

Name	Sujal Sandeep Dingankar, Harsha Tanaji Surwase																																																																																																																																																																																																		
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Aim	Join Operations																																																																																																																																																																																																		
Commands	<div>Donor Table.</div> <div><pre>mysql&gt; Select * from Donor;</pre><table><tr><th>id</th><th>firstname</th><th>lastname</th><th>contact</th><th>email</th><th>bloodgroup</th><th>Age</th><th>healthstatus</th></tr><tr><td>101</td><td>Sujal</td><td>Dingankar</td><td>7798802841</td><td>sujal.dingankar@spit.ac.in</td><td>O+</td><td>20</td><td>Healthy</td></tr><tr><td>102</td><td>Shreeya</td><td>Nemade</td><td>7698231082</td><td>shreeya.nemade@spit.ac.in</td><td>A+</td><td>19</td><td>Healthy</td></tr><tr><td>103</td><td>Harsha</td><td>Surwase</td><td>5612798561</td><td>harsha.surwase@spit.ac.in</td><td>B+</td><td>21</td><td>Healthy</td></tr><tr><td>104</td><td>Avi</td><td>Patil</td><td>1234598745</td><td>avinash.patil@spit.ac.in</td><td>AB+</td><td>18</td><td>Healthy</td></tr><tr><td>105</td><td>Shruti</td><td>Bhuvad</td><td>455612345</td><td>shruti.bhuvad@spit.ac.in</td><td>A+</td><td>22</td><td>Healthy</td></tr><tr><td>106</td><td>John</td><td>Doe</td><td>7894561230</td><td>john.doe@example.com</td><td>O+</td><td>25</td><td>Healthy</td></tr><tr><td>107</td><td>Jane</td><td>Smith</td><td>7894567890</td><td>jane.smith@example.com</td><td>O+</td><td>30</td><td>Healthy</td></tr><tr><td>108</td><td>Mark</td><td>Taylor</td><td>7894563456</td><td>mark.taylor@example.com</td><td>O+</td><td>19</td><td>Healthy</td></tr><tr><td>109</td><td>Lucy</td><td>Brown</td><td>7894569876</td><td>lucy.brown@example.com</td><td>A+</td><td>35</td><td>Healthy</td></tr></table><pre>9 rows in set (0.01 sec)</pre></div> <div><div>Donne Table.</div><div><pre>mysql&gt; Select * from Donne;</pre><table><tr><th>id</th><th>firstname</th><th>lastname</th><th>contact</th><th>email</th><th>bloodgroup</th><th>healthstatus</th><th>request_id</th><th>request_date</th></tr><tr><td>101</td><td>Shubham</td><td>Bhuvad</td><td>7798521123</td><td>shubham.bhuvad@spit.ac.in</td><td>A+</td><td>Healthy</td><td>R001</td><td>2024-10-05</td></tr><tr><td>102</td><td>Sanjay</td><td>Kadam</td><td>4568912345</td><td>sanjay.bhuvad@spit.ac.in</td><td>AB+</td><td>Healthy</td><td>R002</td><td>2024-10-06</td></tr><tr><td>103</td><td>Harshvardan</td><td>Nemade</td><td>777894561</td><td>harshavardan.nemade@spit.ac.in</td><td>O+</td><td>Healthy</td><td>R003</td><td>2024-10-14</td></tr><tr><td>104</td><td>Soham</td><td>Bhojane</td><td>564781234</td><td>soham.bhojane@spit.ac.in</td><td>A+</td><td>Healthy</td><td>R004</td><td>2024-10-20</td></tr><tr><td>105</td><td>Shruti</td><td>Bhuvad</td><td>7798802841</td><td>sujal.dingankar@spit.ac.in</td><td>O+</td><td>Healthy</td><td>R005</td><td>2024-10-25</td></tr></table><pre>5 rows in set (0.01 sec)</pre></div></div> <div><div>Blood Table.</div><div><pre>mysql&gt; Select * from Blood;</pre><table><tr><th>id</th><th>bloodgroup</th><th>quantity</th><th>expiry_date</th><th>bloodStatus</th></tr><tr><td>101</td><td>A+</td><td>50</td><td>2024-10-13</td><td>Available</td></tr><tr><td>102</td><td>B+</td><td>100</td><td>2024-10-09</td><td>Available</td></tr><tr><td>103</td><td>AB+</td><td>150</td><td>2024-10-15</td><td>Expired</td></tr><tr><td>104</td><td>O+</td><td>170</td><td>2024-10-20</td><td>Available</td></tr><tr><td>105</td><td>A+</td><td>60</td><td>2024-10-14</td><td>Available</td></tr></table><pre>5 rows in set (0.00 sec)</pre></div></div> <div><div>Blood_Donation Table</div><div><pre>mysql&gt; Select * from blood_donation;</pre><table><tr><th>id</th><th>donar_id</th><th>blood_id</th><th>donee_id</th><th>donation_date</th><th>receive_date</th></tr><tr><td>1</td><td>101</td><td>101</td><td>101</td><td>2024-10-01</td><td>2024-10-05</td></tr><tr><td>2</td><td>102</td><td>102</td><td>NULL</td><td>2024-10-15</td><td>NULL</td></tr><tr><td>3</td><td>103</td><td>103</td><td>NULL</td><td>2024-10-20</td><td>NULL</td></tr><tr><td>4</td><td>104</td><td>104</td><td>104</td><td>2024-10-16</td><td>2024-10-12</td></tr></table><pre>4 rows in set (0.01 sec)</pre></div></div>	id	firstname	lastname	contact	email	bloodgroup	Age	healthstatus	101	Sujal	Dingankar	7798802841	sujal.dingankar@spit.ac.in	O+	20	Healthy	102	Shreeya	Nemade	7698231082	shreeya.nemade@spit.ac.in	A+	19	Healthy	103	Harsha	Surwase	5612798561	harsha.surwase@spit.ac.in	B+	21	Healthy	104	Avi	Patil	1234598745	avinash.patil@spit.ac.in	AB+	18	Healthy	105	Shruti	Bhuvad	455612345	shruti.bhuvad@spit.ac.in	A+	22	Healthy	106	John	Doe	7894561230	john.doe@example.com	O+	25	Healthy	107	Jane	Smith	7894567890	jane.smith@example.com	O+	30	Healthy	108	Mark	Taylor	7894563456	mark.taylor@example.com	O+	19	Healthy	109	Lucy	Brown	7894569876	lucy.brown@example.com	A+	35	Healthy	id	firstname	lastname	contact	email	bloodgroup	healthstatus	request_id	request_date	101	Shubham	Bhuvad	7798521123	shubham.bhuvad@spit.ac.in	A+	Healthy	R001	2024-10-05	102	Sanjay	Kadam	4568912345	sanjay.bhuvad@spit.ac.in	AB+	Healthy	R002	2024-10-06	103	Harshvardan	Nemade	777894561	harshavardan.nemade@spit.ac.in	O+	Healthy	R003	2024-10-14	104	Soham	Bhojane	564781234	soham.bhojane@spit.ac.in	A+	Healthy	R004	2024-10-20	105	Shruti	Bhuvad	7798802841	sujal.dingankar@spit.ac.in	O+	Healthy	R005	2024-10-25	id	bloodgroup	quantity	expiry_date	bloodStatus	101	A+	50	2024-10-13	Available	102	B+	100	2024-10-09	Available	103	AB+	150	2024-10-15	Expired	104	O+	170	2024-10-20	Available	105	A+	60	2024-10-14	Available	id	donar_id	blood_id	donee_id	donation_date	receive_date	1	101	101	101	2024-10-01	2024-10-05	2	102	102	NULL	2024-10-15	NULL	3	103	103	NULL	2024-10-20	NULL	4	104	104	104	2024-10-16	2024-10-12
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### Inner Join:

```
mysql> Select D.id, D.firstname, D.lastname, D.bloodgroup
-> from Donor D INNER JOIN
-> Donne De on D.id = De.id;
```

id	firstname	lastname	bloodgroup
103	Harsha	Surwase	B+
102	Shreeya	Nemade	A+
101	Sujal	Dingankar	O+
104	Avi	Patil	AB+
105	Shruti	Bhuvad	A+

5 rows in set (0.00 sec)

This query retrieves the ID, first name, last name, and blood group of donors who also exist in the Donne table by matching their IDs.

### Left Join:

```
mysql> Select D.id, D.firstname, D.lastname, D.bloodgroup
-> from Donor D LEFT JOIN
-> Donne De on D.id = De.id order by D.id;
```

id	firstname	lastname	bloodgroup
101	Sujal	Dingankar	O+
102	Shreeya	Nemade	A+
103	Harsha	Surwase	B+
104	Avi	Patil	AB+
105	Shruti	Bhuvad	A+
106	John	Doe	O+
107	Jane	Smith	O+
108	Mark	Taylor	O+
109	Lucy	Brown	A+

9 rows in set (0.00 sec)

This query retrieves the ID, first name, last name, and blood group of all donors, and includes matching records from the Donne table (if any), with the results ordered by the donor ID.

### Right Join:

```
mysql> Select D.id, De.id, De.firstname, De.lastname, De.bloodgroup
-> from Donor D RIGHT JOIN
-> Donne De on D.id = De.id order by D.id;
```

id	id	firstname	lastname	bloodgroup
101	101	Shubham	Bhuvad	A+
102	102	Sanjay	Kadam	AB+
103	103	Harshvardan	Nemade	O+
104	104	Soham	Bhojane	A+
105	105	Shruti	Bhuvad	O+

5 rows in set (0.00 sec)

This query retrieves the donor ID, donor name, and blood group of all entries from the Donne table, including those that do not have a corresponding match in the Donor table, with the results ordered by the donor ID.

### Cross Join:

```
mysql> Select D.id, D.firstname, D.lastname, D.bloodgroup
-> from Donor D
-> CROSS JOIN Donne De;
```

id	firstname	lastname	bloodgroup
101	Sujal	Dingankar	O+
101	Sujal	Dingankar	O+
101	Sujal	Dingankar	O+
101	Sujal	Dingankar	O+
101	Sujal	Dingankar	O+
102	Shreeya	Nemade	A+
102	Shreeya	Nemade	A+
102	Shreeya	Nemade	A+
102	Shreeya	Nemade	A+
102	Shreeya	Nemade	A+
103	Harsha	Surwase	B+
103	Harsha	Surwase	B+
103	Harsha	Surwase	B+
103	Harsha	Surwase	B+
103	Harsha	Surwase	B+
104	Avi	Patil	AB+
104	Avi	Patil	AB+
104	Avi	Patil	AB+
104	Avi	Patil	AB+
104	Avi	Patil	AB+
105	Shruti	Bhuvad	A+
105	Shruti	Bhuvad	A+
105	Shruti	Bhuvad	A+
105	Shruti	Bhuvad	A+
105	Shruti	Bhuvad	A+
106	John	Doe	O+
106	John	Doe	O+
106	John	Doe	O+
106	John	Doe	O+
106	John	Doe	O+
107	Jane	Smith	O+
107	Jane	Smith	O+
107	Jane	Smith	O+
107	Jane	Smith	O+
107	Jane	Smith	O+
108	Mark	Taylor	O+
108	Mark	Taylor	O+
108	Mark	Taylor	O+
108	Mark	Taylor	O+
108	Mark	Taylor	O+
109	Lucy	Brown	A+
109	Lucy	Brown	A+
109	Lucy	Brown	A+
109	Lucy	Brown	A+
109	Lucy	Brown	A+

45 rows in set (0.00 sec)

This query performs a cross join between the `Donor` and `Donne` tables, returning the Cartesian product of both tables. It will combine every row from the `Donor` table with every row from the `Donne` table, displaying the donor's ID, first name, last name, and blood group for all combinations.

### Self Join:

```
mysql> SELECT D.id, D.firstname, D.lastname, D.bloodgroup
-> FROM Donor D
-> JOIN Donne De ON D.contact = De.contact
-> WHERE D.id = '101';
```

id	firstname	lastname	bloodgroup
101	Sujal	Dingankar	O+

1 row in set (0.00 sec)

This query retrieves the `id`, `firstName`, `lastName`, and `bloodgroup` from the `Donor` table, joining it with the `Donne` table where the `Contact` matches in both tables. It filters the result to display only the donor with `id = '101'`.

### Full Join / Outer Join:

```
mysql> Select D.id, D.firstname, D.lastname, D.bloodgroup,
-> De.id, De.firstname, De.lastname, De.bloodgroup
-> from Donor D
-> LEFT JOIN Donne De on D.id = De.id
-> UNION
-> Select D.id, D.firstname, D.lastname, D.bloodgroup,
-> De.id, De.firstname, De.lastname, De.bloodgroup
-> from Donor D
-> RIGHT JOIN Donne De on D.id = De.id;
```

id	firstname	lastname	bloodgroup	id	firstname	lastname	bloodgroup
101	Sujal	Dingankar	O+	101	Shubham	Bhuvad	A+
102	Shreeya	Nemade	A+	102	Sanjay	Kadam	AB+
103	Harsha	Surwase	B+	103	Harshvardan	Nemade	O+
104	Avi	Patil	AB+	104	Soham	Bhojane	A+
105	Shruti	Bhuvad	A+	105	Shruti	Bhuvad	O+
106	John	Doe	O+	NULL	NULL	NULL	NULL
107	Jane	Smith	O+	NULL	NULL	NULL	NULL
108	Mark	Taylor	O+	NULL	NULL	NULL	NULL
109	Lucy	Brown	A+	NULL	NULL	NULL	NULL

9 rows in set (0.00 sec)

This query performs a full join by combining the results of a left join and a right join, returning all matching and non-matching rows from both the Donor and Donne tables.

### Conclusion

From this experiment, I learnt different join operations in MySQL & also implemented them.