Backend Work of Dashboard

Project Name: Bus Transportation Analysis

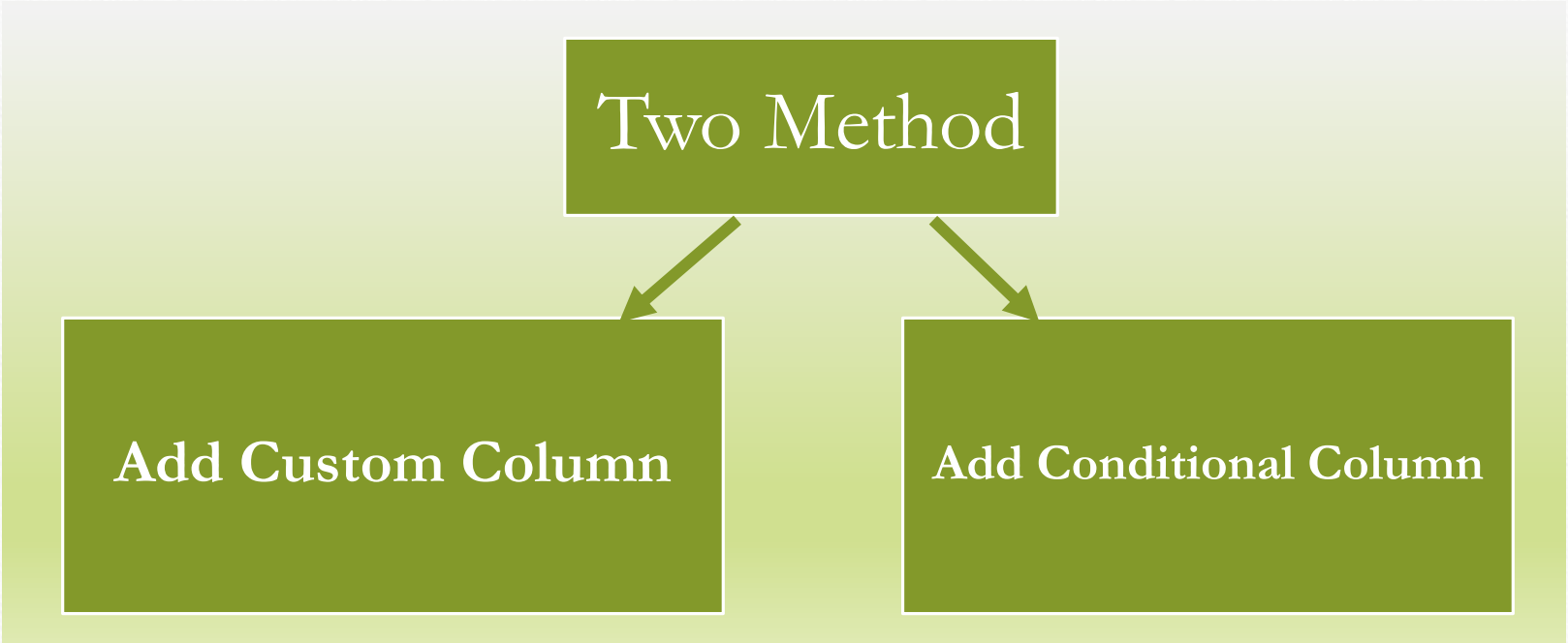
Tool: Microsoft Excel

Four Type of Data sheet

- Dim_buses
- Dim_demographics
- Dim_routes
- Facttable_ridership
- Dim_DateTable
- Calculation

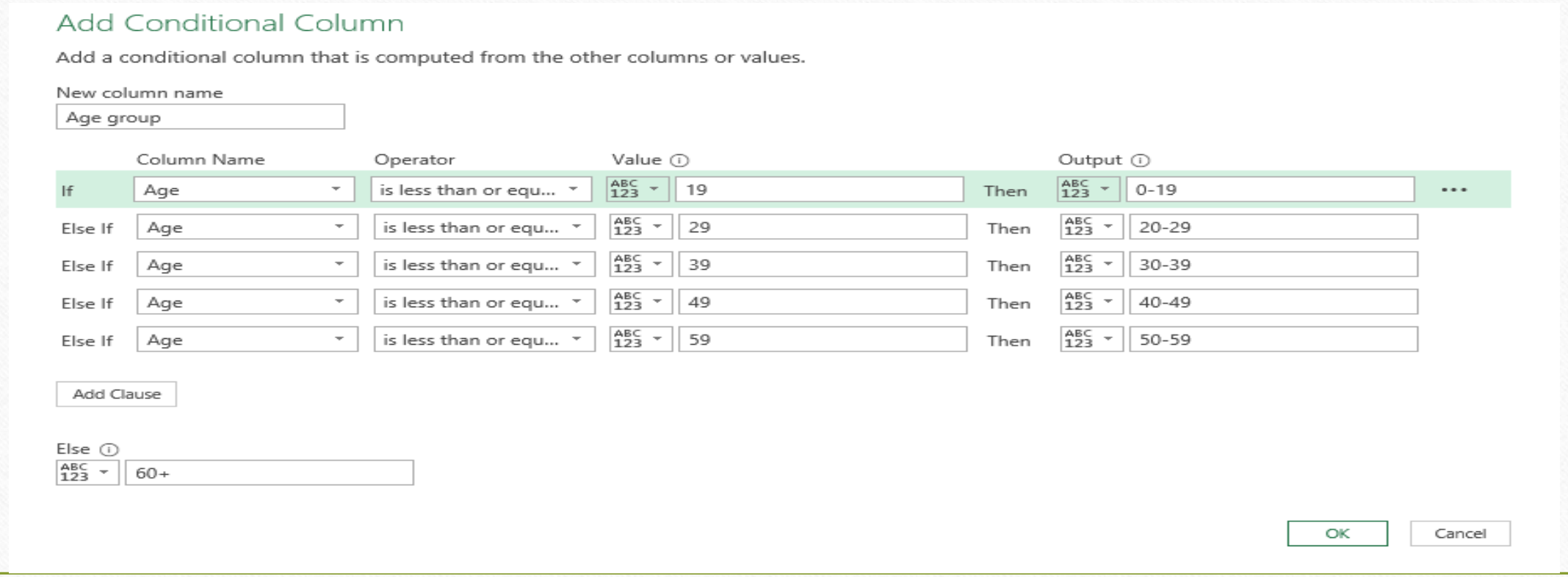
Dim_demographics

Change age into age_group



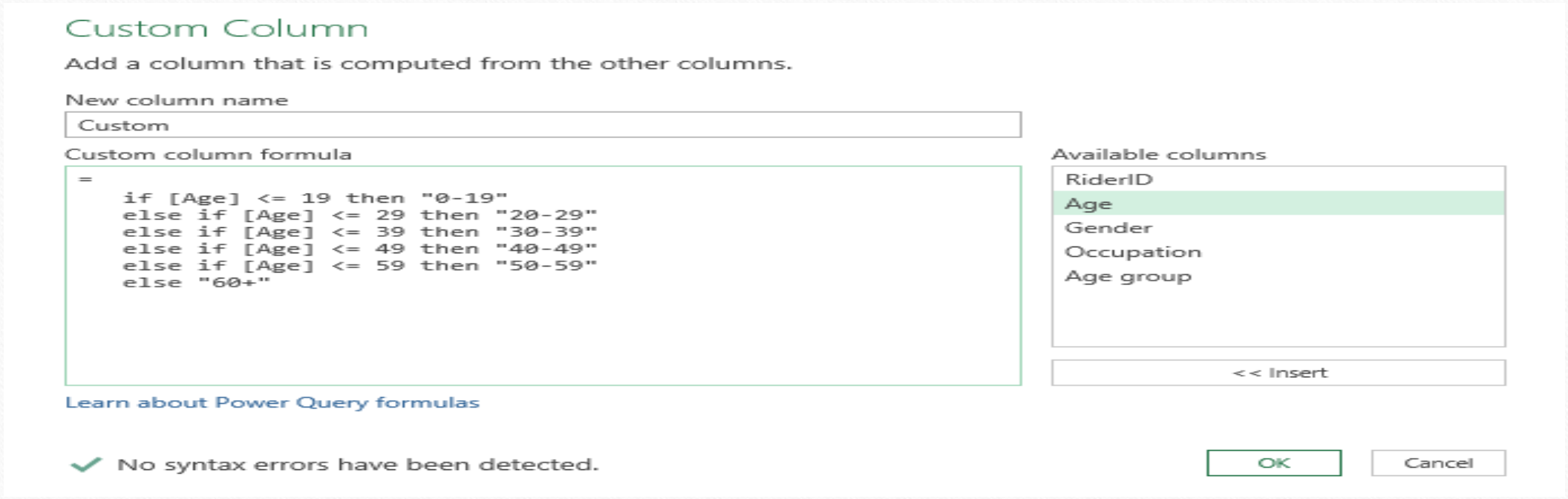
Through Add Conditional column

- Go into power query
- Go into add column
- Go to general group and select add conditional column



Through Custom Column

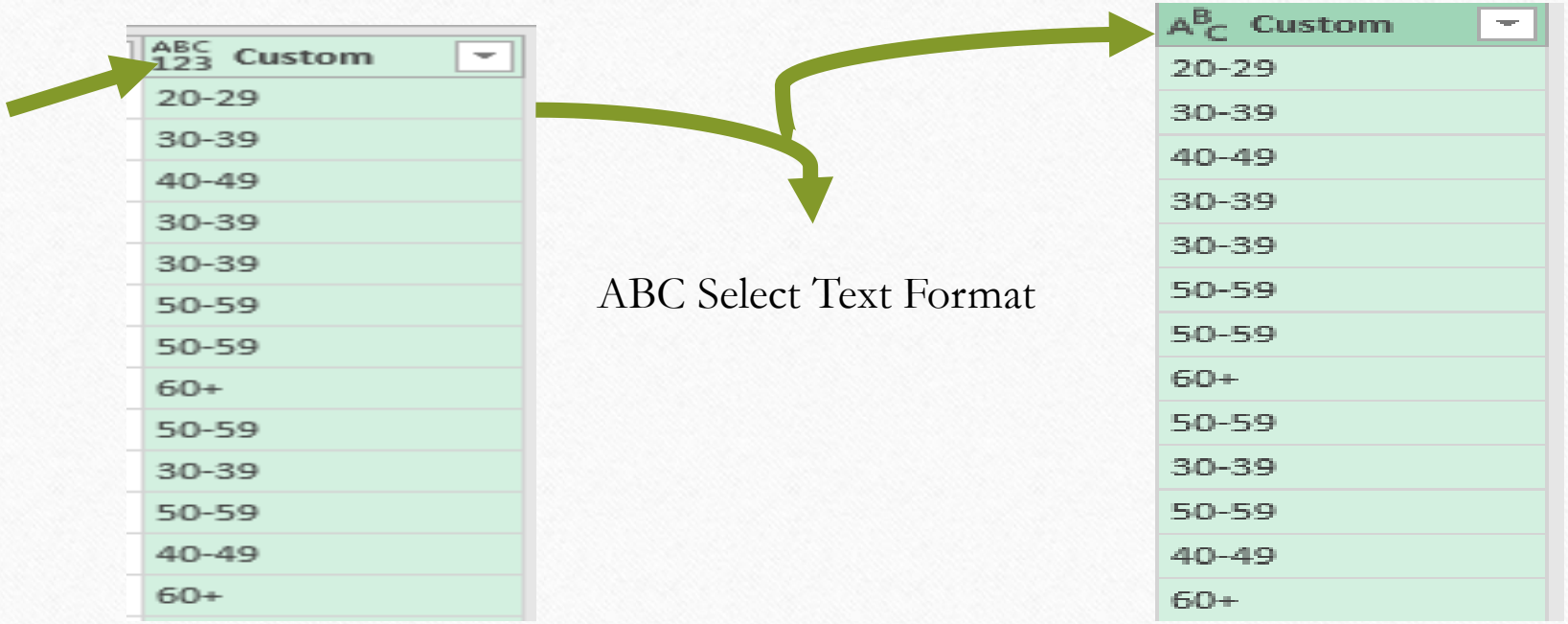
- Go into power query
- Go into add column
- Go to general group and select Custom Column



Output Column Highlighted with green

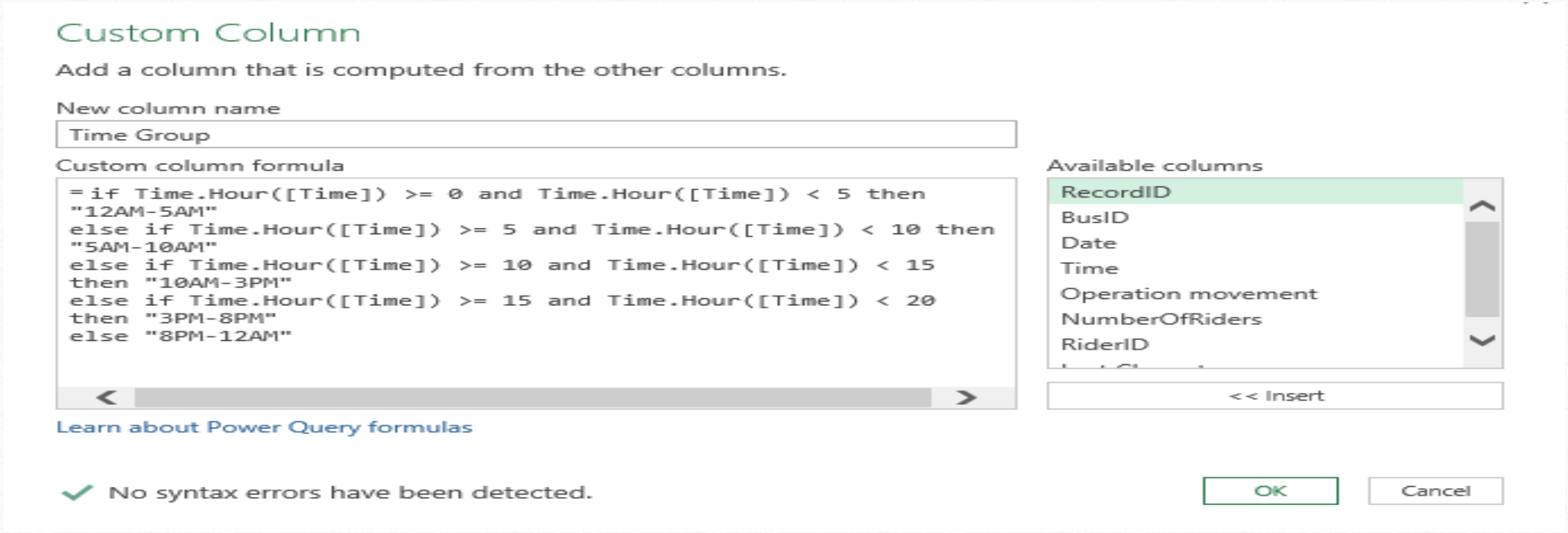
	RiderID	Age	Gender	Occupation	Age group	Custom
1	1	27	Other	Self-Employed	20-29	20-29
2	2	39	Female	Self-Employed	30-39	30-39
3	3	48	Female	Professional	40-49	40-49
4	4	34	Male	Other	30-39	30-39
5	5	33	Male	Self-Employed	30-39	30-39
6	6	51	Male	Unemployed	50-59	50-59
7	7	54	Male	Self-Employed	50-59	50-59
8	8	67	Male	Retired	60+	60+
9	9	56	Male	Self-Employed	50-59	50-59
10	10	34	Male	Other	30-39	30-39
11	11	50	Male	Professional	50-59	50-59
12	12	40	Male	Other	40-49	40-49
13	13	70	Male	Professional	60+	60+
14	14	65	Male	Self-Employed	60+	60+
15	15	55	Male	Professional	50-59	50-59
16	16	56	Male	Retired	50-59	50-59
17	17	37	Male	Unemployed	30-39	30-39
18	18	46	Male	Other	40-49	40-49
19	19	41	Male	Other	40-49	40-49
20	20	29	Male	Unemployed	20-29	20-29
21	21	68	Male	Other	60+	60+
22	22	58	Male	Unemployed	50-59	50-59
23	23	60	Male	Professional	60+	60+
24	24	30	Male	Unemployed	30-39	30-39

Change Custom Column Data Type

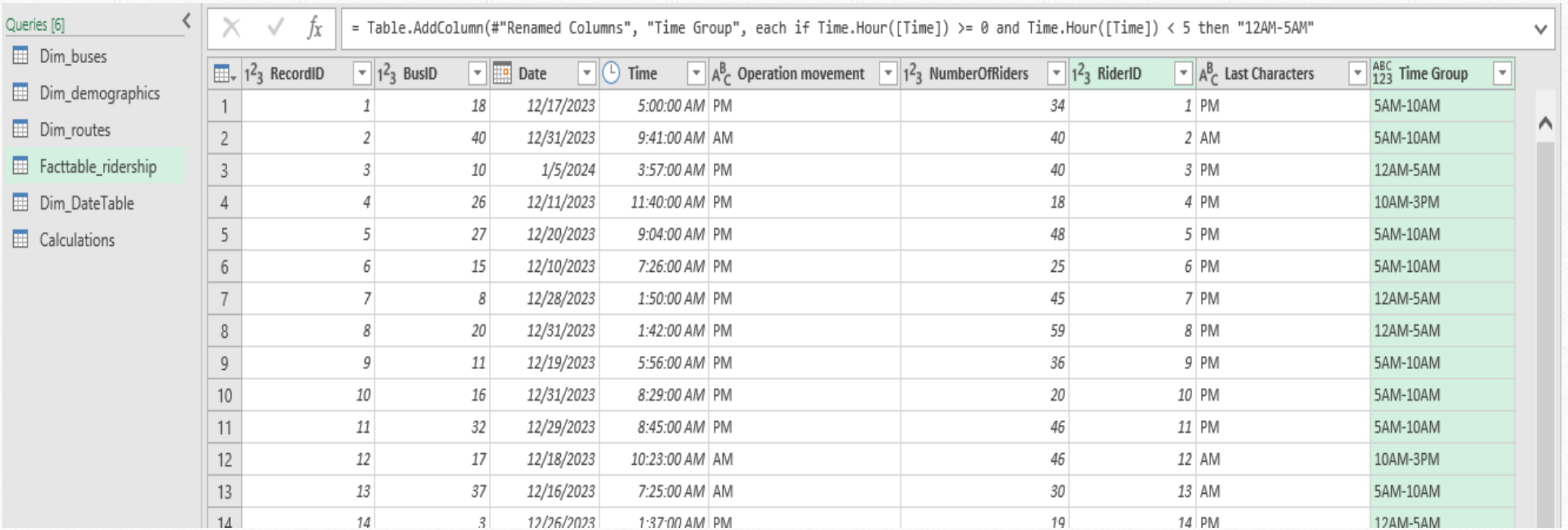


Convert Time into Time Group

- Go into power query
- Select Facttable_ridership
- Go into add column
- Go to general group and select Custom Column



Output Column Highlighted with green



Queries [6]

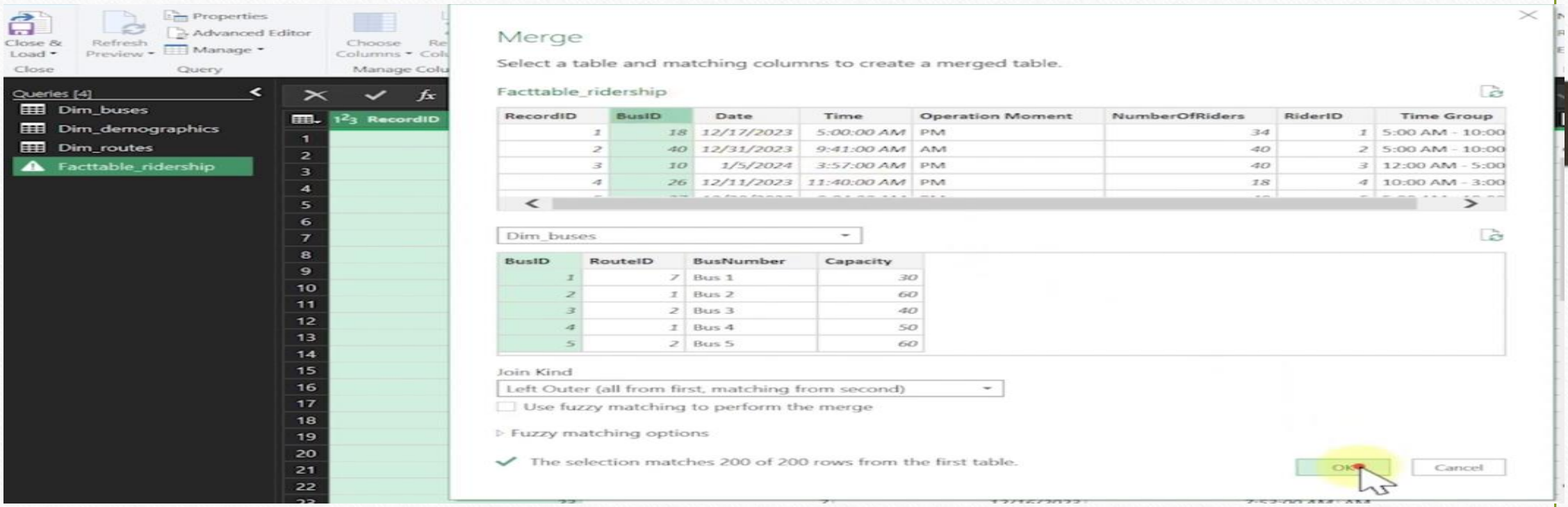
- Dim_buses
- Dim_demographics
- Dim_routes
- Facttable_ridership
- Dim_DateTable
- Calculations

```
= Table.AddColumn(#"Renamed Columns", "Time Group", each if Time.Hour([Time]) >= 0 and Time.Hour([Time]) < 5 then "12AM-5AM"
```

	RecordID	BusID	Date	Time	Operation movement	NumberOfRiders	RiderID	Last Characters	Time Group
1	1	18	12/17/2023	5:00:00 AM	PM	34	1	PM	5AM-10AM
2	2	40	12/31/2023	9:41:00 AM	AM	40	2	AM	5AM-10AM
3	3	10	1/5/2024	3:57:00 AM	PM	40	3	PM	12AM-5AM
4	4	26	12/11/2023	11:40:00 AM	PM	18	4	PM	10AM-3PM
5	5	27	12/20/2023	9:04:00 AM	PM	48	5	PM	5AM-10AM
6	6	15	12/10/2023	7:26:00 AM	PM	25	6	PM	5AM-10AM
7	7	8	12/28/2023	1:50:00 AM	PM	45	7	PM	12AM-5AM
8	8	20	12/31/2023	1:42:00 AM	PM	59	8	PM	12AM-5AM
9	9	11	12/19/2023	5:56:00 AM	PM	36	9	PM	5AM-10AM
10	10	16	12/31/2023	8:29:00 AM	PM	20	10	PM	5AM-10AM
11	11	32	12/29/2023	8:45:00 AM	PM	46	11	PM	5AM-10AM
12	12	17	12/18/2023	10:23:00 AM	AM	46	12	AM	10AM-3PM
13	13	37	12/16/2023	7:25:00 AM	AM	30	13	AM	5AM-10AM
14	14	3	12/26/2023	1:37:00 AM	PM	19	14	PM	12AM-5AM

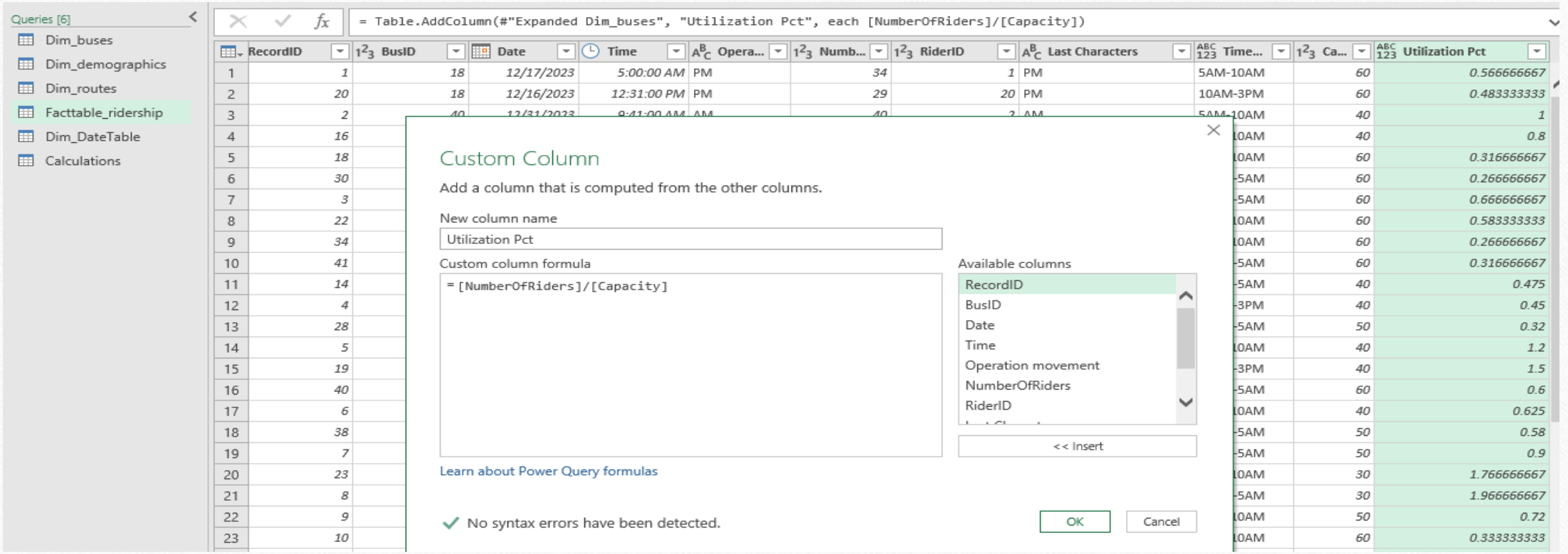
Merging Column Highlighted with green Colour

Go to Data Go to Home Tab
Select Combine Group and select Merge Column



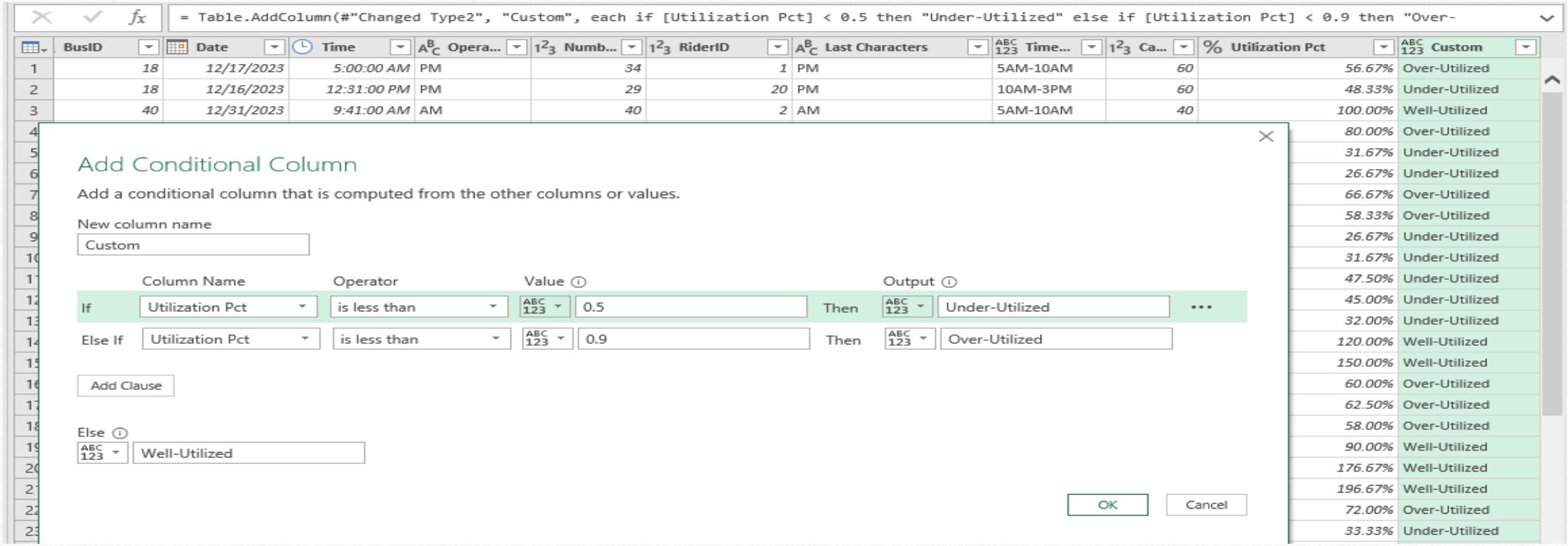
Bus Utilization Percentage

- Go into power query
- Select Facttable_ridership
- Go into add column
- Go to general group and select Custom Column
- Output Highlighted in green color



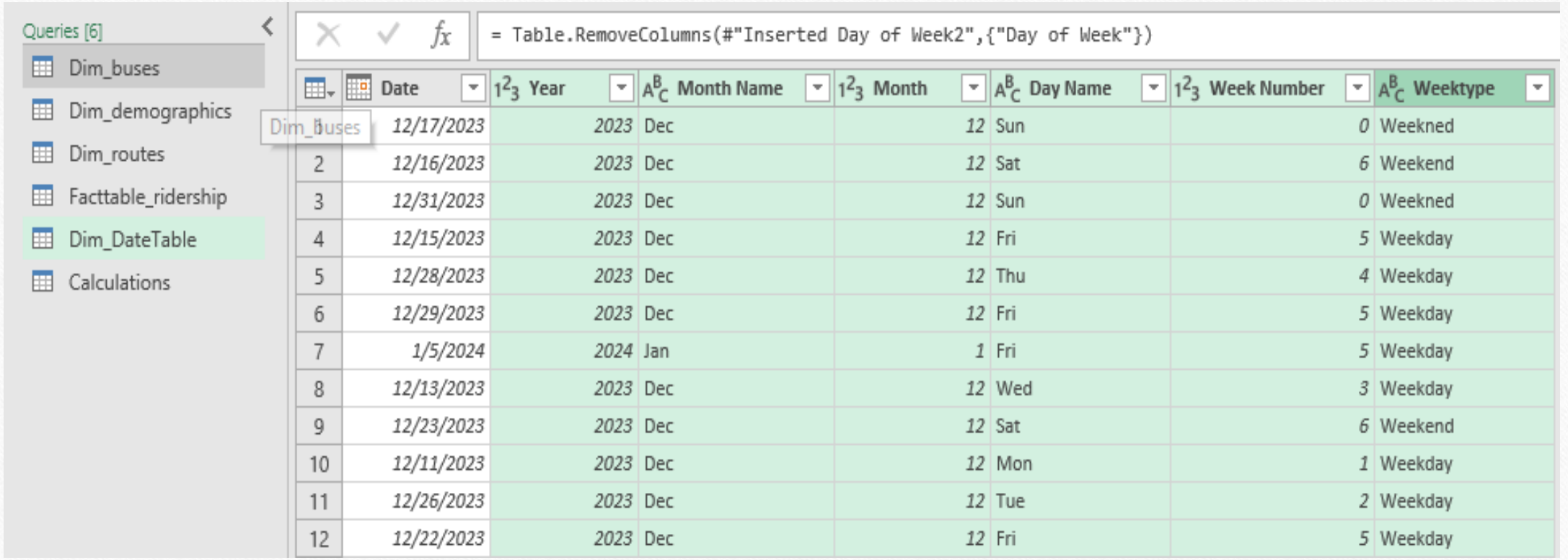
Convert Utilization Pct in to three Segment

- Go into power query
- Go into add column
- Go to general group and select add conditional column
- Output Highlighted in green color



Dim_Date Sheet Changes

- In power query Editor
- Go into add column
- Go into Date option and select Year, Month Name, Month, Day Name. Week Number, and Weektyppe individually.
- Output Highlighted in green color



Queries [6]

- Dim_buses
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```
= Table.RemoveColumns(#"Inserted Day of Week2",{"Day of Week"})
```

	Date	Year	Month Name	Month	Day Name	Week Number	Weektype
1	12/17/2023	2023	Dec	12	Sun	0	Weekned
2	12/16/2023	2023	Dec	12	Sat	6	Weekend
3	12/31/2023	2023	Dec	12	Sun	0	Weekned
4	12/15/2023	2023	Dec	12	Fri	5	Weekday
5	12/28/2023	2023	Dec	12	Thu	4	Weekday
6	12/29/2023	2023	Dec	12	Fri	5	Weekday
7	1/5/2024	2024	Jan	1	Fri	5	Weekday
8	12/13/2023	2023	Dec	12	Wed	3	Weekday
9	12/23/2023	2023	Dec	12	Sat	6	Weekend
10	12/11/2023	2023	Dec	12	Mon	1	Weekday
11	12/26/2023	2023	Dec	12	Tue	2	Weekday
12	12/22/2023	2023	Dec	12	Fri	5	Weekday

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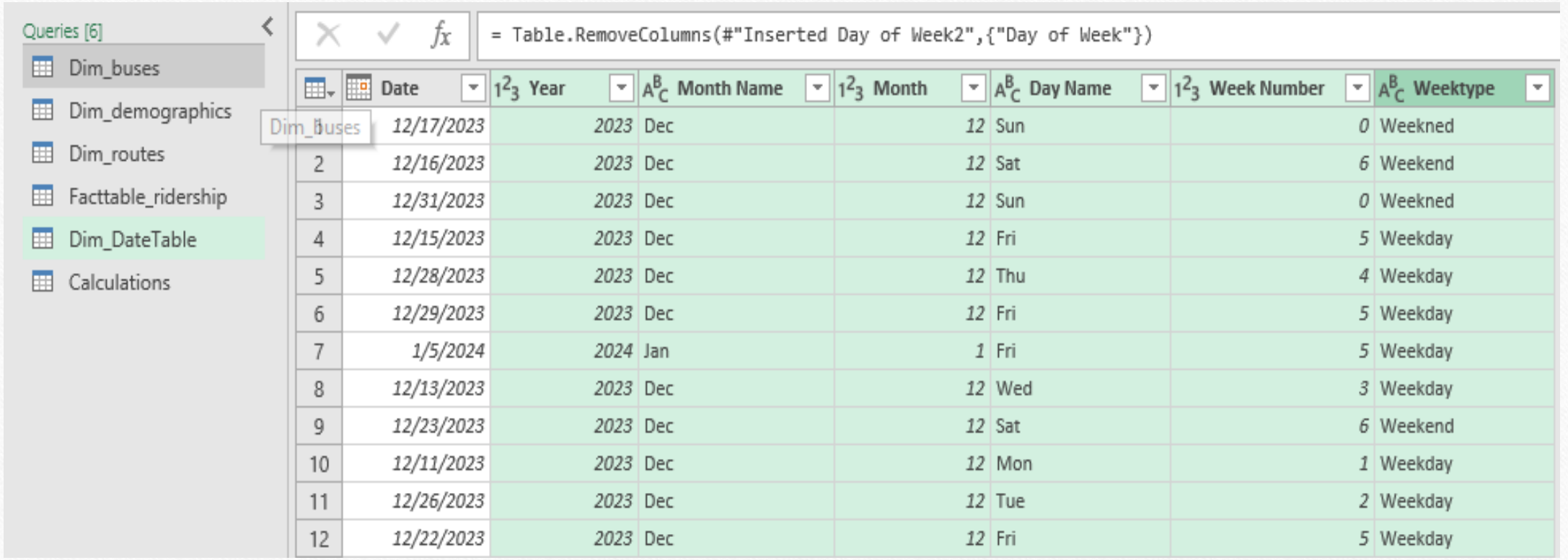

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	Date	Year	Month Name	Month	Day Name	Week Number	Weektype
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4	12/15/2023	2023	Dec	12	Fri	5	Weekday
5	12/28/2023	2023	Dec	12	Thu	4	Weekday
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7	1/5/2024	2024	Jan	1	Fri	5	Weekday
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9	12/23/2023	2023	Dec	12	Sat	6	Weekend
10	12/11/2023	2023	Dec	12	Mon	1	Weekday
11	12/26/2023	2023	Dec	12	Tue	2	Weekday
12	12/22/2023	2023	Dec	12	Fri	5	Weekday

Convert Week Number into 3 Segment

- Go into power query
- Go into add column
- Go to general group and select add conditional column
- If Sunday Day of week will be 0 , and if Saturday Than Day of Week will be 6 and both will showa weekend, and remaining day Weektype shows WeekDday
- Output Highlighted in green color

```
= Table.AddColumn(#"Inserted Day of Week", "Weektype", each if [Day of Week] = 0 then "Weekned" else if [Day of Week] = 6 ther
```

	Date	Year	Month Name	Month	Day Name	Day of Week	Weektype
1	12/17/2023	2023	Dec	12	Sun	0	Weekned
2	12/16/2023	2023	Dec	12	Sat	6	Weekend
3	12/31/2023	2023	Dec	12	Sun	0	Weekned
4	12/15/2023	2023	Dec	12	Fri	5	Weekday
5	12/28/2023	2023	Dec	12	Thu	4	Weekday
6	12/29/2023	2023	Dec	12	Fri	5	Weekday
7	1/5/2024	2024	Jan	1	Fri	5	Weekday

Add Conditional Column

Add a conditional column that is computed from the other columns or values.

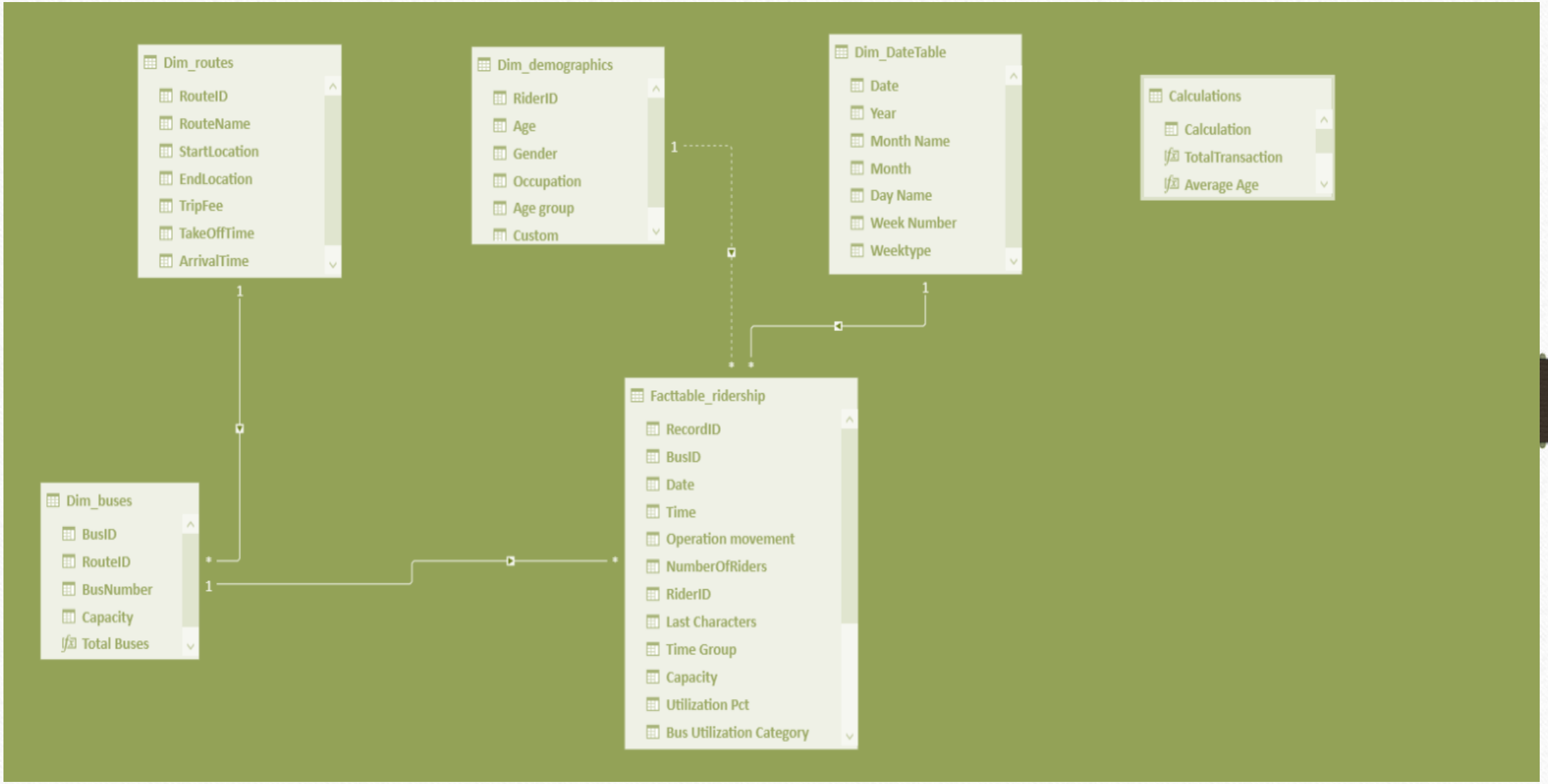
New column name: Weektype

	Column Name	Operator	Value		Output
If	Day of Week	equals	0	Then	Weekned
Else If	Day of Week	equals	6	Then	Weekend

Add Clause

Else: Weekday

Creating Relationship Model Diagram View in Power Pivot


Dim_routes
RouteID
RouteName
StartLocation
EndLocation
TripFee
TakeOffTime
ArrivalTime
Dim_demographics
RiderID
Age
Gender
Occupation
Age group
Custom
Dim_DateTable
Date
Year
Month Name
Month
Day Name
Week Number
Weektype
Calculations
Calculation
TotalTransaction
Average Age
Dim_buses
BusID
RouteID
BusNumber
Capacity
Total Buses
Facttable_ridership
RecordID
BusID
Date
Time
Operation movement
NumberOfRiders
RiderID
Last Characters
Time Group
Capacity
Utilization Pct
Bus Utilization Category
1
1
1
1

Creating DAX function KPIs in Power Pivot

Calculation for KPIs Preparation

- **Total Transaction**

Formula: =COUNTROWS(Facttable_ridership)

- **Average Age**

Formula: =AVERAGE(Dim_demographics[Age])

- **Total Rider (Passanger)**

Formula: =SUM(Facttable_ridership[NumberOfRiders])

- **Avg Ride Per Trip**

Formula: =AVERAGE(Facttable_ridership[NumberOfRiders])

My Learning

- Power Pivot
- Power Query
- Conditional Column
- Adding Custom Column
- Merging Column
- Data Type Changes
- Data Connection
- Data Modeling
- Dax Functions
- M-code
- Load & Load to function

Final Dashboard

Thanks

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