

Advanced Power Query

Learning Goals:

- ✓ Use append queries to combine tables.
- ✓ Add new custom or calculated columns.
- ✓ Use pivot and unpivot to reshape your data.
- ✓ Use advanced Text Column features to clean and format string data.
- ✓ Apply various Number Column functions for summarizing and transforming numeric data.
- ✓ Distinguish between Transform Tab and Add Column Tab operations.

By Delimiter

By Number of Characters

By Positions

By Lowercase to Uppercase

By Uppercase to Lowercase

By Digit to Non-Digit

By Non-Digit to Digit

Append Queries

Sales-2015

Sales-2016

Sales-2017

Sales-2018

Sales-2019

In order to append table
to extend the number
of records in vertical direction →

1. Table Should be Identical.
 - Number of columns has to be equal,
 - Column should be in same order.
 - Column should consist of similar data type.

Sales - 2015/19

Navigator

Session 16 _ Datasets.xlsx [12]

- ☒ Actual expense
- ☒ Actual Expense-2004
- ☒ Actual Expense-2005
- ☒ Actual Expense-2006
- ☒ Actual Expense-2007
- ☒ Actual expense-2008
- ☐ Additional Dataset - full_burea
- ☐ Additional Dataset - full_custo
- ☐ Additional Dataset - full_loan_
- ☐ Expense allowance
- ☐ Joins-1
- ☐ Joins-2

Actual expense-2008

DoI	Employee name	Division	Div	Grade
39474	Benjamin Walker	Customer Support	CustSup	
39537	Karthik Reddy	Technology Solutions	TechSol	
39572	Ayesha Verma	Finance and Accounting	FinAcc	
39588	Landon Turner	Customer Support	CustSup	
39612	Anusha Patel	Marketing and Communications	MarComm	
39629	Olivia Johnson	Human Resources	HR	
39630	Pranav Verma	Human Resources	HR	
39649	Ava Turner	Operations and Logistics	OpsLog	
39674	Uam Davis	Finance and Accounting	FinAcc	
39698	James Lee	Finance and Accounting	FinAcc	
39759	David Martinez	Marketing and Communications	MarComm	
39770	Aishani Gupta	Sales and Business Development	SalesBD	
39789	Logan Hall	Marketing and Communications	MarComm	

Load Transform Data Cancel

t23 DoI

Valid 100%
Error 0%
Empty 0%

18 distinct, 18 unique

38358
38366
38367
38374
38411
38424
38457
38462
38505
38523
38530
38546
38550
38558
38592

t23 Actual Expenses

Valid 100%
Error 0%
Empty 0%

18 distinct, 18 unique

87854
20445
4962
64955
9080
50037
14049
68012
63479
46802
72256
103540
14251
27457
10158

Convert it to Date Format from Whole Number for all the similar table

Change it to currency for all the table used for appending.

Append Queries

Append Queries

Append Queries as New

Append

Concatenate rows from two tables into a single table.

☒ Two tables ☐ Three or more tables

First table

Actual Expense-2004

Second table

OK

Cancel

Append

Concatenate rows from three or more tables into a single table.

☐ Two tables ☒ Three or more tables

Available tables

- Actual expenses
- Joins-1
- Joins-2
- Student_info[MergeQueries]
- Actual Expense-2004
- Actual Expense-2005
- Actual Expense-2006
- Actual Expense-2007
- Actual expense-2008

Add >>

Tables to append

- Actual Expense-2004
- Actual Expense-2005
- Actual Expense-2006
- Actual Expense-2007

OK

Cancel

Tables to append

- Actual Expense-2004
- Actual Expense-2005
- Actual Expense-2006
- Actual Expense-2007
- Actual expense-2008

DoI	Employee name	Division	Div	Grade	Rating	Age
Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%
88 distinct, 87 unique	89 distinct, 89 unique	8 distinct, 0 unique	8 distinct, 0 unique	7 distinct, 0 unique	5 distinct, 0 unique	37 distinct
14-02-2004	Nora Moore	Finance and Accounting	FinAcc	3	3	3
17-02-2004	Akshay Mishra	Finance and Accounting	FinAcc	2	1	1
03-03-2004	Yash Malhotra	Customer Support	CustSup	5	2	2
04-03-2004	Arnav Kapoor	Customer Support	CustSup	4	4	4
07-03-2004	Anshuman Kapoor	Customer Support	CustSup	4	4	4
05-04-2004	Priya Verma	Finance and Accounting	FinAcc	1	4	4
13-04-2004	Zoey Moore	Operations and Logistics	OpsLog	2	4	4
18-04-2004	Caleb Young	Marketing and Communications	MarComm	4	3	3
10-06-2004	Addison Johnson	Finance and Accounting	FinAcc	4	1	1
22-06-2004	Aryan Khatri	Human Resources	HR	5	1	1
24-06-2004	Sanika Sharma	Sales and Business Development	SalesBD	5	5	5
25-06-2004	Varun Agarwal	Human Resources	HR	1	2	2
26-06-2004	Scarlett Smith	Sales and Business Development	SalesBD	1	1	1
09-07-2004	Ava Smith	Research and Development	R&D	3	2	2
27-07-2004	Ananya Patel	Technology Solutions	TechSol	2	4	4
01-08-2004	Lily Smith	Research and Development	R&D	1	4	4
14-08-2004	Yuvraj Sharma	Research and Development	R&D	4	5	5
20-08-2004	Aanya Choudhury	Operations and Logistics	OpsLog	5	3	3

Close & Load

Refresh Preview

Close & Load

Close & Load To...

dd/mm/yyyy - English India/UK
mm/dd/yyyy - English US

Pivot Table/Unpivot Table

Navigator

- Select multiple items
- Display Options
- Session 16 _ Datasets.xlsx [12]
 - Actual expense
 - Actual Expense-2004
 - Actual Expense-2005
 - Actual Expense-2006
 - Actual Expense-2007
 - Actual expense-2008
 - Additional Dataset - full_burea
 - Additional Dataset - full_custo
 - Additional Dataset - full_loan
 - Expense allowance
 - Joins-1
 - Joins-2

Expense allowance

Column1	Column2	Column3	Column4	Column5	Column6
Division/Grade	2	2	3	4	5
HR	21000	38000	45000	48000	88000
R&D	18000	15000	52000	52000	95000
TechSol	14000	22000	30000	72000	98000
SalesBD	13000	29000	61000	89000	100000
OpsLog	31000	52000	62000	66000	98000
FinAcc	25000	27000	49000	57000	95000
CustSup	18000	31000	61000	62000	87000
MarComm	32000	42000	57000	74000	94000

Load

Transform Data

Cancel

Pivot Turns row values into column headers and
Unpivot Turns columns into rows to normalizing wide tables.

Table.TransformColumnTypes(#"Expense allowance_Sheet",{"Column1", type text}, {"Column2", Int64.Type}, {"Column3", Int64.Type}, {"Column4", Int64.Type}, {"Column5", Int64.Type}, {"Column6", Int64.Type}, {"Column7", Int64.Type})

Column1	Column2	Column3	Column4	Column5	Column6	Column7
Division/Grade						
HR	21000	38000	45000	48000	88000	
R&D	13000	15000	52000	52000	95000	
TechSol	14000	22000	30000	72000	98000	
SalesBD	13000	29000	61000	89000	100000	
OpsLog	31000	52000	62000	66000	98000	
FinAcc	25000	27000	49000	57000	95000	
CustSup	18000	31000	61000	62000	87000	
MarComm	32000	42000	57000	74000	94000	

Rows

Values

Columns

Division/Grade	1	2	3	4	5	6
HR	21000	38000	45000	48000	88000	
R&D	13000	15000	52000	52000	95000	
TechSol	14000	22000	30000	72000	98000	
SalesBD	13000	29000	61000	89000	100000	
OpsLog	31000	52000	62000	66000	98000	
FinAcc	25000	27000	49000	57000	95000	
CustSup	18000	31000	61000	62000	87000	
MarComm	32000	42000	57000	74000	94000	

Values

Attribute

Select all others columns except division.

Division/Grade	1	2	3	4	5	6
HR	21000	38000	45000	48000	88000	
R&D	13000	15000	52000	52000	95000	
TechSol	14000	22000	30000	72000	98000	
SalesBD	13000	29000	61000	89000	100000	
OpsLog	31000	52000	62000	66000	98000	
FinAcc	25000	27000	49000	57000	95000	
CustSup	18000	31000	61000	62000	87000	
MarComm	32000	42000	57000	74000	94000	

Unpivot Columns

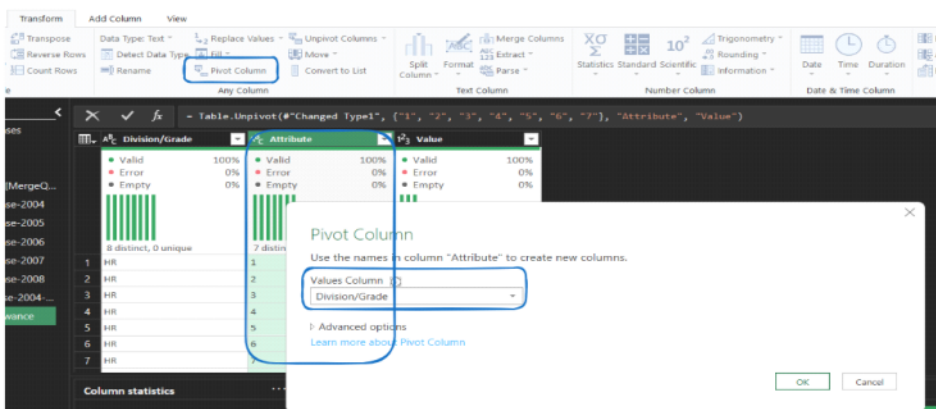
Unpivot Other Columns

Unpivot Only Selected Columns

2D Matrix is now become 1D Matrix.

Division/Grade	Attribute	Value
Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%
8 distinct, 0 unique	7 distinct, 0 unique	41 distinct, 29 unique
HR	1	21000
HR	2	38000
HR	3	45000
HR	4	48000
HR	5	88000
HR	6	73000
HR	7	51000
R&D	1	13000
R&D	2	15000
R&D	3	52000
R&D	4	52000
R&D	5	95000
R&D	6	93000
R&D	7	78000
TechSol	1	14000
TechSol	2	22000

Convert into Pivot Table.



Pivot Column

Use the names in column "Attribute" to create new columns.

Values Column: Value

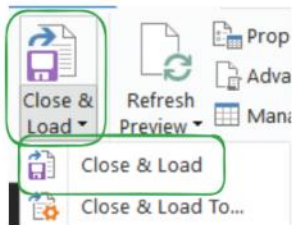
Advanced options

[Learn more about Pivot Column](#)

OK

Cancel

Division/Grade	1	2	3	4	5
Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%
8 distinct, 8 unique	7 distinct, 6 unique	8 distinct, 8 unique	7 distinct, 6 unique	8 distinct, 8 unique	6 distinct, 4 unique
CustSup	18000	31000	61000	62000	87000
FinAcc	25000	27000	49000	57000	95000
HR	21000	38000	45000	48000	88000
MarComm	32000	42000	57000	74000	94000
OpsLog	31000	52000	62000	66000	98000
R&D	13000	15000	52000	52000	95000
SalesBD	13000	29000	61000	89000	100000
TechSol	14000	22000	30000	72000	98000



Excel Workbook

Basic Advanced

File path

\\Users\krish\Downloads\Session 17 _ Dataset.xlsx

Browse...

Open file as

Excel Workbook

OK

Cancel

DoJ	Valid	Error	Empty
372 (37%)	0 (0%)	627 (63%)	
Valid	Error	Empty	

Remove Bottom Rows

Specify how many rows to remove from the bottom.

Number of rows

627

OK

Cancel

By Delimiter

By Number of Characters

split the column into number of characters.

By Positions

By Lowercase to Uppercase

By Uppercase to Lowercase

By Digit to Non-Digit

By Non-Digit to Digit

Split Column by Number of Characters

Specify the number of characters used to split the text column.

Number of characters

5

Split

☐ Once, as far left as possible

☐ Once, as far right as possible

☒ Repeatedly

Advanced options

0 1 2 3 4 5 6 7 8 9 10 11

Coding Ninja

krishnaMadan [By Lowercase to Uppercase] krishna Madan

KRISHNAMadan [By Uppercase to Lowercase] KRISHNA madan

rahulKUMARmishra → (lower to upper) -> upper to lower

rahul KUMARmishra → KUMAR mishra

CodingNinja123 -> NonDigit To Digit

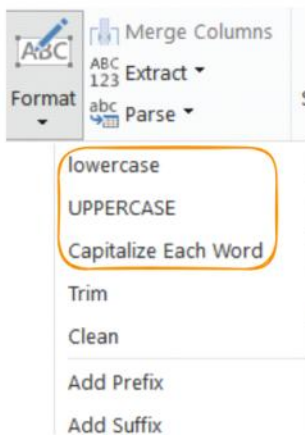
CodingNinja

123

1234CodingNinja-> Digit To NonDigit

1234

CodingNinja



Prefix

Enter a text value to add to the front of each value in the column.

Value

Hi,

Suffix

Enter a text value to add to the end of each value in the column.

Value

OK

Cancel

Hi, Nora Moore!
Hi, Akshay Mishra!
Hi, Yash Malhotra!
Hi, Arnav Kapoor!
Hi, Anshuman Kapoor!
Hi, Priya Verma!
Hi, Zoey Moore!
Hi, Caleb Young!
Hi, Addison Johnson!

OK Cancel

LEFT

Enter how many starting characters to keep.

RIGHT

Enter how many ending characters to keep.

MID

Enter the index of the first character, and the number of characters to keep.

OK Cancel

Krishnamadan77@gmail.com#998261697121

username

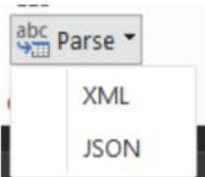
domain_name

random_phone_number

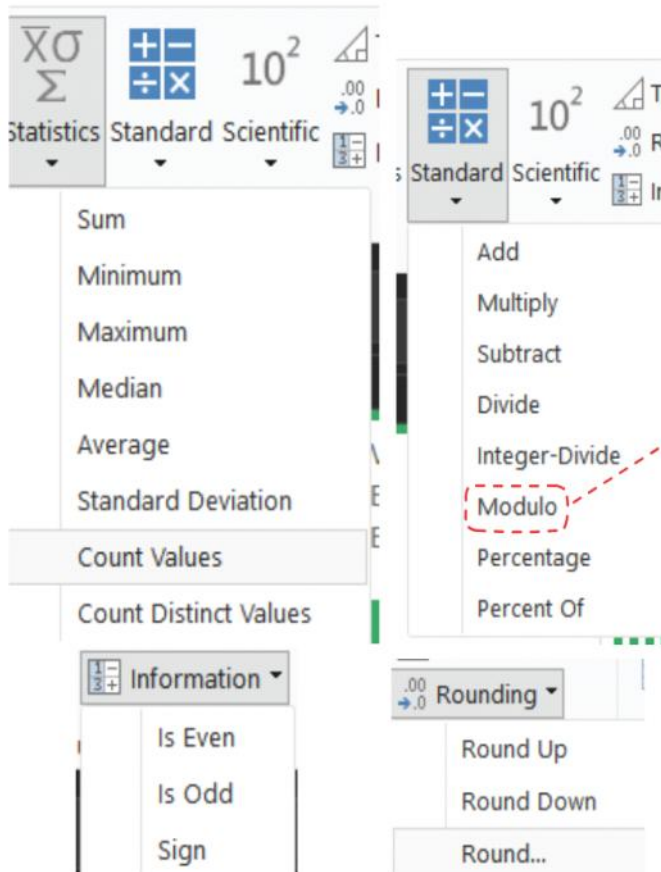
Text Before Delimiter

Text After Delimiter

Text Between Delimiters

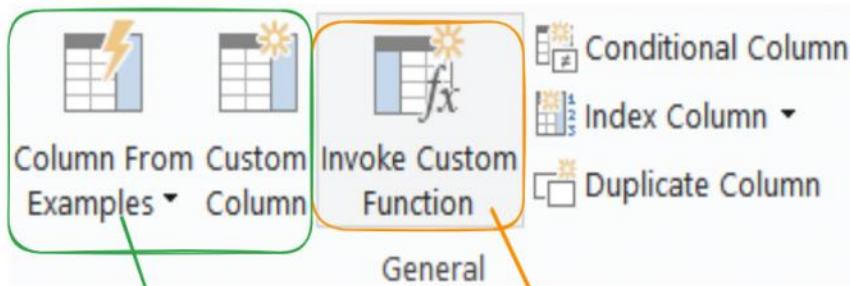


Converting Semi-Structured Table to Structured Table



$x \% 2 == 0$ -- Even
 $x \% 2 == 1$ -- Odd
 $x = 14 \% 2 = 0$ -- Even
 $x = 11 \% 2 = 1$ -- Odd

= TODAY() - DATE = Earliest/Latest.



String Manipulation Function.

Rolling Calendar [Power BI]

Based on some pattern, I'll create a new column

DoJ	Employee name	City	State	Division	Column1
22-07-2011	Naveen Menon	Gurgaon	Haryana	Human Resources	
28-08-2013	Preeti Khatri	Gurgaon	Haryana	Research and Development	
07-11-2022	Arjun Mehta	Gurgaon	Haryana	Technology Solutions	
07-05-2012	Aisha Kapoor	Gurgaon	Haryana	Sales and Business Development	
24-03-2014	Siddharth Sharma	Gurgaon	Haryana	Operations and Logistics	
21-03-2022	Neha Singh	Gurgaon	Haryana	Human Resources	
13-11-2009	Rajiv Verma	Gurgaon	Haryana	Finance and Accounting	
29-10-2011	Roshni Patel	Gurgaon	Haryana	Operations and Logistics	
21-11-2006	Vikrant Reddy	Gurgaon	Haryana	Research and Development	
25-03-2010	Anusha Kumar	Gurgaon	Haryana	Finance and Accounting	
28-08-2013	Rahul Kapoor	Gurgaon	Haryana	Finance and Accounting	
09-05-2019	Aishwarya Nair	Gurgaon	Haryana	Human Resources	
17-02-2004	Akshay Mishra	Gurgaon	Haryana	Finance and Accounting	
04-04-2015	Divya Khurana	Rohini	Delhi	Operations and Logistics	
30-03-2008	Karthik Reddy	Rohini	Delhi	Technology Solutions	
26-04-2006	Shruti Mehra	Rohini	Delhi	Human Resources	
06-07-2022	Varun Khanna	Rohini	Delhi	Finance and Accounting	
23-10-2005	Sneha Kapoor	Rohini	Delhi	Operations and Logistics	
22-02-2013	Ravi Malhotra	Rohini	Delhi	Technology Solutions	
04-04-2009	Tanvi Sharma	Rohini	Delhi	Operations and Logistics	
19-07-2020	Pranav Iyer	Sonipat	Haryana	Customer Support	
27-10-2017	Riya Choudhury	Sonipat	Haryana	Customer Support	
16-08-2020	Vimal Tiwari	Sonipat	Haryana	Operations and Logistics	
08-11-2007	Anjali Yadav	Sonipat	Haryana	Human Resources	

DoJ	Employee name	City	State	Division	FirstName	LastName
22-07-2011	Naveen Menon	Gurgaon	Haryana	Human Resources	Naveen	Menon
28-08-2013	Preeti Khatri	Gurgaon	Haryana	Research and Development	Preeti	Khatri
07-11-2022	Arjun Mehta	Gurgaon	Haryana	Technology Solutions	Arjun	Mehta
07-05-2012	Aisha Kapoor	Gurgaon	Haryana	Sales and Business Development	Aisha	Kapoor
24-03-2014	Siddharth Sharma	Gurgaon	Haryana	Operations and Logistics	Siddharth	Sharma
21-03-2022	Neha Singh	Gurgaon	Haryana	Human Resources	Neha	Singh
13-11-2009	Rajiv Verma	Gurgaon	Haryana	Finance and Accounting	Rajiv	Verma
29-10-2011	Roshni Patel	Gurgaon	Haryana	Operations and Logistics	Roshni	Patel
21-11-2006	Vikrant Reddy	Gurgaon	Haryana	Research and Development	Vikrant	Reddy
25-03-2010	Anusha Kumar	Gurgaon	Haryana	Finance and Accounting	Anusha	Kumar
28-08-2013	Rahul Kapoor	Gurgaon	Haryana	Finance and Accounting	Rahul	Kapoor
09-05-2019	Aishwarya Nair	Gurgaon	Haryana	Human Resources	Aishwarya	Nair
17-02-2004	Akshay Mishra	Gurgaon	Haryana	Finance and Accounting	Akshay	Mishra
04-04-2015	Divya Khurana	Rohini	Delhi	Operations and Logistics	Divya	Khurana
30-03-2008	Karthik Reddy	Rohini	Delhi	Technology Solutions	Karthik	Reddy
26-04-2006	Shruti Mehra	Rohini	Delhi	Human Resources	Shruti	Mehra
06-07-2022	Varun Khanna	Rohini	Delhi	Finance and Accounting	Varun	Khanna
23-10-2005	Sneha Kapoor	Rohini	Delhi	Operations and Logistics	Sneha	Kapoor
22-02-2013	Ravi Malhotra	Rohini	Delhi	Technology Solutions	Ravi	Malhotra
04-04-2009	Tanvi Sharma	Rohini	Delhi	Operations and Logistics	Tanvi	Sharma
19-07-2020	Pranav Iyer	Sonipat	Haryana	Customer Support	Pranav	Iyer
27-10-2017	Riya Choudhury	Sonipat	Haryana	Customer Support	Riya	Choudhury

AB C FirstName	AB C LastName
Valid 100%	Valid 99%
Error 0%	Error 0%
Empty 0%	Empty < 1%
192 distinct, 83 unique	60 distinct, 14 unique
Naveen	Menon
Preeti	Khatri
Arjun	Mehta
Aisha	Kapoor
Siddharth	Sharma
Neha	Singh
Rajiv	Verma
Roshni	Patel
Vikrant	Reddy
Anusha	Kumar
Rahul	Kapoor
Aishwarya	Nair
Akshay	Mishra
Divya	Khurana
Karthik	Reddy
Shruti	Mehra

Custom Column

Add a column that is computed from the other columns.

New column name

Rating Category

Custom column formula ⓘ

= if [Rating] > 3 then "Excellent" else "Average"

Available columns

State
Division
Div
Grade
Rating
Age
Actual Expenses
Year

<< Insert

[Learn about Power Query formulas](#)

Index Column ▾

Duplicate Column

123 Index
Valid 100%
Error 0%
Empty 0%
372 distinct, 372 unique
0
1
2
3
4
5
6

From 0

From 1

Custom...

Add Index Column

Add an index column with a specified starting index and increment.

Starting Index

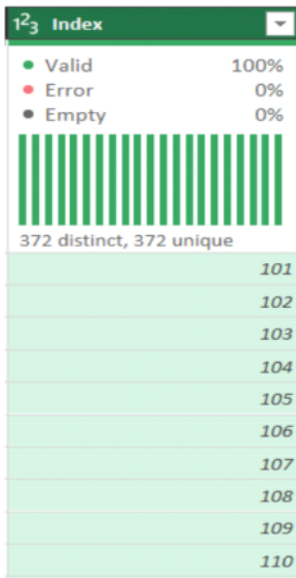
1

Increment

1

OK

Cancel



Add Index Column

Add an index column with a specified starting index and increment.

Starting Index

101

Increment

1

Add Index Column

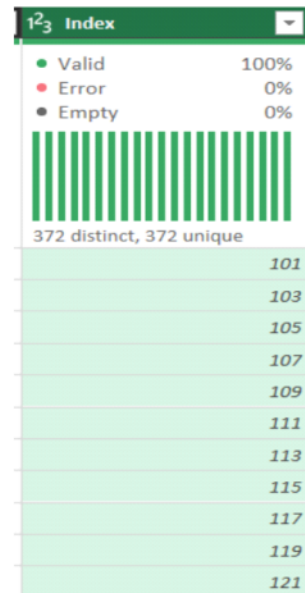
Add an index column with a specified starting index and increment.

Starting Index

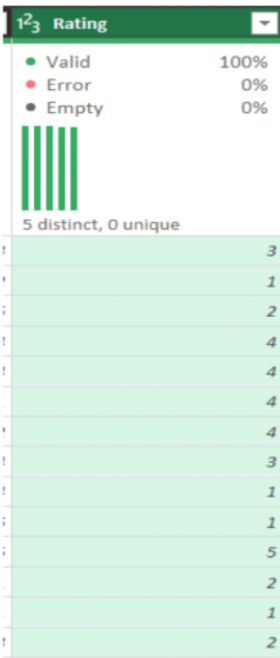
101

Increment

2



Duplicate Column



Conditional Column

Add Conditional Column

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

New column name

RatingCategory

Column Name	Operator	Value	Output
If	<	ABC 123	Then ABC 123
Add Clause			
Else		ABC 123	

OK

Cancel

1 - Very Low
2 - Low
3 - Average
4 - Good
5 - Excellent

Add Conditional Column

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

New column name

RatingCategory

	Column Name	Operator	Value		Output
If	Rating	is less than	2	Then	Very Low
Else If	Rating	is less than	3	Then	Low
Else If	Rating	is less than	4	Then	Average
Else If	Rating	is less than	5	Then	Good
Else If	Rating	equals	5	Then	Excellent

Add Clause

Else

Not Defined

OK Cancel

- (Select All)
- Average
- Excellent
- Good
- Low
- Very Low

1,2 low
3,4 average
5 Excellent

Add Conditional Column

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

New column name

RatingCategory

	Column Name	Operator	Value		Output
If	Rating	is less than or equ...	2	Then	Low
Else If	Rating	is less than or equ...	4	Then	Average
Else If	Rating	equals	5	Then	Excellent

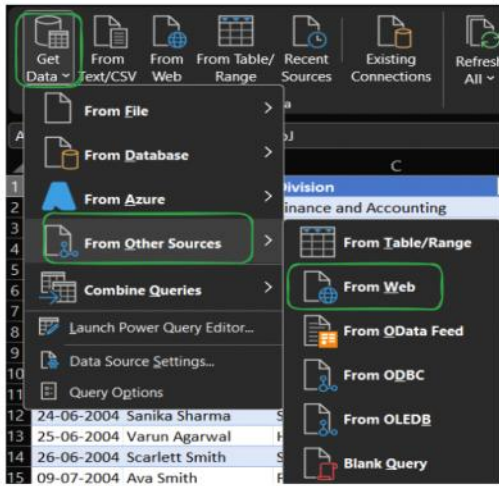
Add Clause

Else

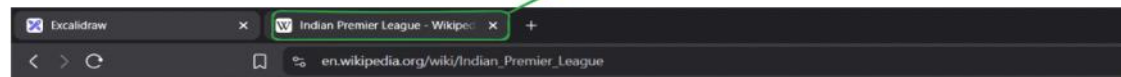
Not Defined

OK Cancel

- (Select All)
- Average
- Excellent
- Low



Static Website



From Web

☒ Basic ☐ Advanced

URL

OK Cancel

From Web

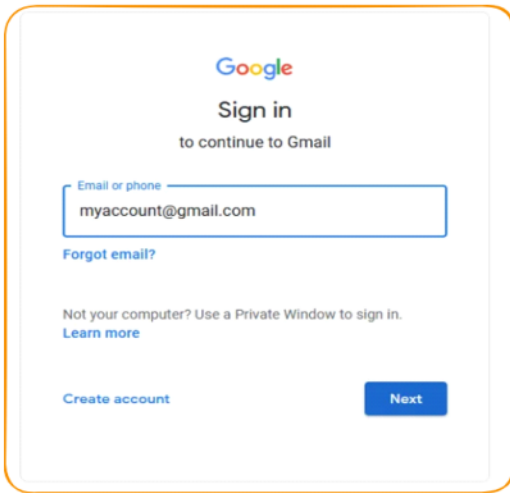
☒ Basic ☐ Advanced

URL
https://en.wikipedia.org/wiki/Indian_Premier_League

OK Cancel



Front End [Gmail Login]



Google

Sign in
to continue to Gmail

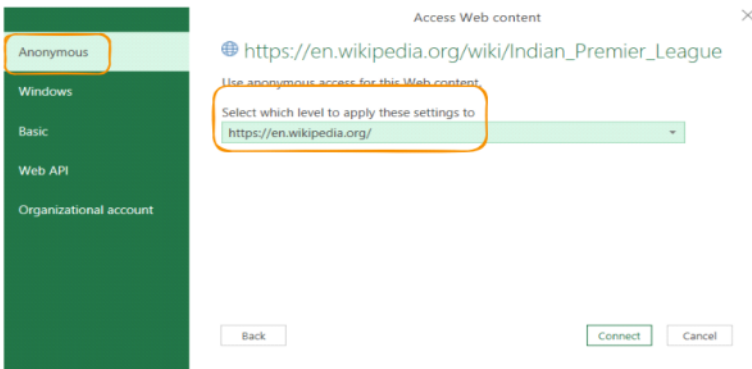
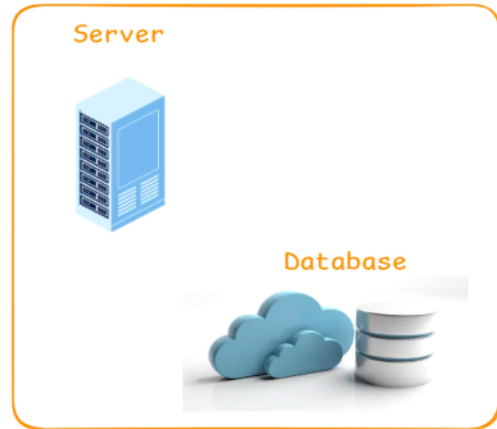
Email or phone
myaccount@gmail.com

Forgot email?

Not your computer? Use a Private Window to sign in.
[Learn more](#)

Create account Next

BackEnd

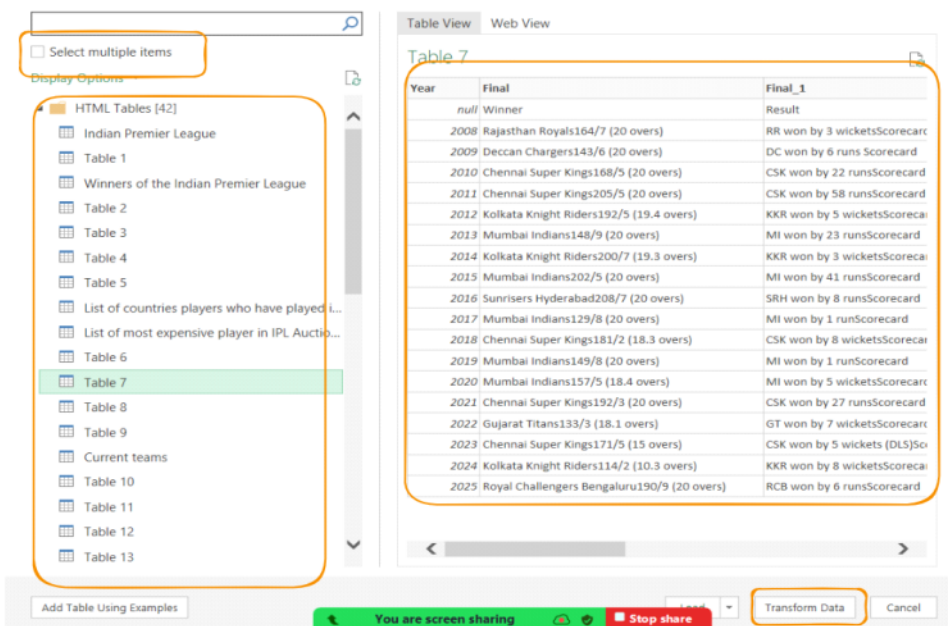


Connecting

Please wait while we establish a connection to
https://en.wikipedia.org/wiki/Indian_Premier_League.

Cancel

Navigator



Select multiple items

Display Options

- HTML Tables [42]
 - Indian Premier League
 - Table 1
 - Winners of the Indian Premier League
 - Table 2
 - Table 3
 - Table 4
 - Table 5
 - List of countries players who have played i...
 - List of most expensive player in IPL Auctio...
 - Table 6
 - Table 7
 - Table 8
 - Table 9
 - Current teams
 - Table 10
 - Table 11
 - Table 12
 - Table 13

Table View Web View

Table 7

Year	Final	Final_1
null	Winner	Result
2008	Rajasthan Royals164/7 (20 overs)	RR won by 3 wicketsScorecard
2009	Deccan Chargers143/6 (20 overs)	DC won by 6 runs Scorecard
2010	Chennai Super Kings168/5 (20 overs)	CSK won by 22 runsScorecard
2011	Chennai Super Kings205/5 (20 overs)	CSK won by 58 runsScorecard
2012	Kolkata Knight Riders192/5 (19.4 overs)	KKR won by 5 wicketsScorecard
2013	Mumbai Indians148/9 (20 overs)	MI won by 23 runsScorecard
2014	Kolkata Knight Riders200/7 (19.3 overs)	KKR won by 3 wicketsScorecard
2015	Mumbai Indians202/5 (20 overs)	MI won by 41 runsScorecard
2016	Sunrisers Hyderabad208/7 (20 overs)	SRH won by 8 runsScorecard
2017	Mumbai Indians129/8 (20 overs)	MI won by 1 runScorecard
2018	Chennai Super Kings181/2 (18.3 overs)	CSK won by 8 wicketsScorecard
2019	Mumbai Indians149/8 (20 overs)	MI won by 1 runScorecard
2020	Mumbai Indians157/5 (18.4 overs)	MI won by 5 wicketsScorecard
2021	Chennai Super Kings192/3 (20 overs)	CSK won by 27 runsScorecard
2022	Gujarat Titans133/3 (18.1 overs)	GT won by 7 wicketsScorecard
2023	Chennai Super Kings171/5 (15 overs)	CSK won by 5 wickets (DLS)Scorecard
2024	Kolkata Knight Riders114/2 (10.3 overs)	KKR won by 8 wicketsScorecard
2025	Royal Challengers Bengaluru190/9 (20 overs)	RCB won by 6 runsScorecard

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