

OUTER JOIN

In an outer join, along with tuples that satisfy the matching criteria, we also include some or all tuples that do not match the criteria.

Left Outer Join ($A \bowtie B$)

In the left outer join, operation allows keeping all tuple in the left relation. However, if there is no matching tuple is found in right relation, then the attributes of right relation in the join result are filled with null values.



Consider the following 2 Tables

| A | |
|-----|--------|
| Num | Square |
| 2 | 4 |
| 3 | 9 |
| 4 | 16 |

| B | |
|-----|------|
| Num | Cube |
| 2 | 8 |
| 3 | 18 |
| 5 | 75 |

$A \bowtie B$

| Num | Square | Cube |
|-----|--------|------|
| 2 | 4 | 4 |
| 3 | 9 | 9 |
| 4 | 16 | - |

Right Outer Join: ($A \bowtie B$)

In the right outer join, operation allows keeping all tuple in the right relation. However, if there is no matching tuple is found in the left relation, then the attributes of the left relation in the join result are filled with null values.



| $A \bowtie B$ | | |
|---------------|------|--------|
| Num | Cube | Square |
| 2 | 8 | 4 |
| 3 | 18 | 9 |
| 5 | 75 | - |

Full Outer Join: ($A \bowtie B$)

In a full outer join, all tuples from both relations are included in the result, irrespective of the matching condition.

$A \bowtie B$

| $A \bowtie B$ | | |
|---------------|------|--------|
| Num | Cube | Square |
| 2 | 4 | 8 |
| 3 | 9 | 18 |
| 4 | 16 | - |
| 5 | - | 75 |