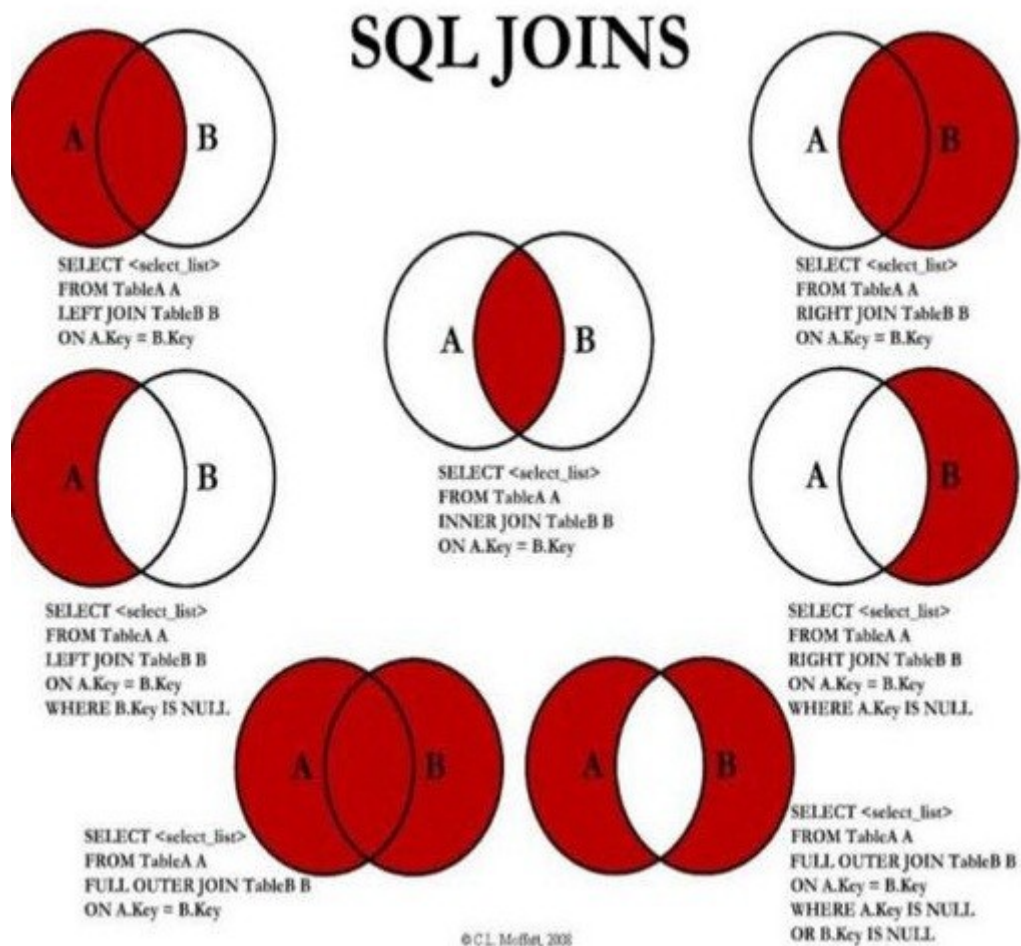


## Statistical Analysis System: Class 29

Dated: 10/06/2018

.....



**Outer Join:** Classified further into 3 types:

### Left Join

Handwritten notes illustrating a Left Join:

①

A	B
id name	id sal
1 A	1 100
2 B	2 200

②

Outer Left Join

③

OP

id	name	sal
1	A	100
2	B	.

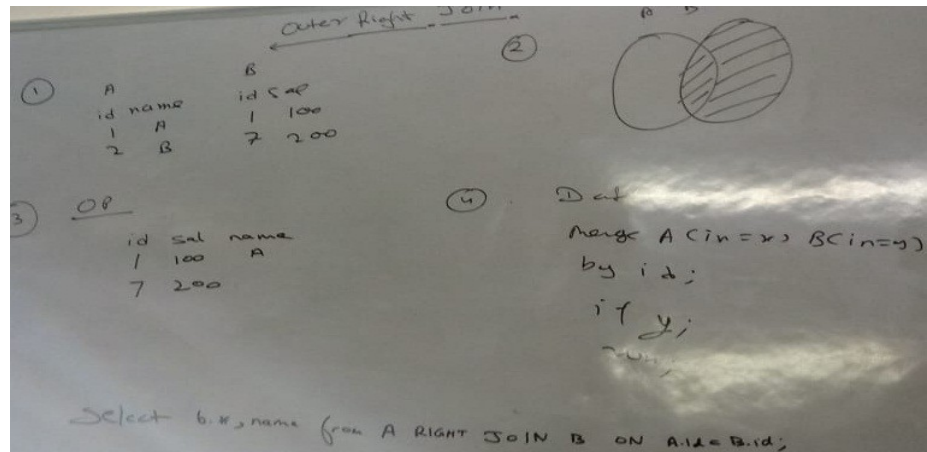
④

Def

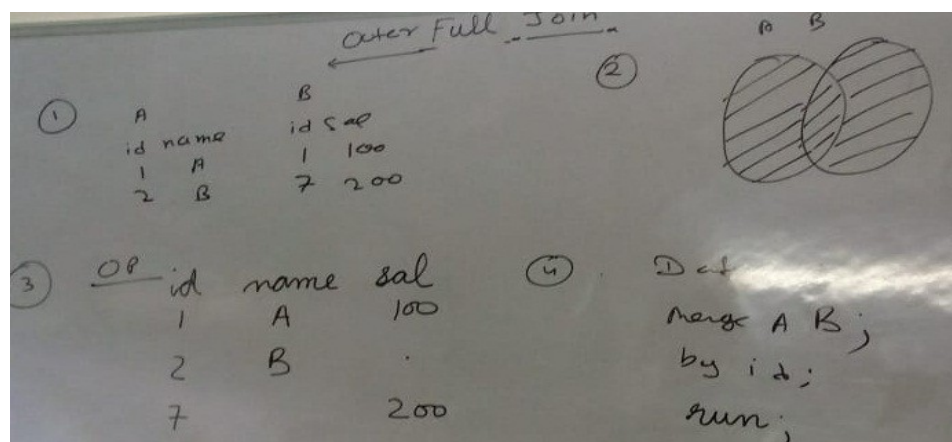
merge A (in=x) B (in=y)  
by id;  
if x;  
then;

5. select a.\*, sal from A left join B on a.id=b.id;

## Right Join



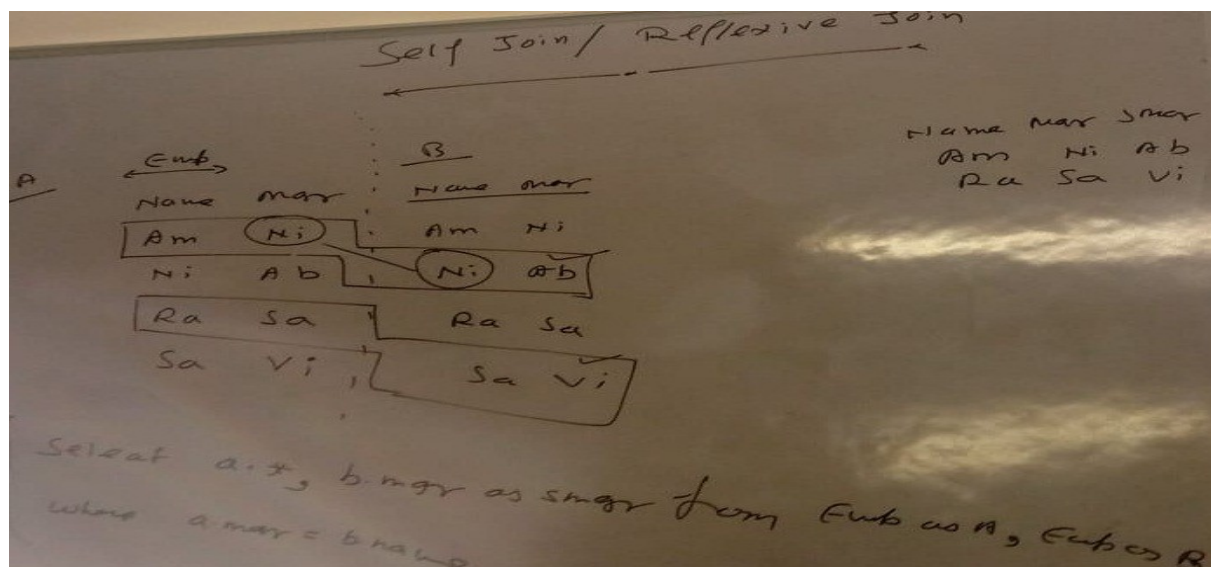
## Full Join



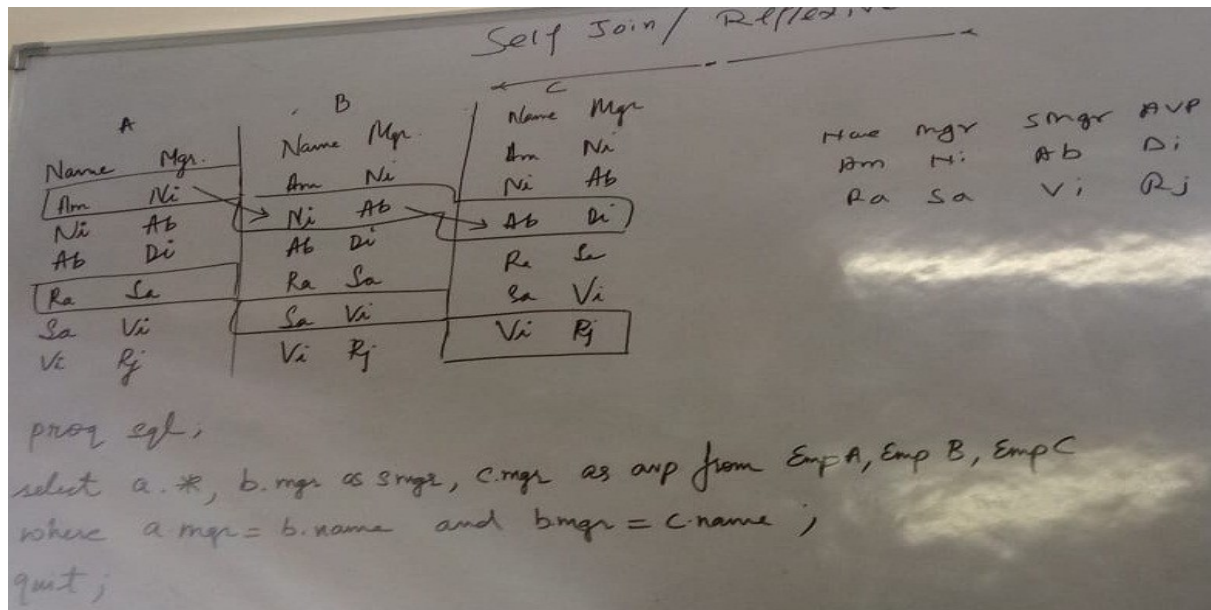
Code	Output / Explanation
<pre>Data a; Input id name \$; Cards; 1 A 2 B ; Run;</pre> <pre>Data b; Input id sal; Cards; 1 100 7 200 ; Run;</pre>	<p>Dataset “a” created</p>   <

<div>Right Join</div> <pre>Proc sql; Select b.*, name from a right join b on a.id=b.id; quit;</pre>	<div>The SAS System</div> <table><tr><th>id</th><th>sal</th><th>name</th></tr><tr><td>1</td><td>100</td><td>A</td></tr><tr><td>7</td><td>200</td><td></td></tr></table>	id	sal	name	1	100	A	7	200				
id	sal	name											
1	100	A											
7	200												
<div>Full Join</div> <pre>Proc sql; Select coalesce(a.id,b.id),name,sal from a full join b on a.id=b.id; quit;</pre>	<div>The SAS System</div> <table><tr><th></th><th>name</th><th>sal</th></tr><tr><td>1</td><td>A</td><td>100</td></tr><tr><td>2</td><td>B</td><td>.</td></tr><tr><td>7</td><td></td><td>200</td></tr></table>		name	sal	1	A	100	2	B	.	7		200
	name	sal											
1	A	100											
2	B	.											
7		200											

**Self join/Reflexive Join:** Here, a table is a mirror image of itself while writing the query. Aliasing (like:- from EMP A, EMP B) is also used to refer to the tables.



Code	Output / Explanation												
<pre>Data emp; Input name \$ mgr \$; Cards; Am Ni Ni Ab Ra Sa Sa Vi ; run;  Proc sql; Select a.*, b.mgr as smgr from emp a, emp b where a.mgr = b.name; quit;</pre>	<table><tr><th colspan="3">The SAS System</th></tr><tr><th>name</th><th>mgr</th><th>smgr</th></tr><tr><td>Am</td><td>Ni</td><td>Ab</td></tr><tr><td>Ra</td><td>Sa</td><td>Vi</td></tr></table>	The SAS System			name	mgr	smgr	Am	Ni	Ab	Ra	Sa	Vi
The SAS System													
name	mgr	smgr											
Am	Ni	Ab											
Ra	Sa	Vi											



Code	Output / Explanation																
<pre>Data emp; Input name \$ mgr \$; Cards; Am Ni Ni Ab Ab Di Ra Sa Sa Vi Vi Rj ; run;  Proc sql; Select a.*, b.mgr as smgr, c.mgr as avp from emp a, emp b, emp c where a.mgr = b.name and b.mgr = c.name; quit;</pre>	<table><tr><th colspan="4">The SAS System</th></tr><tr><th>name</th><th>mgr</th><th>smgr</th><th>avp</th></tr><tr><td>Am</td><td>Ni</td><td>Ab</td><td>Di</td></tr><tr><td>Ra</td><td>Sa</td><td>Vi</td><td>Rj</td></tr></table>	The SAS System				name	mgr	smgr	avp	Am	Ni	Ab	Di	Ra	Sa	Vi	Rj
The SAS System																	
name	mgr	smgr	avp														
Am	Ni	Ab	Di														
Ra	Sa	Vi	Rj														

## Implementing Rank with Proc SQL:

Code	Output / Explanation
<pre> Data a; Input id sal; Cards; 1 100 2 200 3 300 9 78 10 890 ; Run; </pre>	<p>Dataset "a" is created.</p>

```
Proc sql;
Select a.*, (select count (distinct
sal) from a where b.sal <=a.sal)
as rank from a b;
quit;
```

The SAS System		
id	sal	rank
1	100	4
2	200	3
3	300	2
9	78	5
10	890	1

```
Proc sql;
Select a.*, (select count (distinct
sal) from a where b.sal >=a.sal)
as rank from a b;
quit;
```

The SAS System		
id	sal	rank
1	100	2
2	200	3
3	300	4
9	78	1
10	890	5

```
Data a;
Input id sal;
Cards;
1 100
2 200
3 300
9 78
10 890
11 890
;
Run;

Proc sql;
Select a.*, (select count (distinct
sal) from a where b.sal <=a.sal)
as rank from a b;
quit;
```

The SAS System		
id	sal	rank
1	100	4
2	200	3
3	300	2
9	78	5
10	890	1
11	890	1