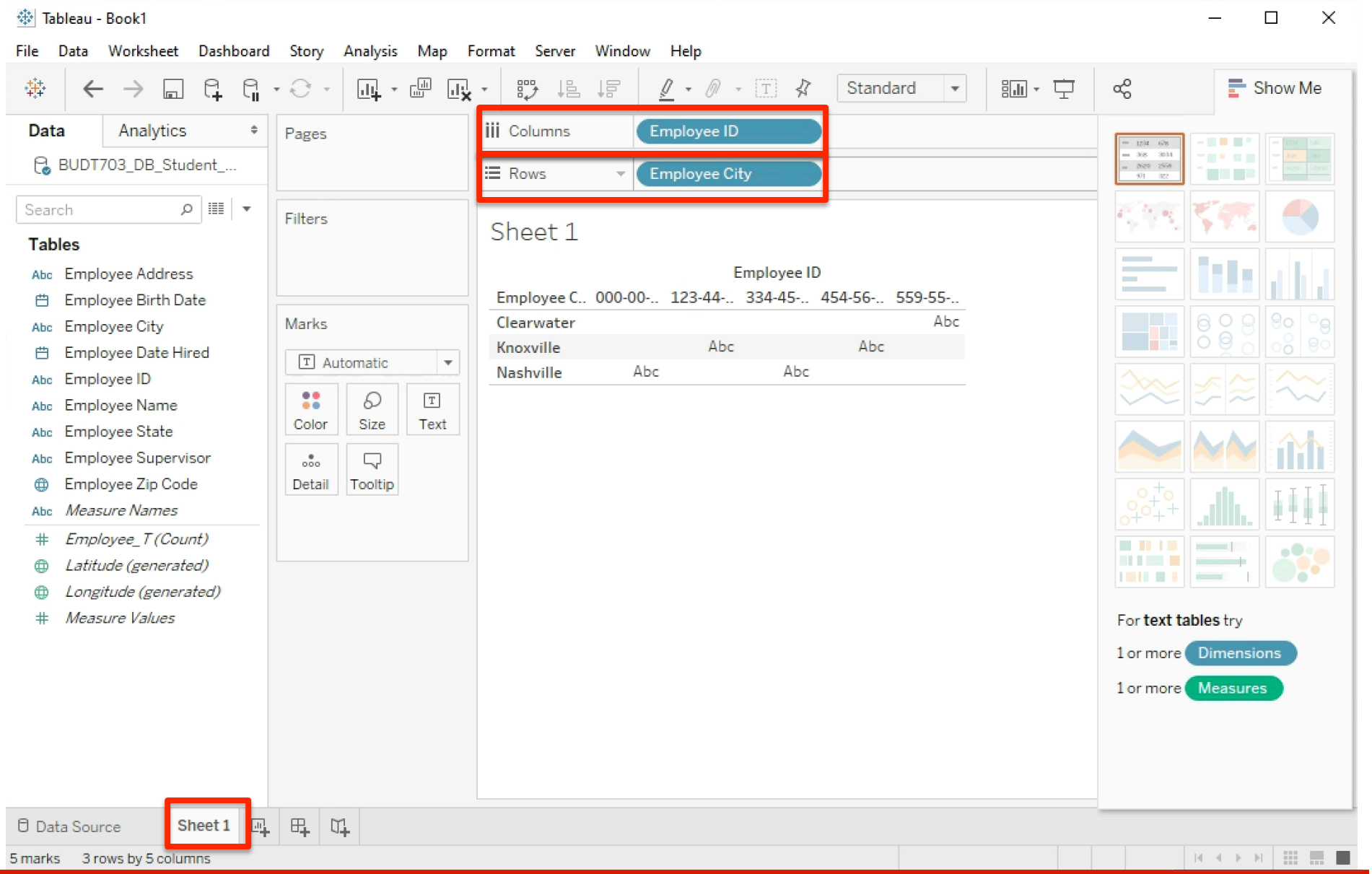
Step 2: SELECT FROM One Table



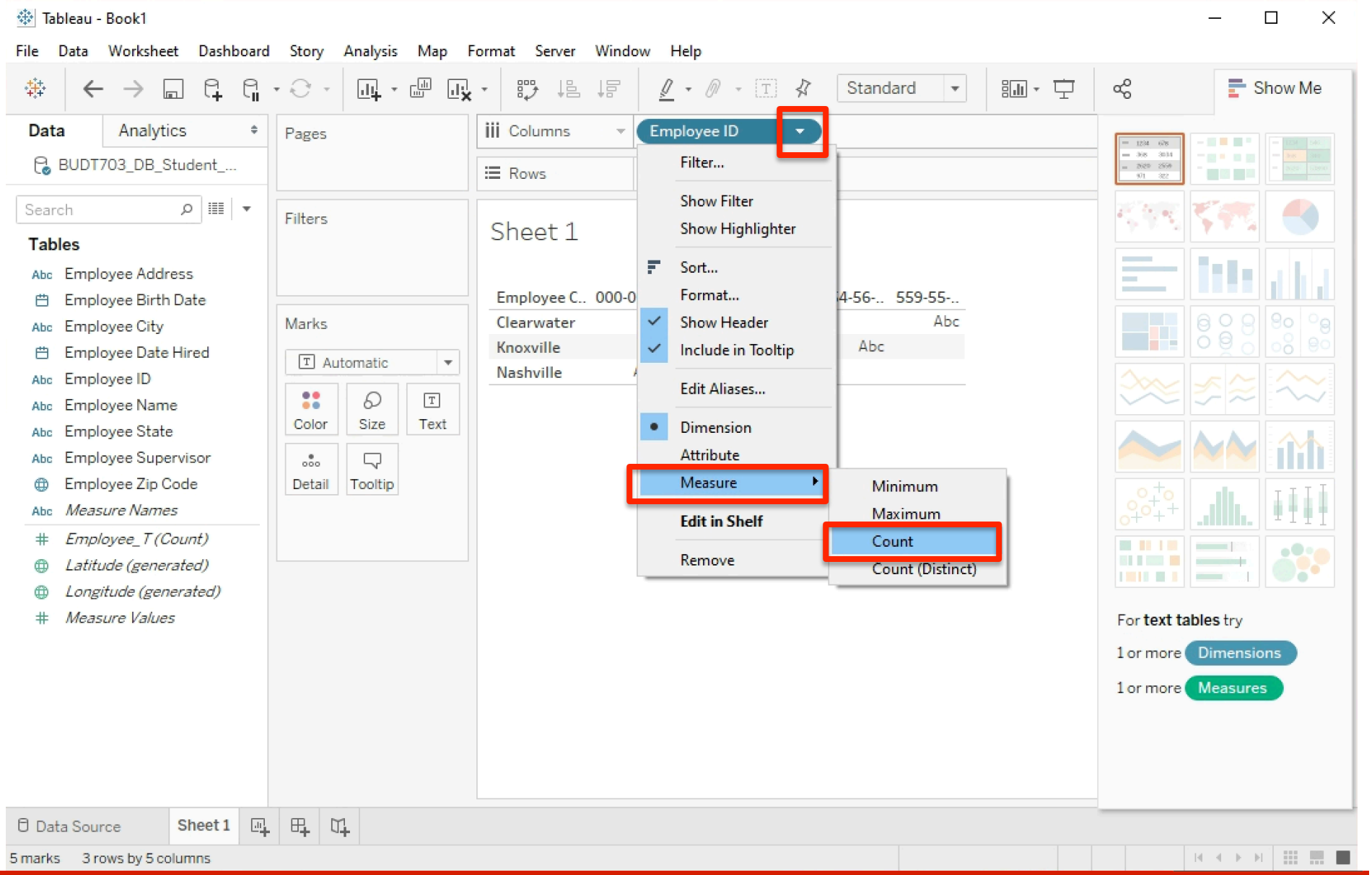
Step 3: SELECT * FROM Table



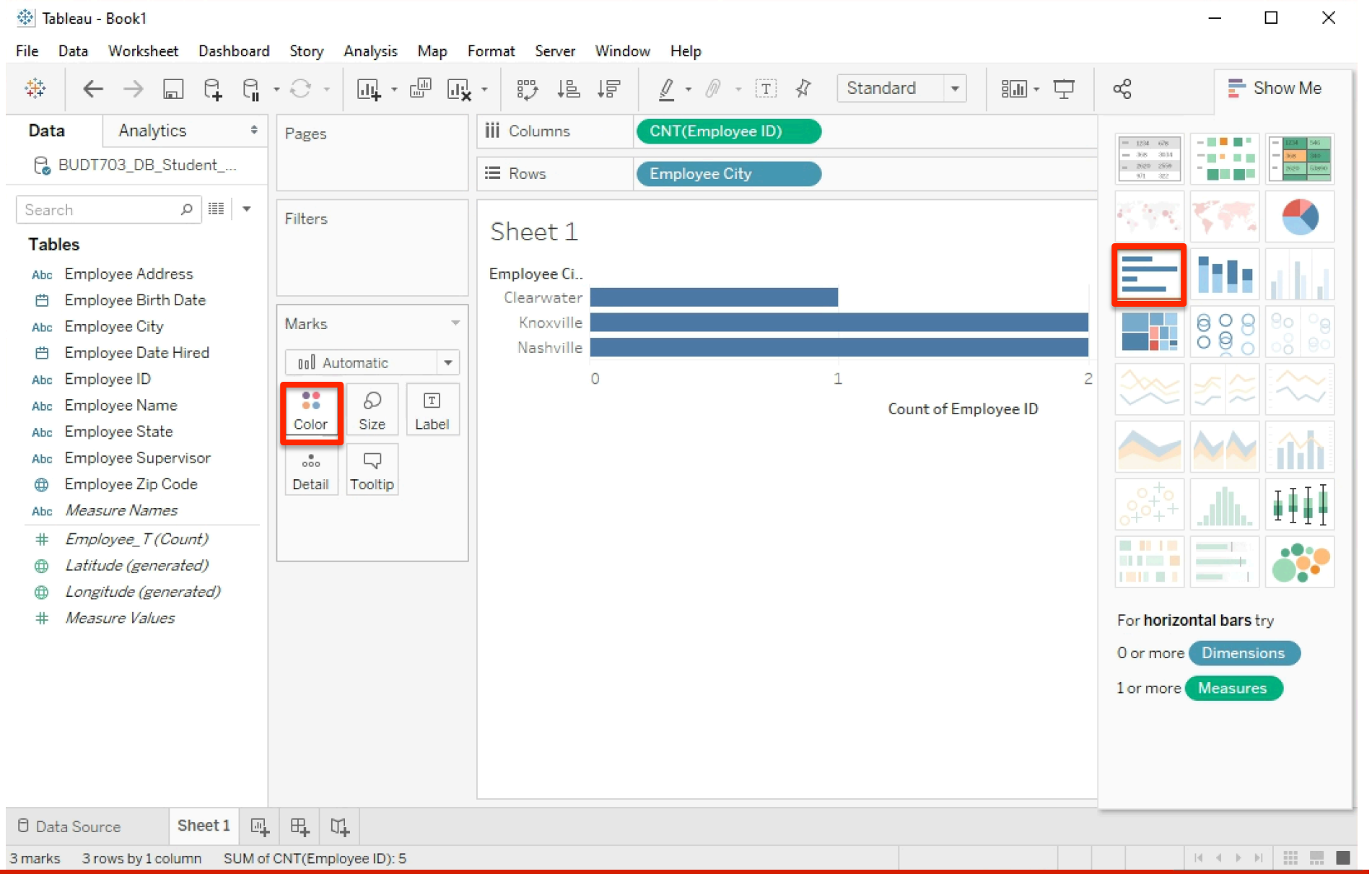
Step 4: GROUP BY



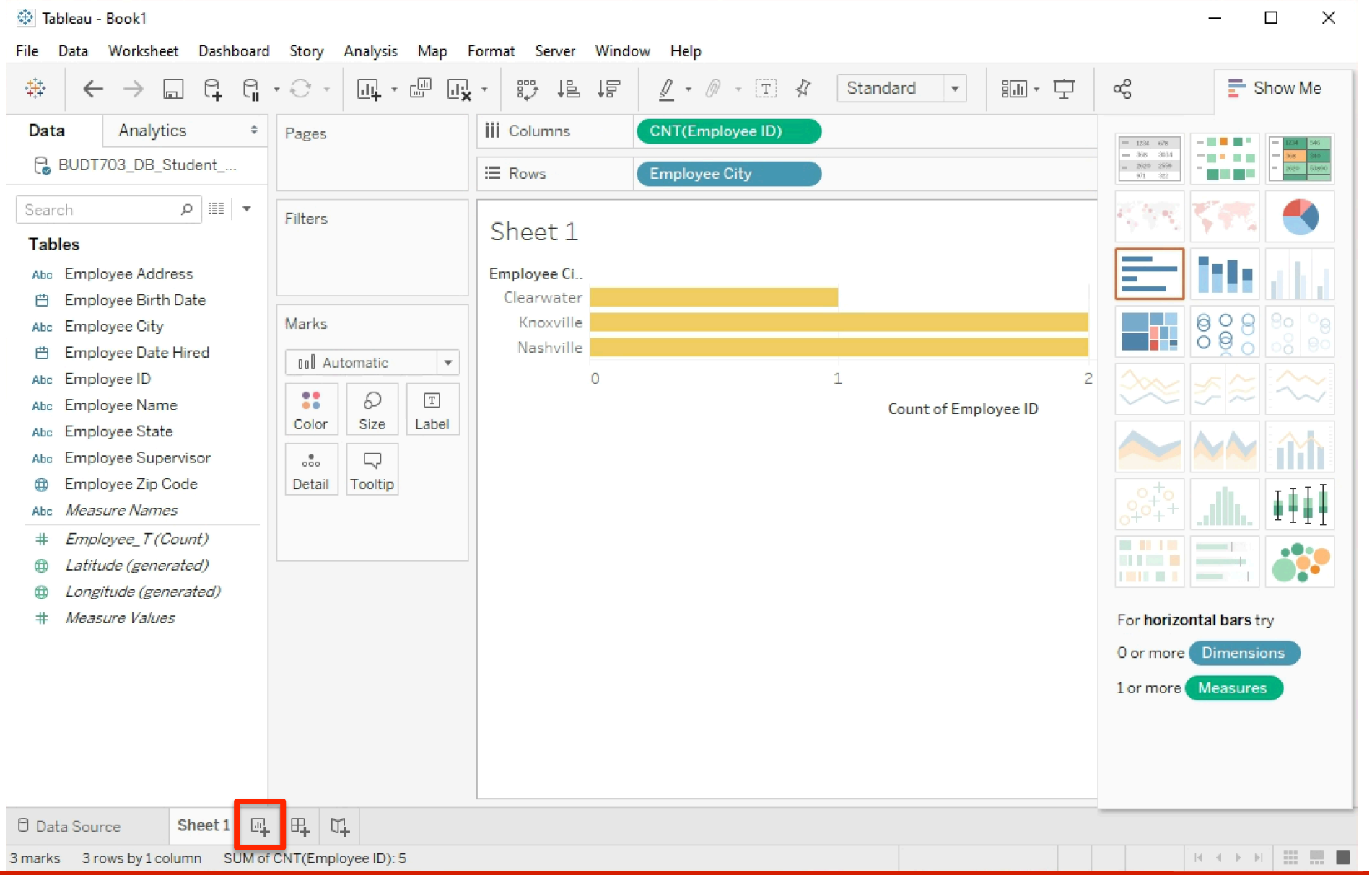
Step 5: SELECT COUNT()



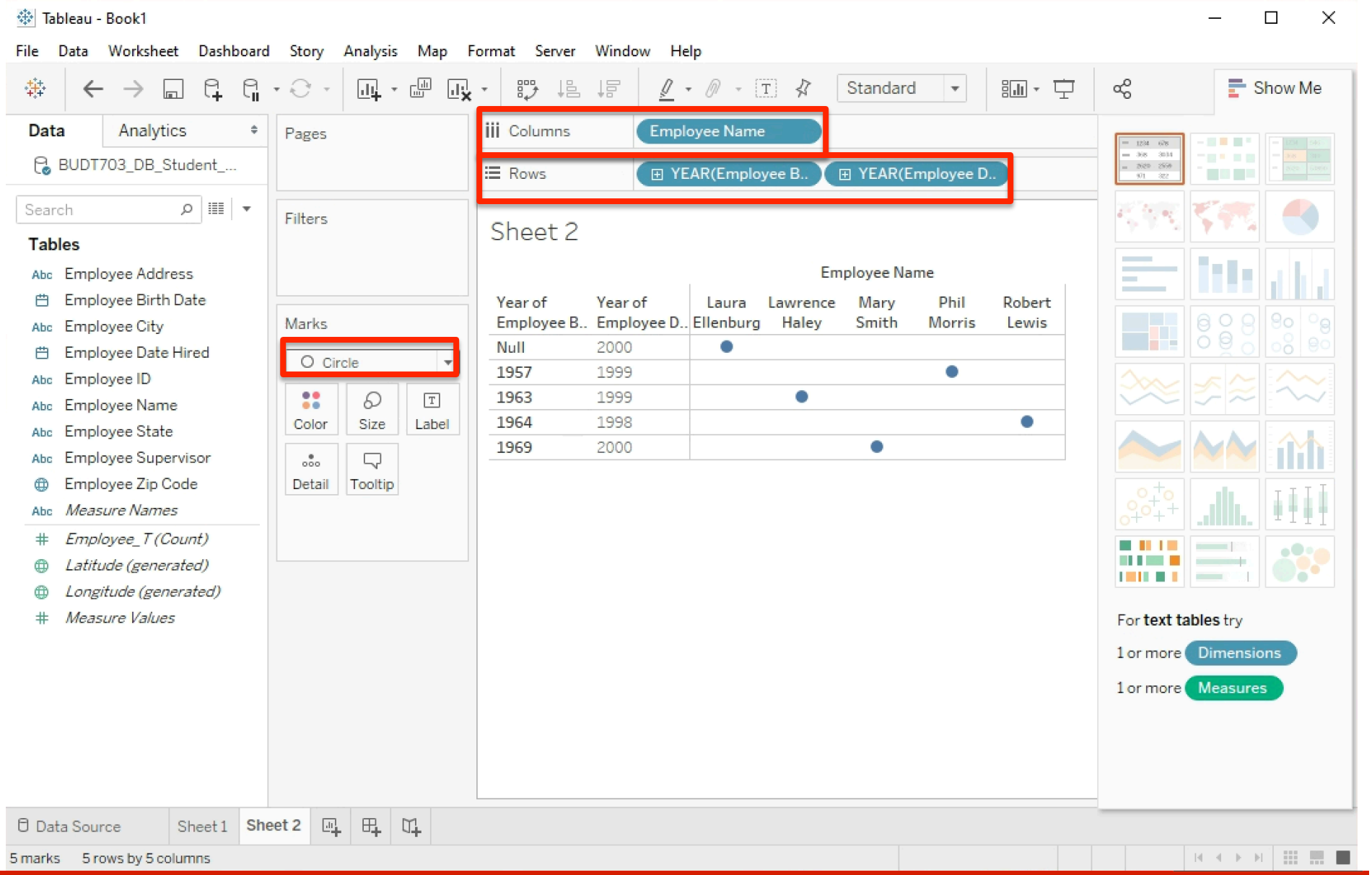
Step 6: Bar Chart and Color



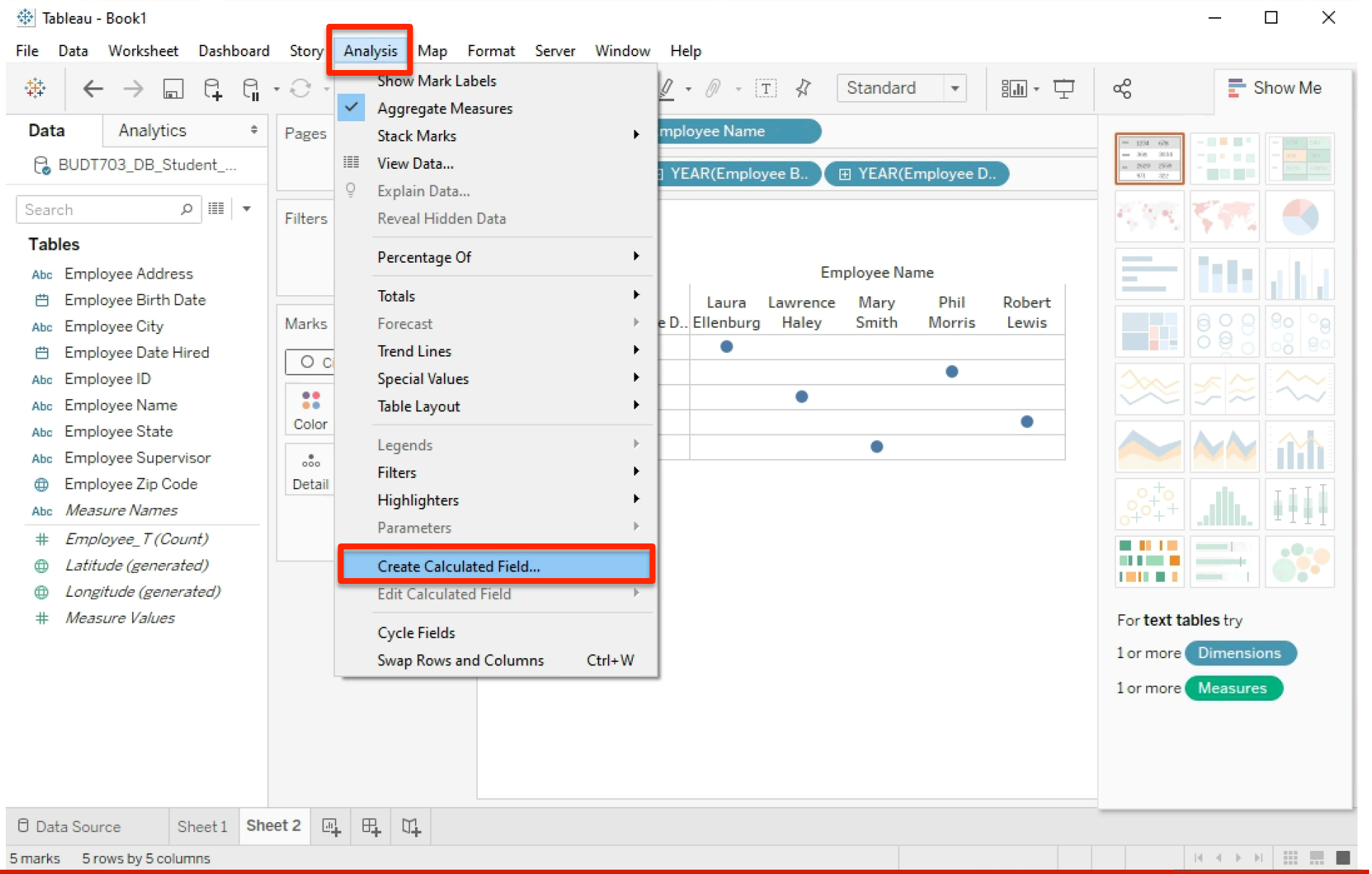
Step 7: Add New Worksheet



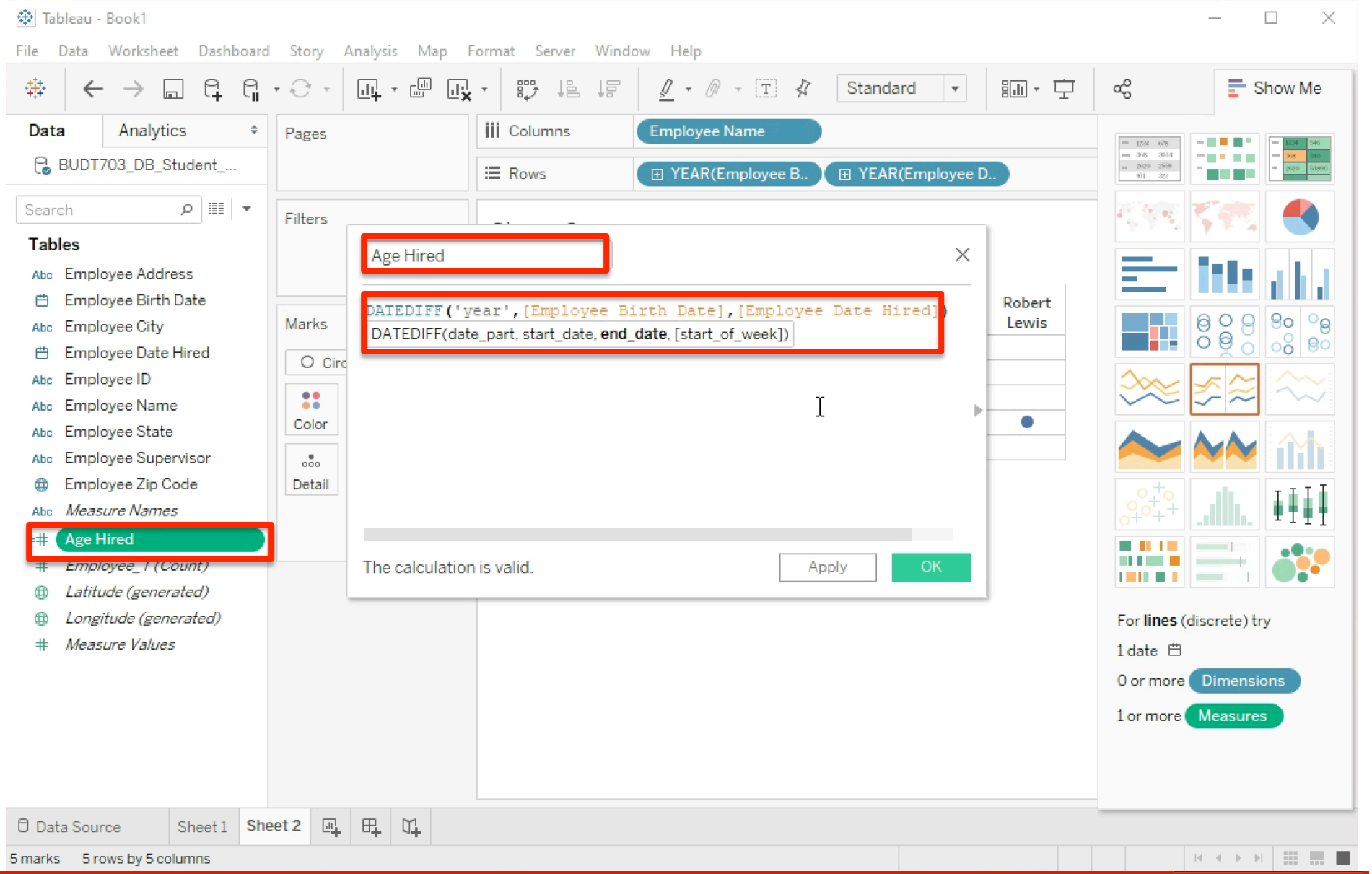
Step 8: SELECT Multiple Columns



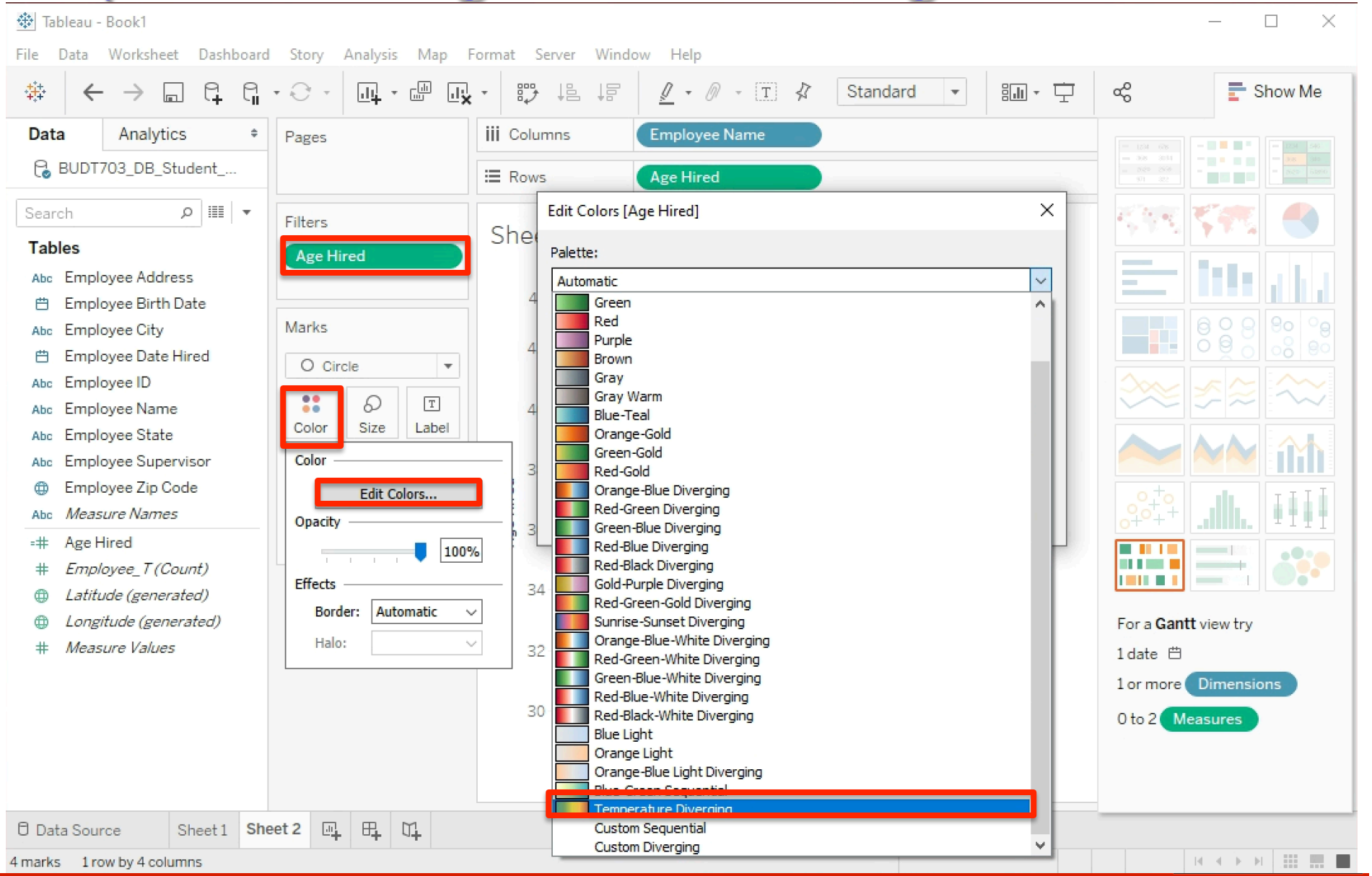
Step 9: SELECT Calculated Column



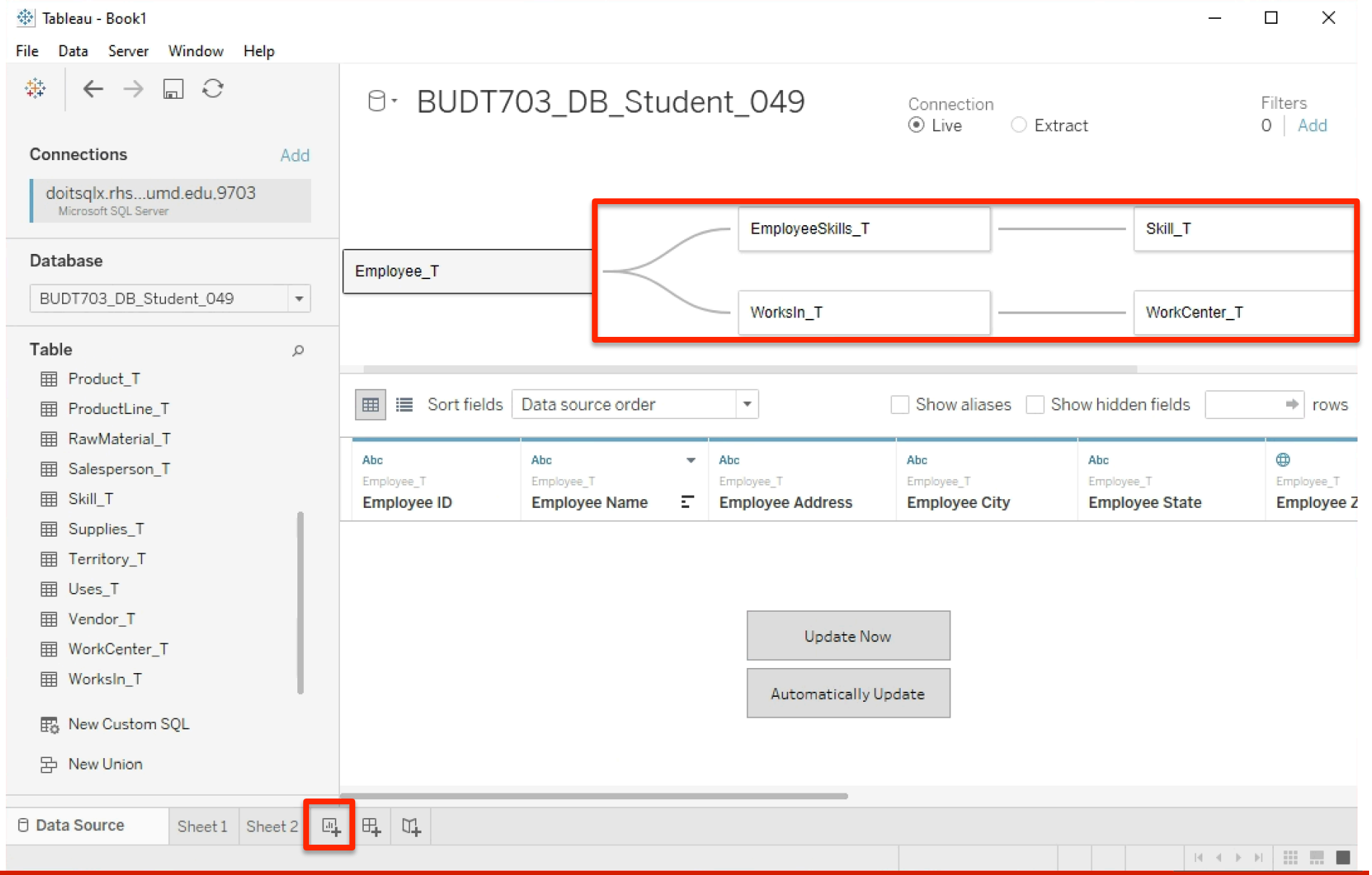
Step 10: SELECT DATEDIFF()



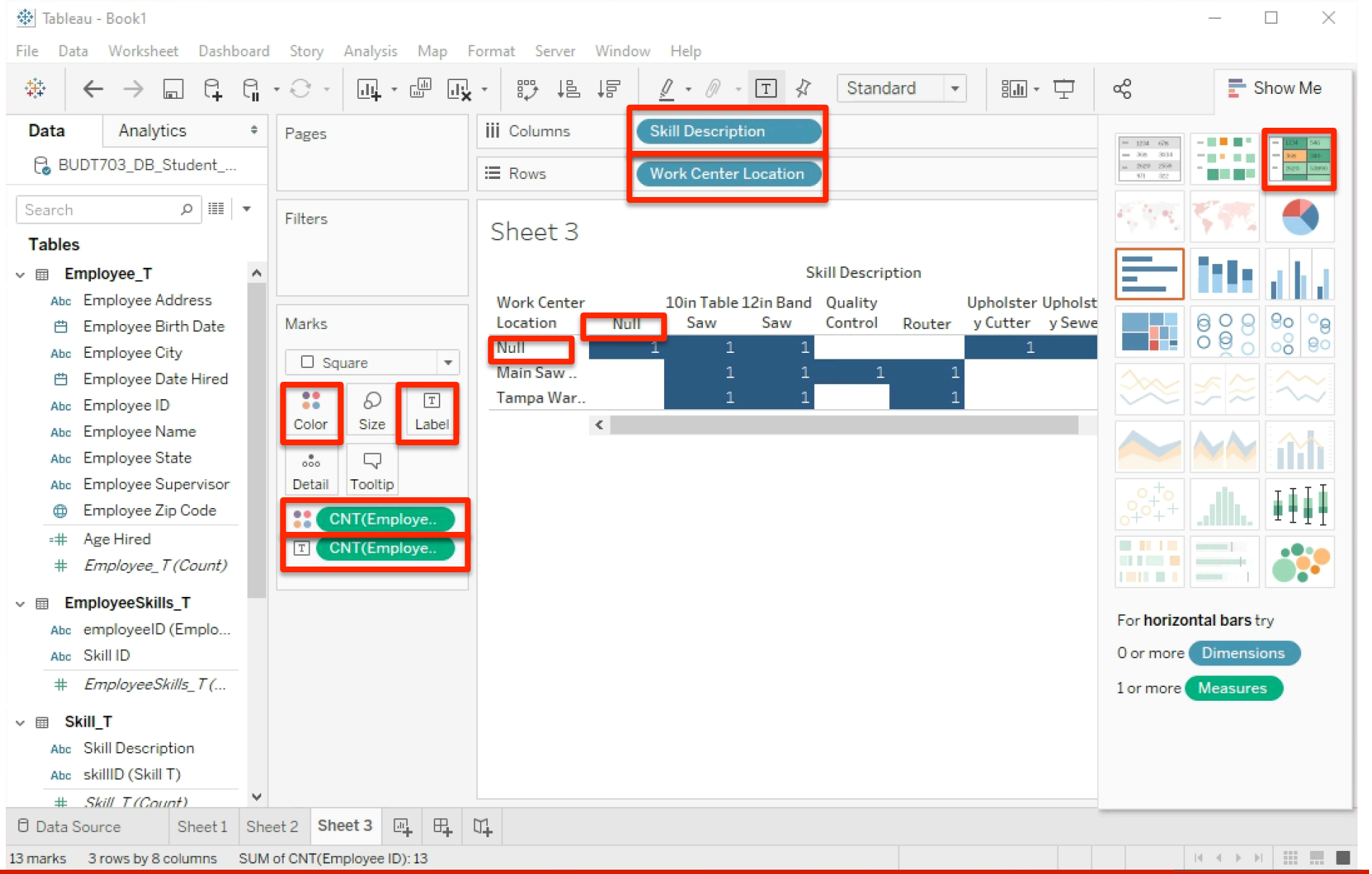
Step 11: Filtering and Formatting



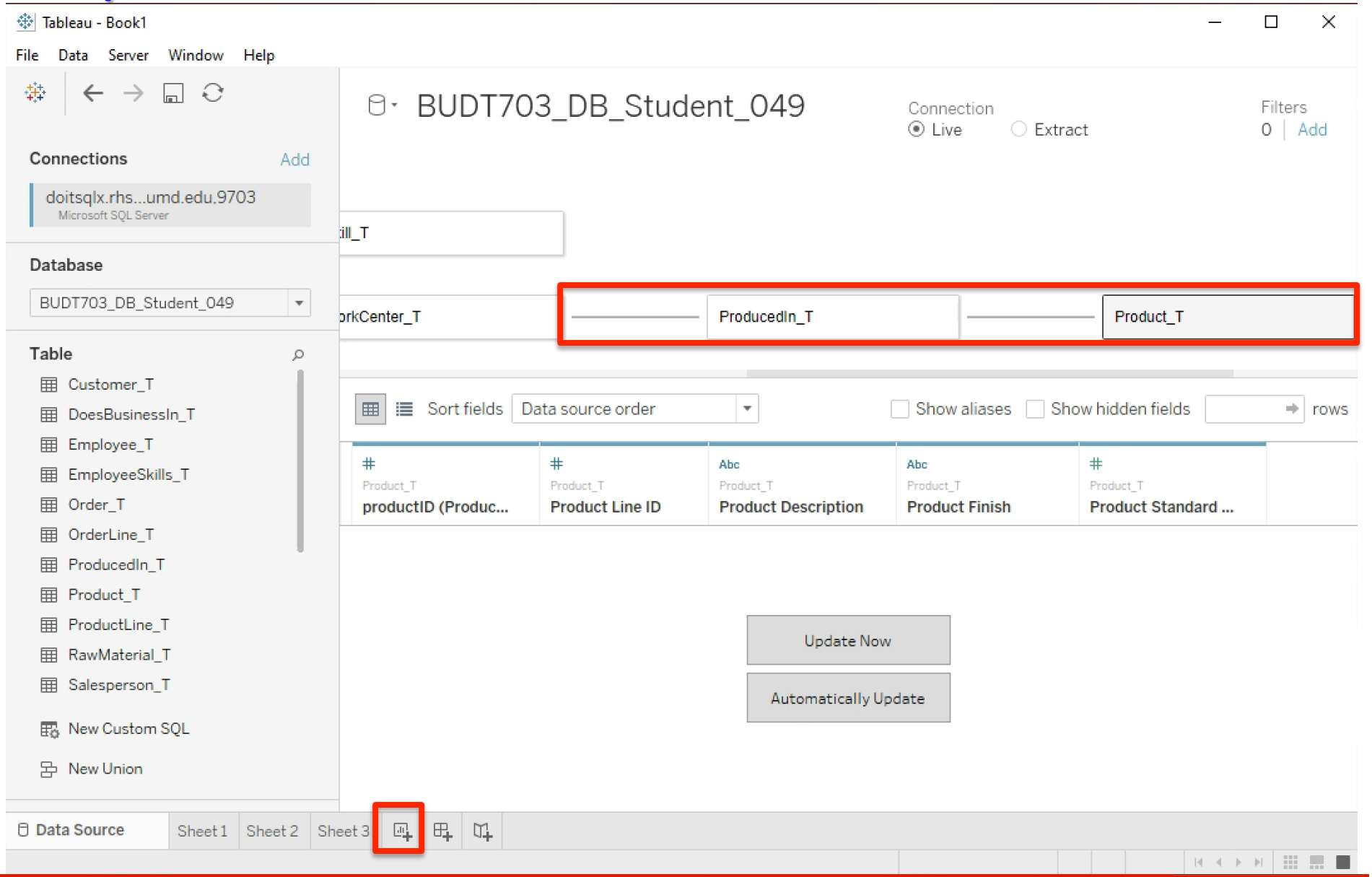
Step 12: SELECT FROM Multiple Tables



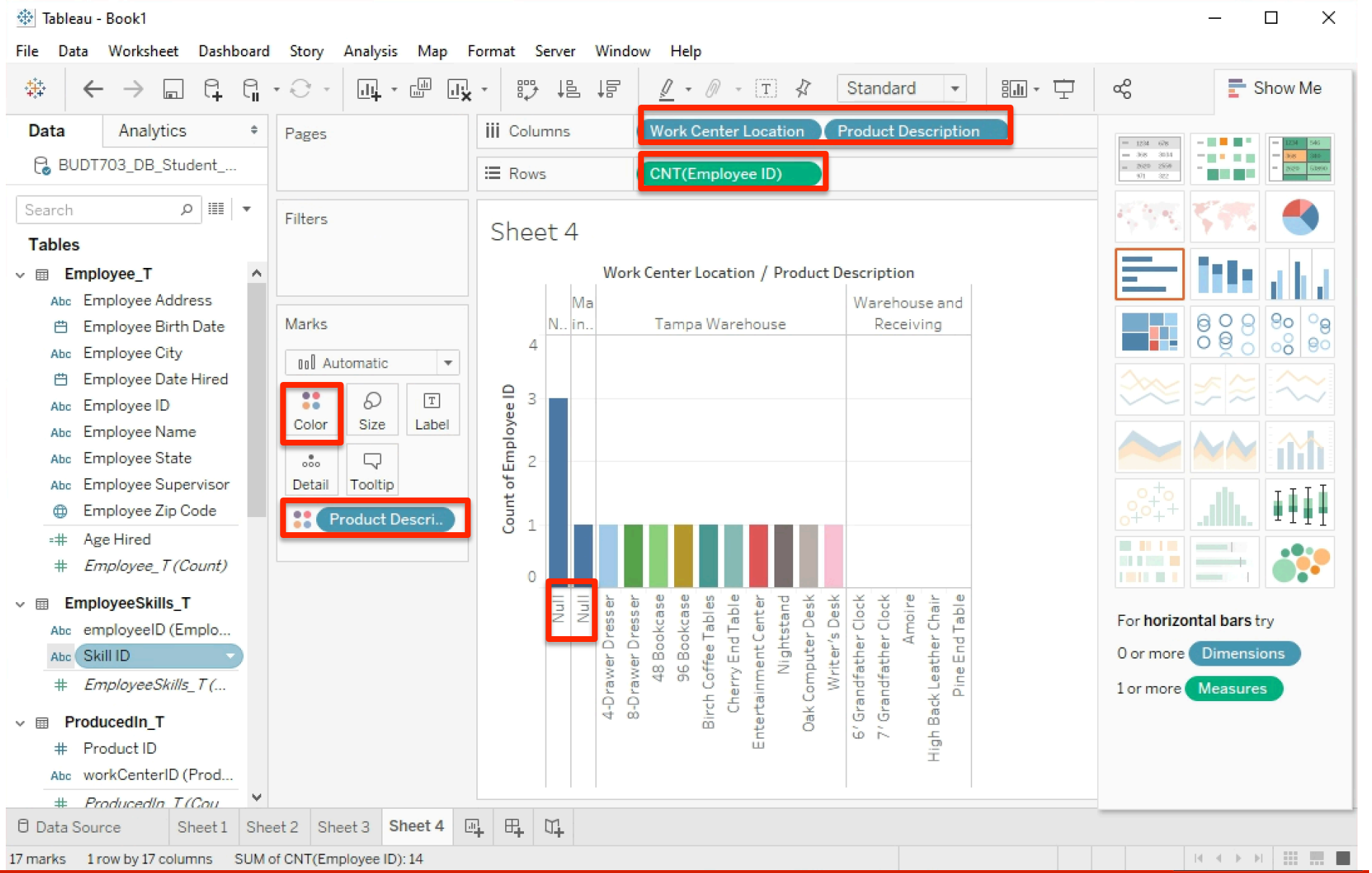
Step 13: Highlighting Table



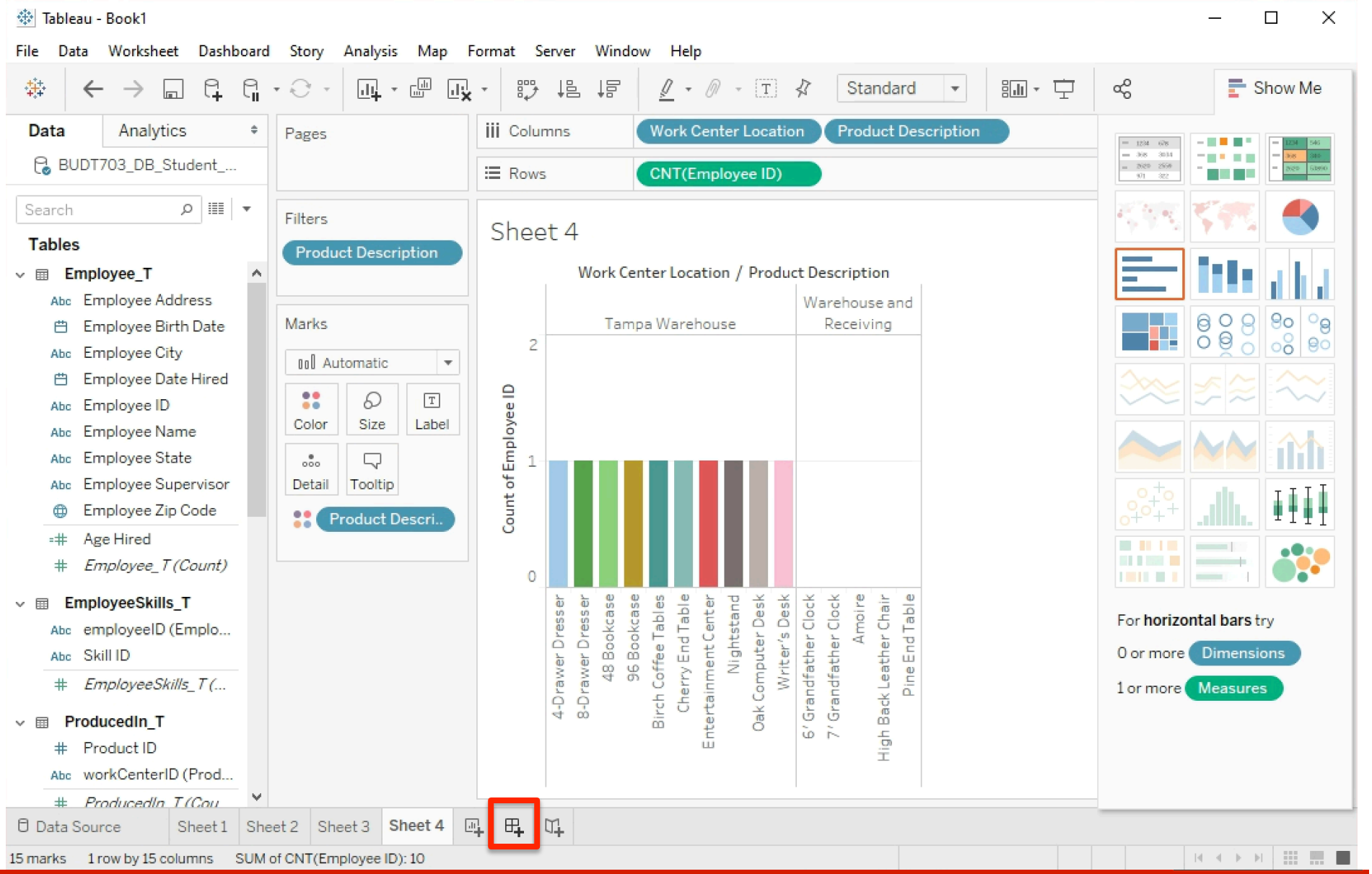
Step 14: SELECT FROM More Tables



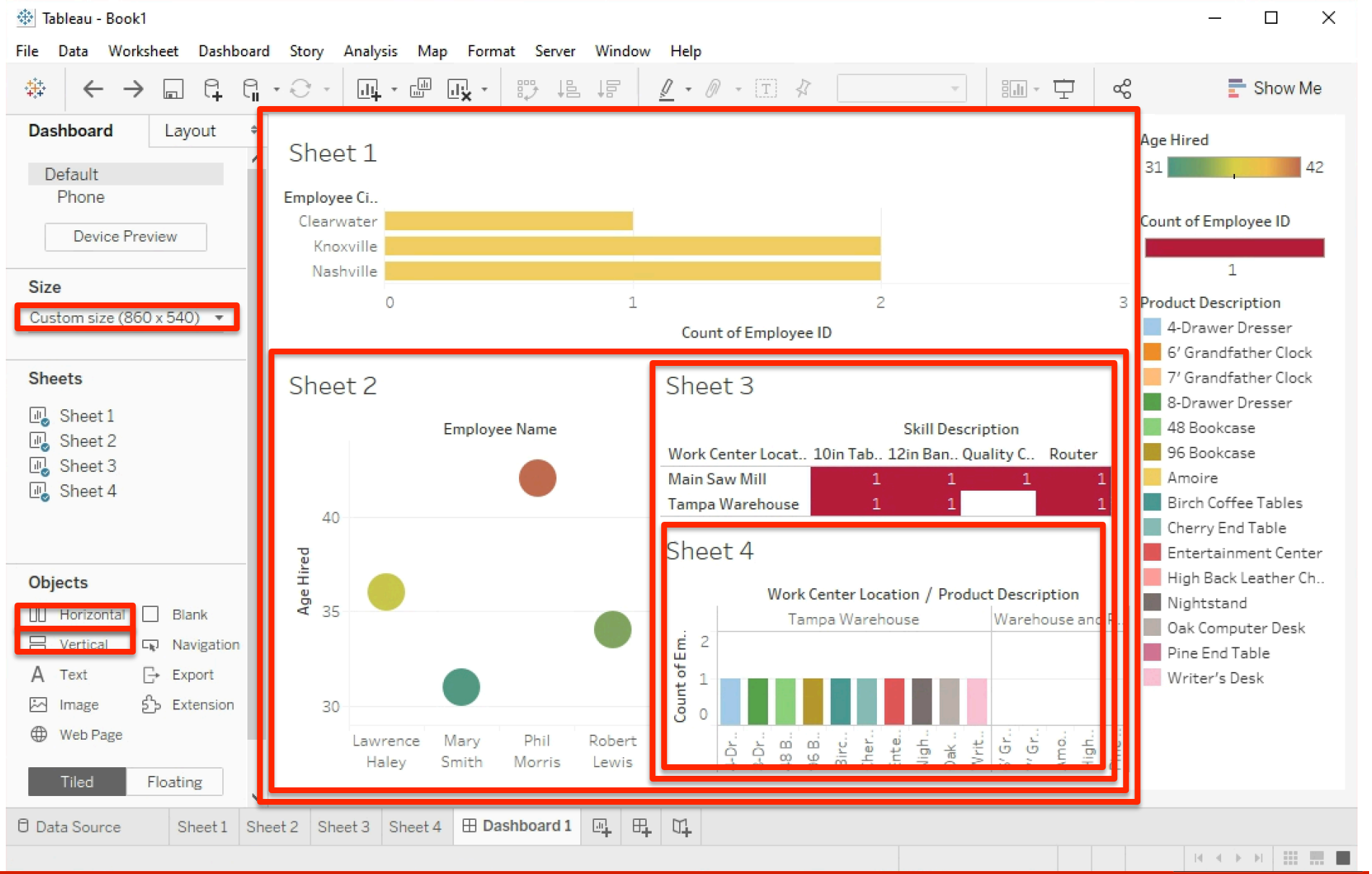
Step 15: Column Chart



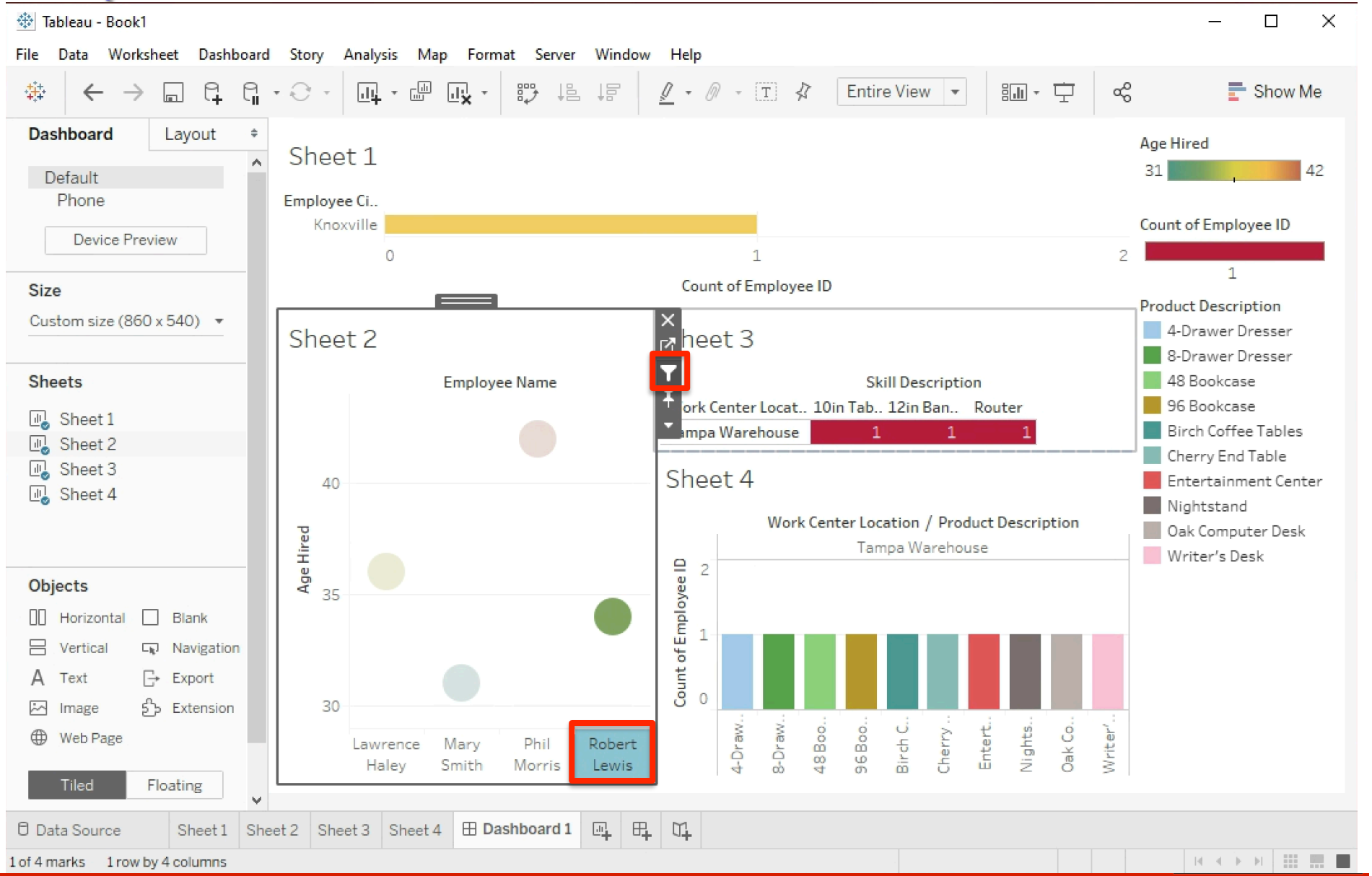
Step 16: Add New Dashboard



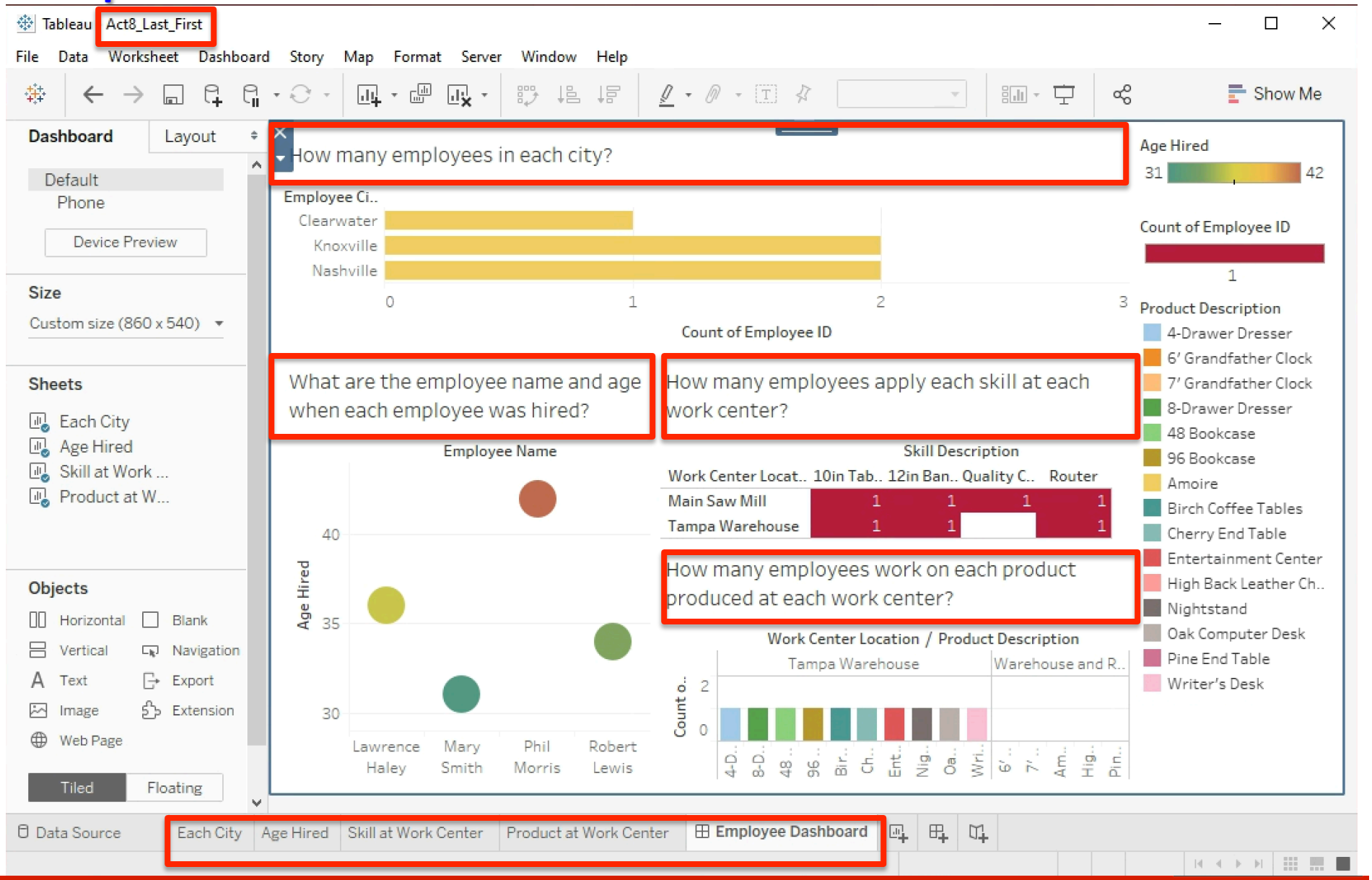
Step 17: Dashboard from Four Worksheets



Step 18: Test Dashboard Filter



Step 19: Name Worksheets and Titles

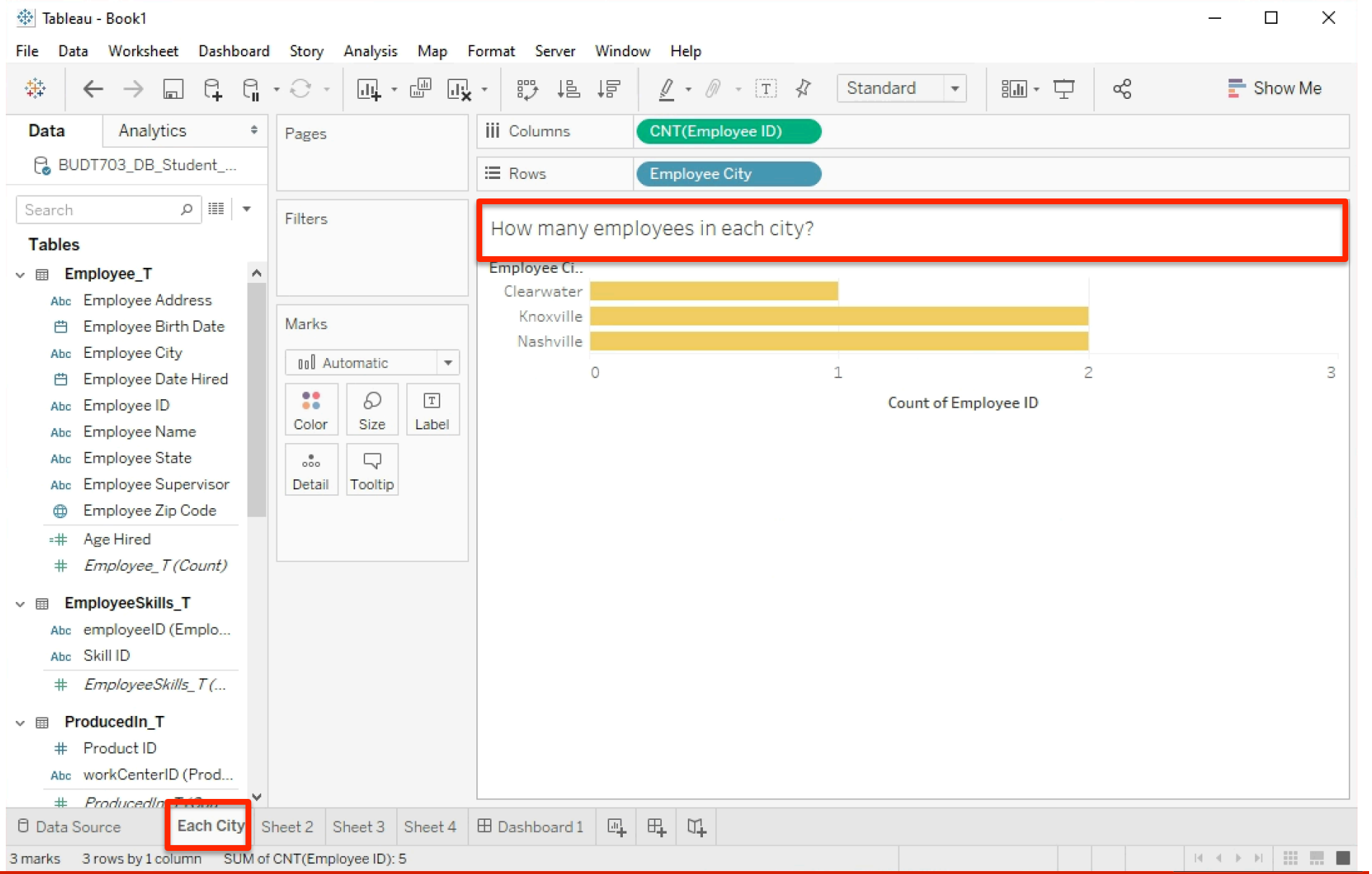


How many employees in each city?

```
SELECT employeeCity, COUNT(employeeId) AS 'Number of Employees'
FROM Employee_T
GROUP BY employeeCity
```

	employeeCity	Number of Employees
1	Clearwater	1
2	Knoxville	2
3	Nashville	2

How many employees in each city?

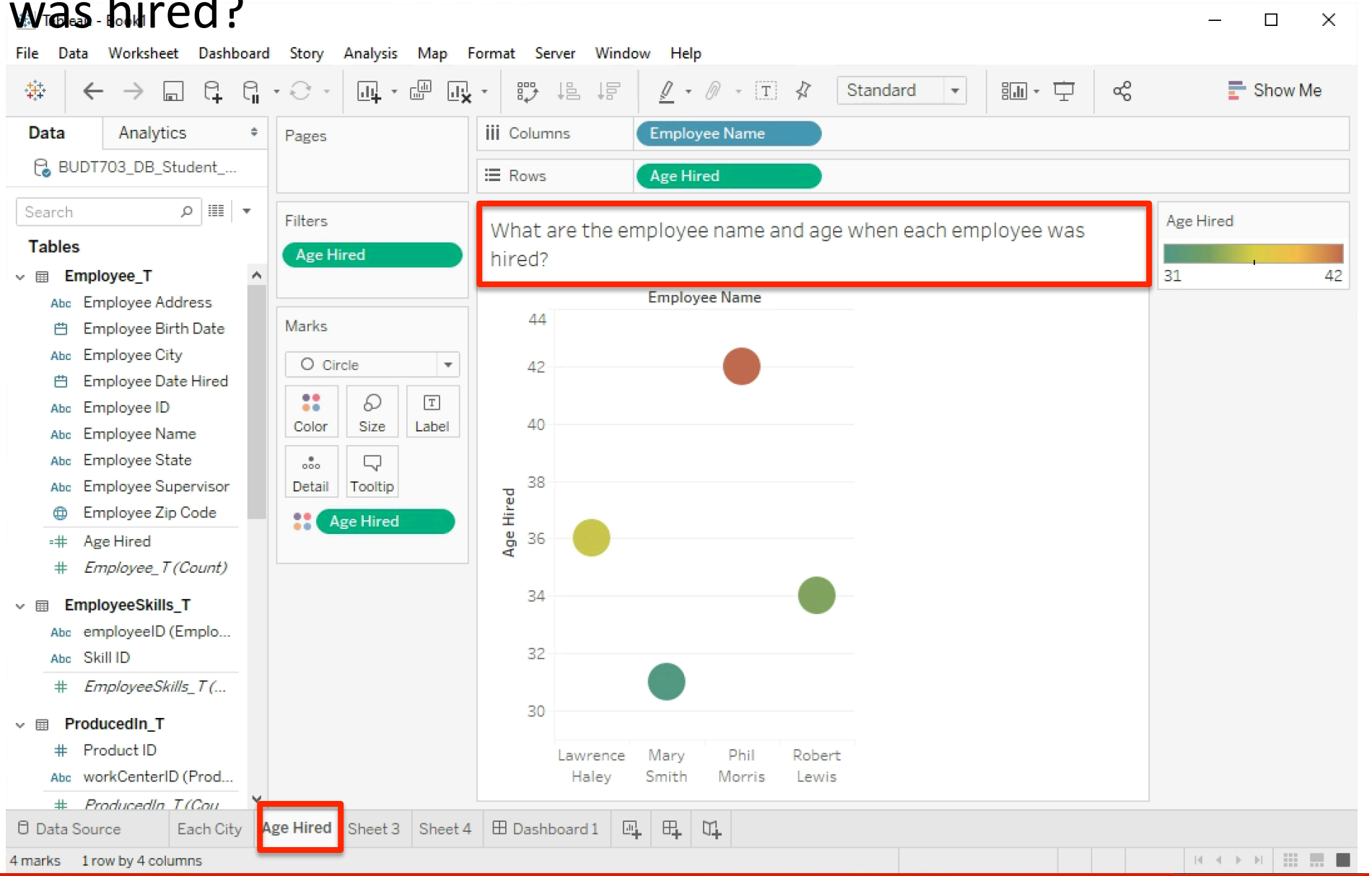


What are the employee name and age when each employee was hired?

```
SELECT employeeName, DATEDIFF(YEAR,
employeeBirthDate, employeeDateHired) AS 'Age Hired'
FROM Employee_T
WHERE employeeBirthDate IS NOT NULL
```

	employeeName	Age Hired
1	Phil Morris	42
2	Lawrence Haley	36
3	Robert Lewis	34
4	Mary Smith	31

What are the employee name and age when each employee was hired?

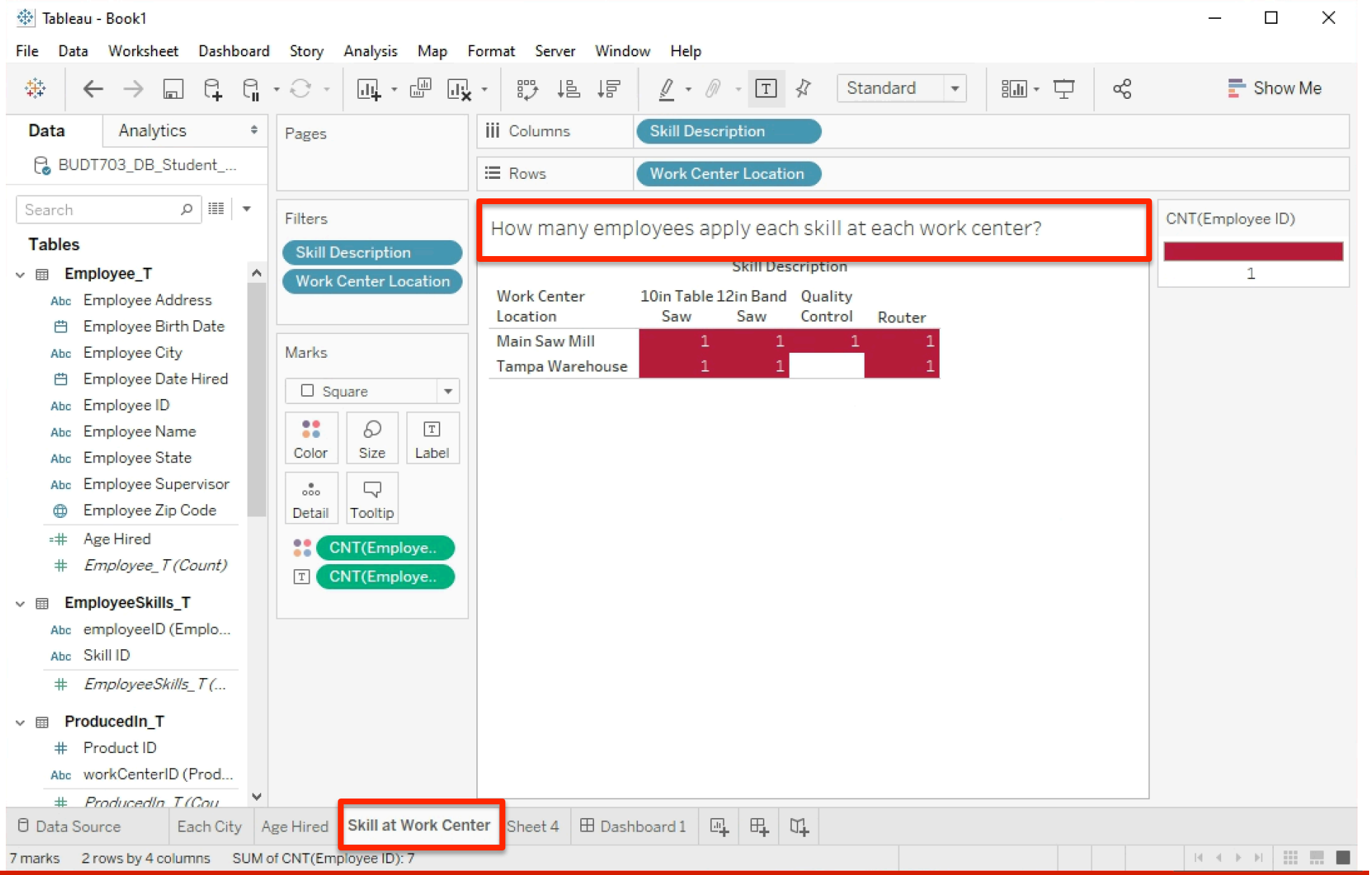


How many employees apply each skill at each work center?

```
SELECT s.skillDescription, c.workCenterLocation,
COUNT(DISTINCT e.employeeId) AS 'Number Of Employee'
FROM Employee_T e, EmployeeSkills_T k, Skill_T s,
WorksIn_T w, WorkCenter_T c
WHERE e.employeeId = k.employeeId AND k.skillId = s.skillId
AND e.employeeId = k.employeeId AND e.employeeId =
w.employeeId AND w.workCenterId = c.workCenterId
GROUP BY s.skillDescription, c.workCenterLocation
```

	skillDescription	workCenterLocation	Number Of Employee
1	10in Table Saw	Main Saw Mill	1
2	12in Band Saw	Main Saw Mill	1
3	Quality Control	Main Saw Mill	1
4	Router	Main Saw Mill	1
5	10in Table Saw	Tampa Warehouse	1
6	12in Band Saw	Tampa Warehouse	1
7	Router	Tampa Warehouse	1

How many employees apply each skill at each work center?

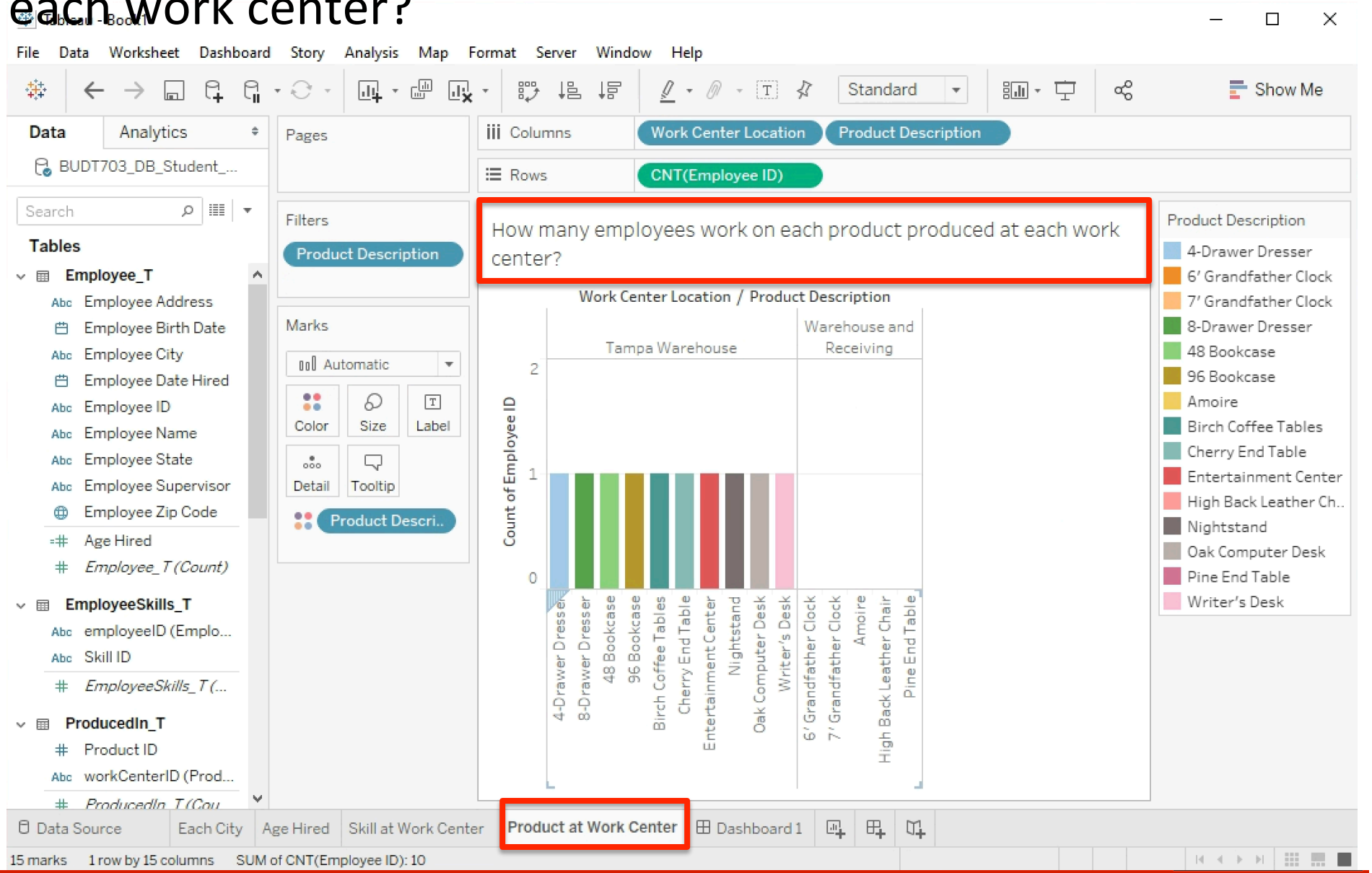


How many employees work on each product produced at each work center?

```
SELECT c.workCenterLocation, p.productDescription,
COUNT(DISTINCT e.employeeId) AS 'Number Of Employee'
FROM Employee_T e, WorksIn_T w, WorkCenter_T c,
ProducedIn_T i, Product_T p
WHERE e.employeeId = w.employeeId AND w.workCenterId
= c.workCenterId AND c.workCenterId = i.workCenterId AND
i.productId = p.productId
GROUP BY c.workCenterLocation, p.productDescription
```

	workCenterLocation	productDescription	Number Of Employee
1	Tampa Warehouse	4-Drawer Dresser	1
2	Tampa Warehouse	48 Bookcase	1
3	Tampa Warehouse	8-Drawer Dresser	1
4	Tampa Warehouse	96 Bookcase	1
5	Tampa Warehouse	Birch Coffee Tables	1
6	Tampa Warehouse	Cherry End Table	1
7	Tampa Warehouse	Entertainment Center	1
8	Tampa Warehouse	Nightstand	1
9	Tampa Warehouse	Oak Computer Desk	1
10	Tampa Warehouse	Writer's Desk	1

How many employees work on each product produced at each work center?



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Virtual Private Network (VPN)

- To access doitsqlx.rhsmith.umd.edu,9703 from off-campus locations, your computer has to obtain a campus IP by using the University VPN.
- terpware.umd.edu
  - Select Network
  - Install Virtual Private Networking (VPN) client software