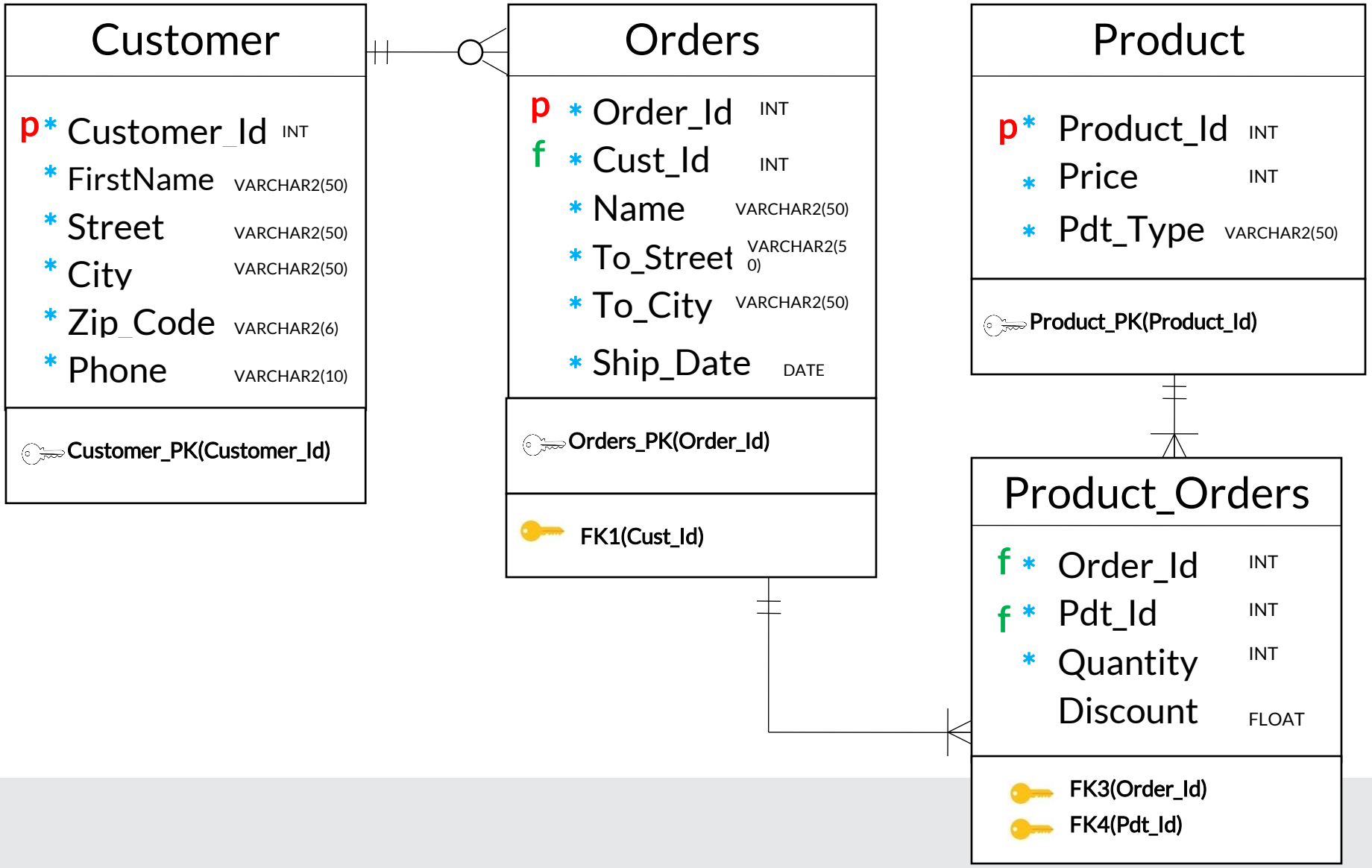
Joins

In this session, you will learn:

- Introduction to Join statements
- Types of Joins with example queries


Customer
p * Customer_Id INT
* FirstName VARCHAR2(50)
* Street VARCHAR2(50)
* City VARCHAR2(50)
* Zip_Code VARCHAR2(6)
* Phone VARCHAR2(10)
Customer_PK(Customer_Id)
Orders
p * Order_Id INT
f * Cust_Id INT
* Name VARCHAR2(50)
* To_Street VARCHAR2(50)
* To_City VARCHAR2(50)
* Ship_Date DATE
Orders_PK(Order_Id)
FK1(Cust_Id)
Product
p * Product_Id INT
* Price INT
* Pdt_Type VARCHAR2(50)
Product_PK(Product_Id)
Product_Orders
f * Order_Id INT
f * Pdt_Id INT
* Quantity INT
Discount FLOAT
FK3(Order_Id)
FK4(Pdt_Id)

Introduction to Join statements

- Method of linking data from one or more tables based on values of the common column between tables.

  - ✓ Cross Join
  - ✓ Inner Join
  - ✓ Left Outer Join(Left Join)
  - ✓ Right Outer Join(Right Join)
  - ✓ Full Outer Join(Full Join)

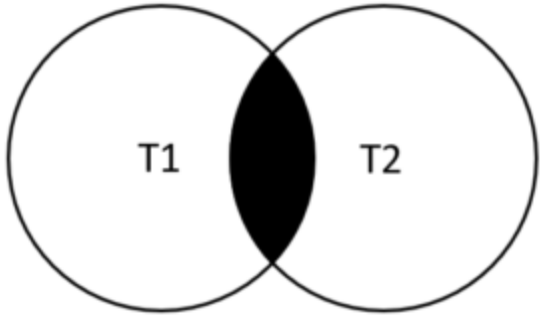
- Clauses used to join tables: CROSS JOIN, INNER JOIN, LEFT JOIN, RIGHT JOIN or FULL JOIN.

Inner Join Clause

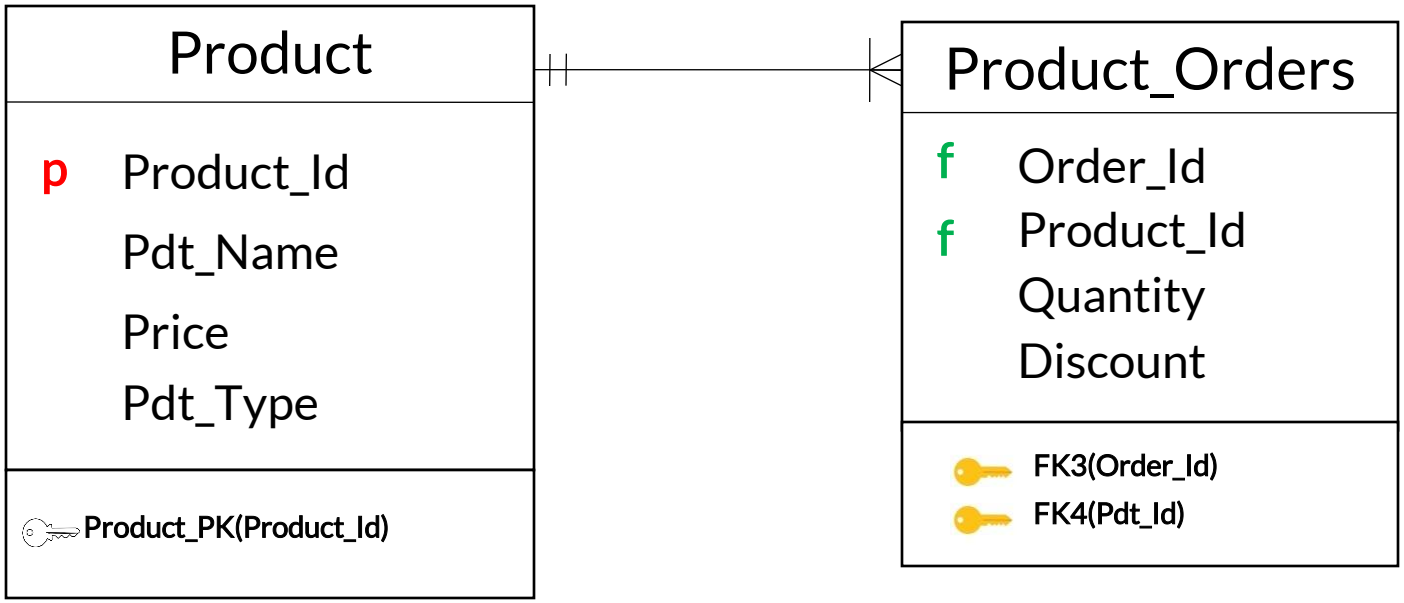
- Inner join clause select all rows from both tables as long as there is a match between the columns in both tables.

Syntax

```
SELECT column_list
FROM t1
INNER JOIN t2 ON join_condition1
INNER JOIN t3 ON join_condition2
...
WHERE where_conditions;
;
```



Inner Join Clause - Example



Product

Product_Id	Pdt_Name	Price	Pdt_Type
300	Fan	5000	Electronics
301	Rhymes	1000	Books
302	Shirt	2000	Men Apparel

Product_Orders

Order_Id	Product_Id	Quantity	Discount
200	300	1	0
200	301	5	0.1
201	301	2	0.2

Inner Join Clause - Example

Example

```
SELECT Product_Id, Pdt_Name, Price, Quantity, Discount
FROM Product   t1
INNER JOIN Product_Orders  t2
ON
Product_Id = Product_Id;
```

t1.Product_Id = t2.Product_Id;

Product.Product_Id=Product_Orders.Product_Id;

Ambiguous Column Error

Product_Id	Pdt_Name	Price	Quantity	Discount
300	Fan	5000	1	0
301	Rhymes	1000	5	0.1
301	Rhymes	1000	2	0.2

Table Aliases

Inner Join Clause with GROUP BY- Example

Example

```
SELECT Product_Id, Pdt_Name, Sum(Quantity) AS Total_Quantity
FROM Product   t1
INNER JOIN Product_Orders  t2
ON
t1.Product_Id = t2.Product_Id;
GROUP BY Product_Id
```

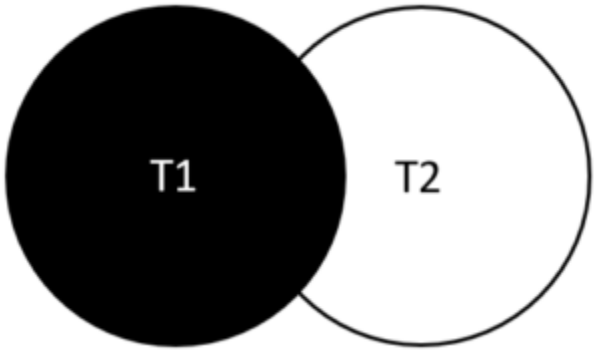
Product_Id	Pdt_Name	Total_Quantity
300	Fan	1
301	Rhymes	7

Left Join Clause

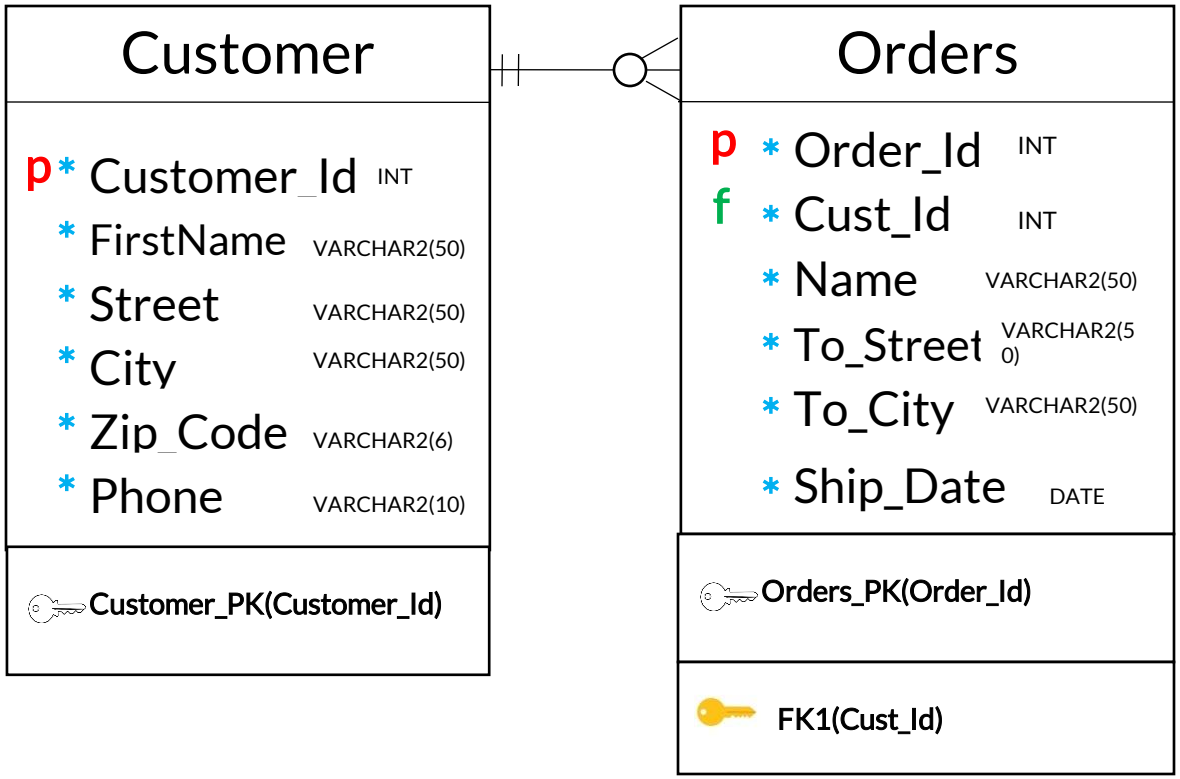
- LEFT JOIN clause specifies that all records be fetched from the table on the left side of the join statement.
- If a record returned from the left table has no matching record in the table on the right side of the join, it is still returned, and the corresponding column from the right table returns a NULL value.

Syntax

```
SELECT column_list
FROM t1
LEFT JOIN t2 ON join_condition;
```



LEFT JOIN Clause – Example



Customer

Customer_Id	FirstName	Street	City	Zip_Code	Phone
100	ABC	Central	Chennai	641088	9852754812
101	XYZ	Velacherry	Chennai	641088	5872526262
103	FEG	Lakeview	Ooty	465424	4541565996

Orders

Order_Id	Cust_Id	Name	To_Street	To_City	Ship_Date
200	100	ABC	Central	Chennai	2018-01-01
201	101	XYZ	Velacherry	Chennai	2017-12-12
202	100	ABC	Central	Chennai	2018-02-10

LEFT JOIN Clause - Example

Example

```
SELECT Customer_Id, FirstName, Order_Id, Ship_Date
FROM Customer
LEFT JOIN Orders
ON
Customer_Id = Cust_Id;
```

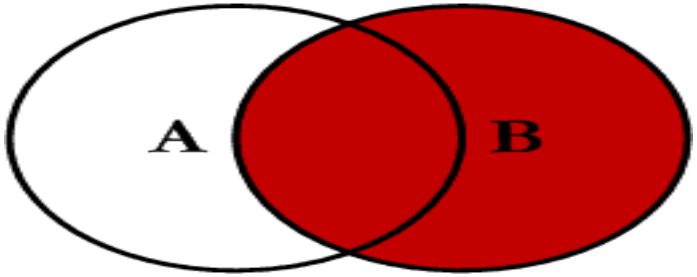
Customer_Id	FirstName	Order_Id	Ship_Date
100	ABC	200	2018-01-01
101	XYZ	201	2017-12-12
100	ABC	202	2018-02-10
103	FEG	NULL	NULL

Right Join Clause

- Similar to LEFT JOIN clause, except the treatment of table reversed.

Syntax

```
SELECT column_list
FROM t1
RIGHT JOIN t2 ON join_condition1;
```

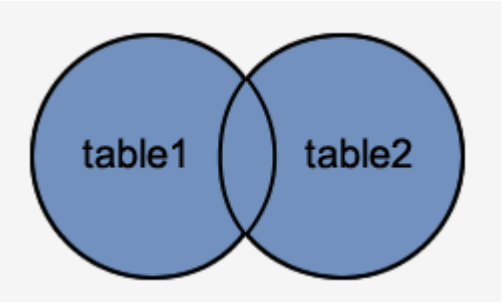


Full Join Clause

- returns all rows from the LEFT-hand table and RIGHT-hand table with nulls in place where the join condition is not met.

Syntax

```
SELECT column_list
FROM t1
FULL JOIN t2 ON join_condition1;
```



Cross Join Clause

- CROSS JOIN clause returns the Cartesian product of rows from the joined tables.

Syntax

```
SELECT column_list
FROM t1
CROSS JOIN t2;
```

CROSS JOIN Clause – Example

Product

Product_Id	Pdt_Name	Price
1	iPhone	1000
2	iPad	500
3	Macbook Pro	1500

Stores

Store_Id	Store_Name
1	ABC
2	XYZ

Example

```
SELECT Store_Name, Pdt_Name
FROM
Stores
CROSS JOIN Product
```

Store_Name	Pdt_Name
ABC	iPhone
XYZ	iPhone
ABC	iPad
XYZ	iPad
ABC	Macbook pro
XYZ	Macbook Pro

THANKS