

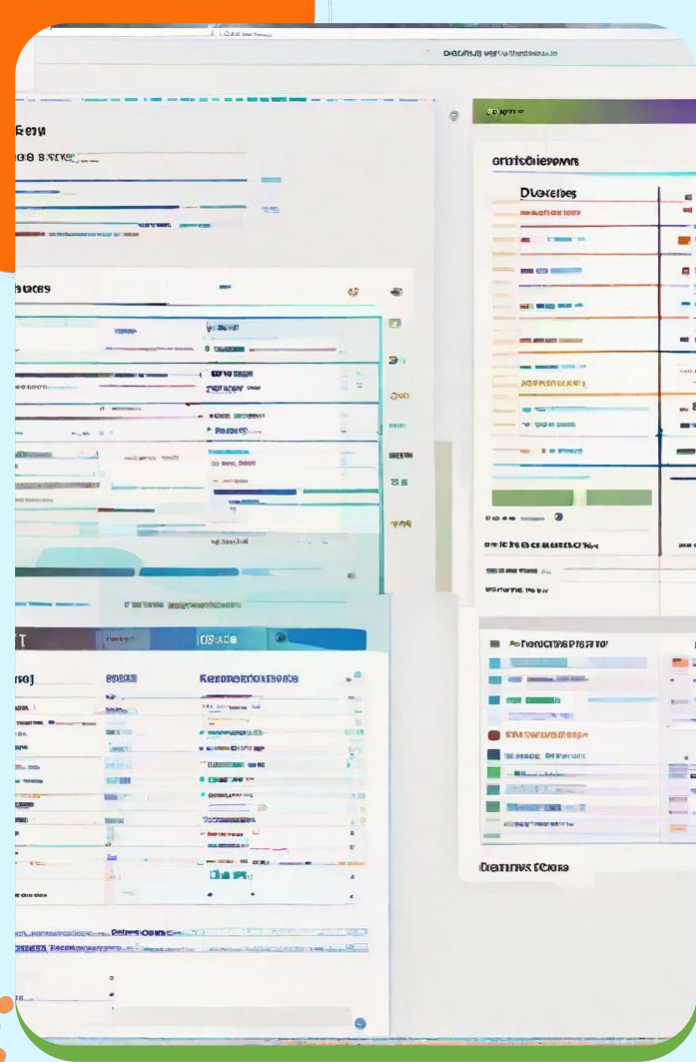


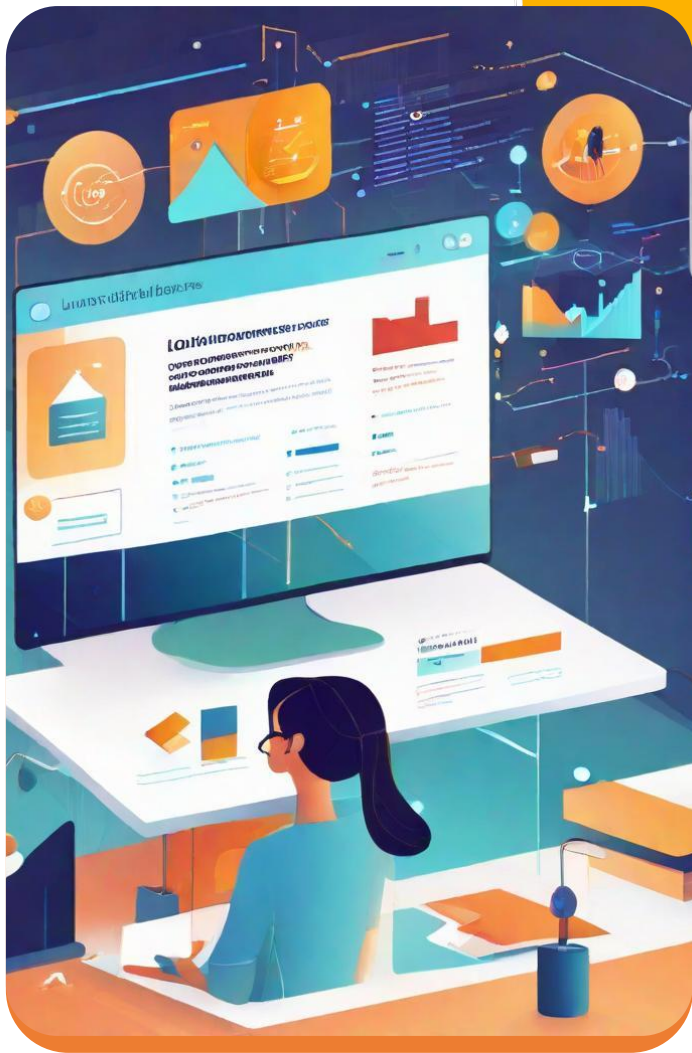
# The Power of Joining Data

An exploration of the fundamental operation that drives data management

# Definition & Purpose

- Combining rows from two or more tables based on related columns
- Creating a unified dataset with enriched information
- Deriving comprehensive insights from separated datasets
- Establishing relationships between entities or attributes





## Use-cases

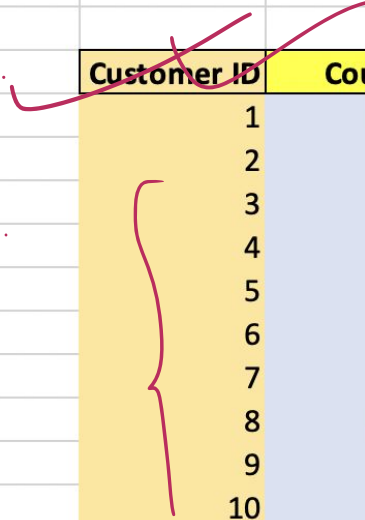
01

Personalized recommendations in e-commerce platforms


02

Data analysis, reporting, and decision-making processes





Customer ID	Country	Age	Gender
1	India	18	Male
2	UK	18	Male
3	USA	33	Male
4	UK	22	Female
5	USA	35	Male
6	USA	18	Female
7	UK	37	Female
8	India	30	Female
9	UK	28	Male
10	UK	28	Female
11	USA	26	Male
12	India	38	Male
13	UK	36	Male
14	USA	27	Female
15	USA	33	Female
16	India	23	Female
17	India	22	Female
18	India	28	Male



Customer ID	Revenue	Cost	Quantity
1	66446	1563	40
2	71007	2270	45
3	25964	1210	17
4	79883	2681	33
5	16761	1845	50
6	42321	4591	47
7	58998	2662	42
8	11289	2546	33
9	58000	3058	26
10	97793	2608	35
11	22546	2900	12
12	34394	1968	16
13	70589	1378	13
14	38138	2815	37
15	47788	1976	15
16	48224	1843	50
17	31659	2637	17
18	26188	4543	45

# Scenario: Employees and Departments

Employee ID Name		Department ID	Department ID Department	
1	Shahriar	1	1	Sales
2	Ramisha	2	2	Production
3	Emon	3	3	CSR
4	Nowshin	4	4	Finance
5	Asif	5	5	Sales
6	Rima	6	11	Risk Management
7	Mahdi	7	12	HR
8	Iftee	8	13	Finance
9	Ricardo	9	14	Sales
10	Panima	10	15	R&D

# Inner Join

01

Combines employee information with corresponding department information

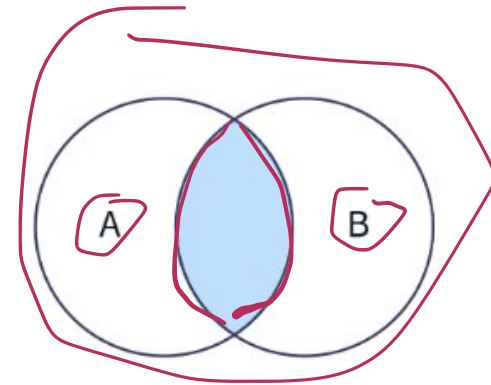
02

Returns rows with matching values in both tables

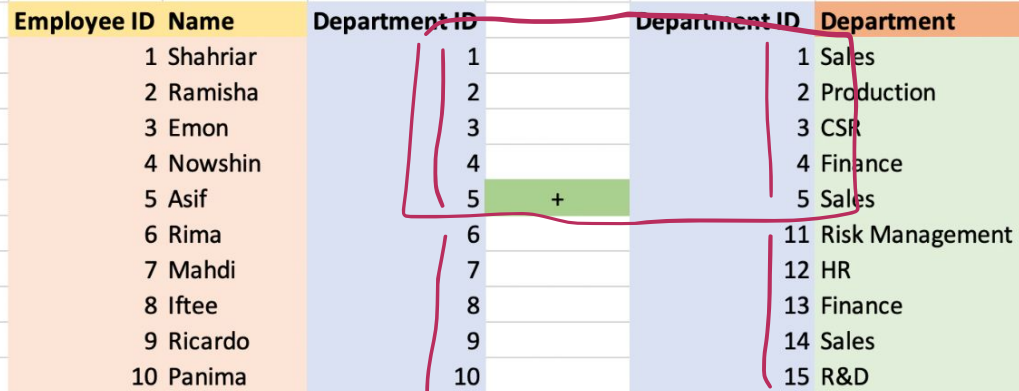
03

Filters out non-matching rows

INNER JOIN



# Inner Join



Employee ID	Name	Department ID
1	Shahriar	1
2	Ramisha	2
3	Emon	3
4	Nowshin	4
5	Asif	5
6	Rima	6
7	Mahdi	7
8	Iftee	8
9	Ricardo	9
10	Panima	10

Department ID	Department
1	Sales
2	Production
3	CSR
4	Finance
5	Sales
11	Risk Management
12	HR
13	Finance
14	Sales
15	R&D

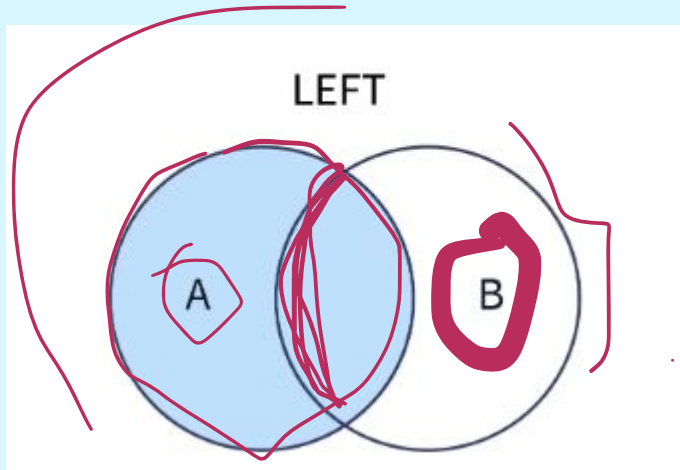


Employee ID	Name	Department ID	Department
1	Shahriar	1	Sales
2	Ramisha	2	Production
3	Emon	3	CSR
4	Nowshin	4	Finance
5	Asif	5	Sales



# Left Join

- Returns all rows from the left table
- Includes matched rows from the right table
- Includes NULL values for non matching rows





# Left Join

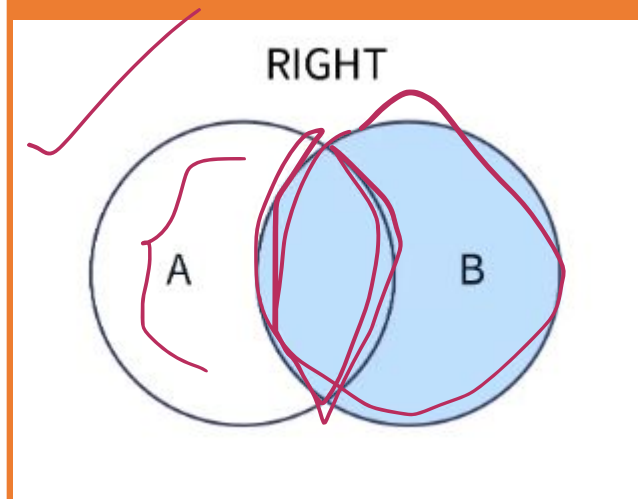
Employee ID	Name	Department ID	Department ID	Department	Employee ID	Name	Department ID	Department
1	Shahriar	1	1	Sales	1	Shahriar	1	Sales
2	Ramisha	2	2	Production	2	Ramisha	2	Production
3	Emon	3	3	CSR	3	Emon	3	CSR
4	Nowshin	4	4	Finance	4	Nowshin	4	Finance
5	Asif	5	5	Sales	5	Asif	5	Sales
6	Rima	6	11	Risk Management	6	Rima	6	NULL
7	Mahdi	7	12	HR	7	Mahdi	7	NULL
8	Iftee	8	13	Finance	8	Iftee	8	NULL
9	Ricardo	9	14	Sales	9	Ricardo	9	NULL
10	Panima	10	15	R&D	10	Panima	10	NULL

# Right Join


**01** Includes NULL values for non-matching rows

**02** Returns all rows from the right table

**03** Includes matched rows from the left table




# Right Join




Employee ID	Name	Department ID
1	Shahriar	1
2	Ramisha	2
3	Emon	3
4	Nowshin	4
5	Asif	5
6	Rima	6
7	Mahdi	7
8	Iftae	8
9	Ricardo	9
10	Panima	10

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Department ID	Department
1	Sales
2	Production
3	CSR
4	Finance
5	Sales
11	Risk Management
12	HR
13	Finance
14	Sales
15	R&D

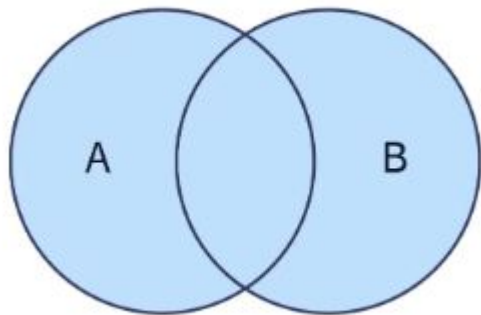
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Employee ID	Name	Department ID	Department
1	Shahriar	1	Sales
2	Ramisha	2	Production
3	Emon	3	CSR
4	Nowshin	4	Finance
5	Asif	5	Sales
NULL	NULL	11	Risk Management
NULL	NULL	12	HR
NULL	NULL	13	Finance
NULL	NULL	14	Sales
NULL	NULL	15	R&D



FULL



## Outer Join

01

Includes NULL values for non-matching rows

02

Returns all rows from both tables

# Outer Join

Employee ID	Name	Department ID	Department ID	Department	Employee ID	Name	Department ID	Department
1	Shahriar	1	1	Sales	1	Shahriar	1	Sales
2	Ramisha	2	2	Production	2	Ramisha	2	Production
3	Emon	3	3	CSR	3	Emon	3	CSR
4	Nowshin	4	4	Finance	4	Nowshin	4	Finance
5	Asif	5	5	Sales	5	Asif	5	Sales
6	Rima	6	11	Risk Management	6	Rima	6	NULL
7	Mahdi	7	12	HR	7	Mahdi	7	NULL
8	Iftee	8	13	Finance	8	Iftee	8	NULL
9	Ricardo	9	14	Sales	9	Ricardo	9	NULL
10	Panima	10	15	R&D	10	Panima	10	NULL
					NULL	NULL	11	Risk Management
					NULL	NULL	12	HR
					NULL	NULL	13	Finance
					NULL	NULL	14	Sales
					NULL	NULL	15	R&D

# Conclusion

01

Driving innovation and data-driven decision-making

02

The power of joining data in harnessing information assets

03

Transforming raw information into actionable insights



**Thank you for your time 😊**