Today's Agenda :-

2 classes

Joins

Pseudo Code

Self Joins

Students

id	Name	batch_id
1	Shubham	1
2	Satish	1
3	Aryan	2
4	Thana	3
5	Sai	4

Batches

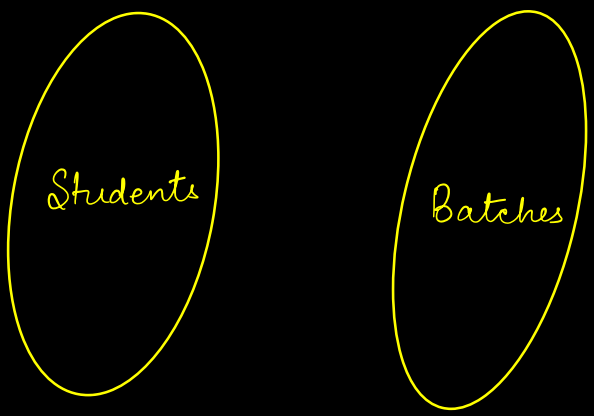
id	Name
1	A
2	B
3	C
4	D
5	E

Print name of every student with the name of his/her batch.

Shubham	A
Satish	A
Aryan	B
Thana	C
Sai	D

Students Batches

Joins :- Allows to combine data across multiple tables.



Students

fk

id	Name	batch_id
1	Shubham	1
2	Satish	1
3	Aryan	2
4	Thana	3
5	Sai	4

Batches

id	Name
1	A
2	B
3	C
4	D
5	E

1	Shubham	1	1	A
2	Satish	1	1	A
3	Aryan	2	2	B
4	Thana	3	3	C
5	Sai	4	4	D

Students

Batches

I want to be able to stich row of Students & row of batches only if

Students.batch_id = batches.id

```
Select Students.name, Batches.name
from Students
join Batches
on Students.batch_id = Batches.id
```

Pseudo Code

```
ans = [ {...}, {.....} ]

for each row in Students
    for each row in Batches
        if (cond is true) {      // ON
            ans.add(stiched row)
        }
    }
}
```

for each row in ans

print (row[Students.name], row[Batches.name])

ans : 25

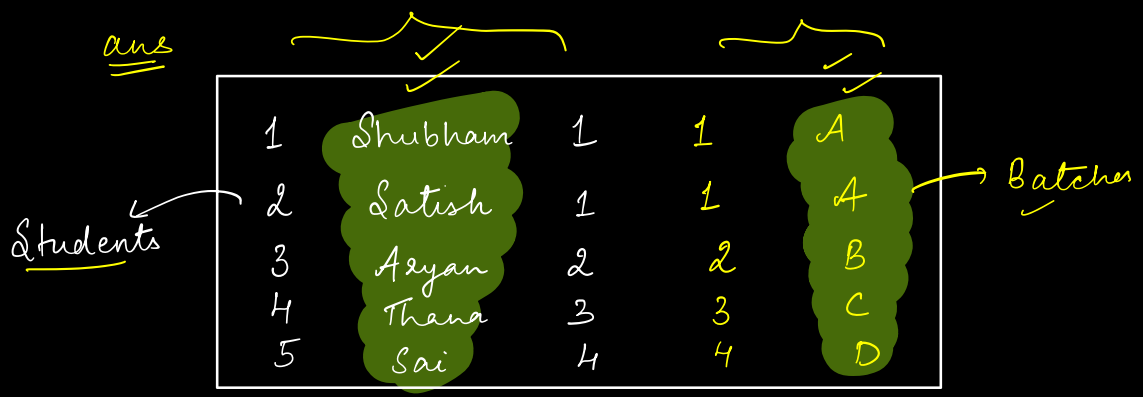
Students

id	Name	batch_id
1	Shubham	1
2	Satish	1
3	Aryan	2
4	Thana	3
5	Sai	4

Batches

id	Name
1	A
2	B
3	C
4	D
5	E

```
Select Students.name, Batches.name
from Students
join Batches
on Students.batch_id = Batches.id
```



1 < 2 ?

```
Select
from Students join batches
on Students.batch_id < Batches.id
```

Students

id	Name	batch_id
1	Shubham	1
2	Satish	1
3	Aryan	2
4	Thana	3
5	Sai	4

Batches

id	Name
1	A
2	B
3	C
4	D
5	E

4 3 2 1

14 rows

Select

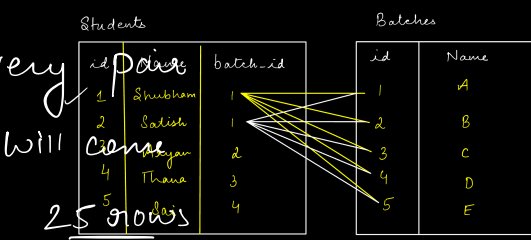
from Students (5) join batches (5)

on 1 < 2

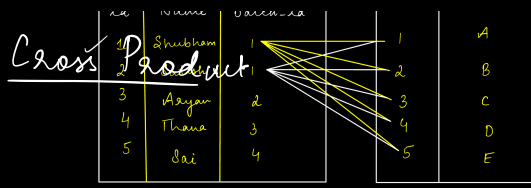
↳ true

every pair will come

25 rows



Cross Product



Student Buddy

↳ We assign a senior student as a buddy to each student.

Students

id	Name	batch_id	PSP	buddy_id
1	Thana	1	85	3
2	Achyut	2	80	1
3	Bhavika	2	85	NULL

✓

Buddy ✕

id	Name

Buddy id is Self-referential foreign key.

* A buddy is nothing but a student
* Buddy_id is id of another student.

For every student, print their name & buddy name

Name	Buddy Name
Thana	Bhavika
Achyut	Thana

Students

id	Name	batch_id	PSP	buddy_id
1	Thana	1	85	3
2	Achyut	2	80	1
3	Bhavika	2	85	NULL

Buddy

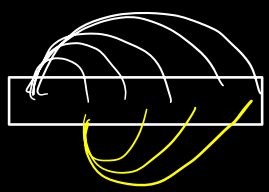
id	Name	. . . . .

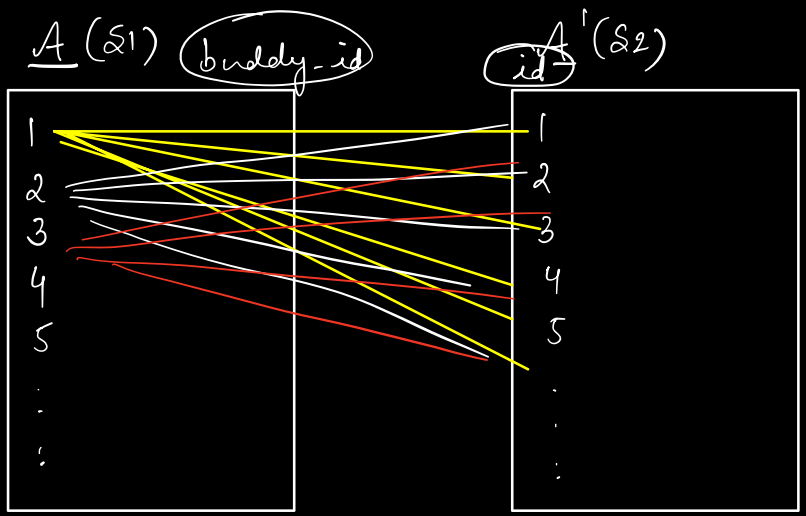
```
Select S.name, b.name
from Students S
join buddy b
On S.buddy_id = b.id
```

Combine rows of a table with itself

↳ Self Join

from A
join A

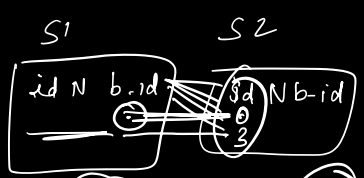





```
Select S1.name , S2.name
from Students S1
join Students S2
on S1.buddy_id = S2.id
```

Self join

Students



1	Vinay	2	2	Naman
2	Bhavik	3	3	Umer

for each (row) in Students (S1)

for each (row) in Students (S2)

if (S1.buddy_id = S2.id)

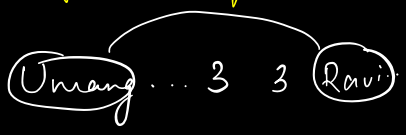
ans.add(row stitched)

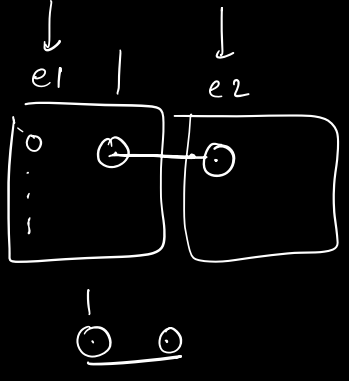
Use-case of Self Join :-

Employee

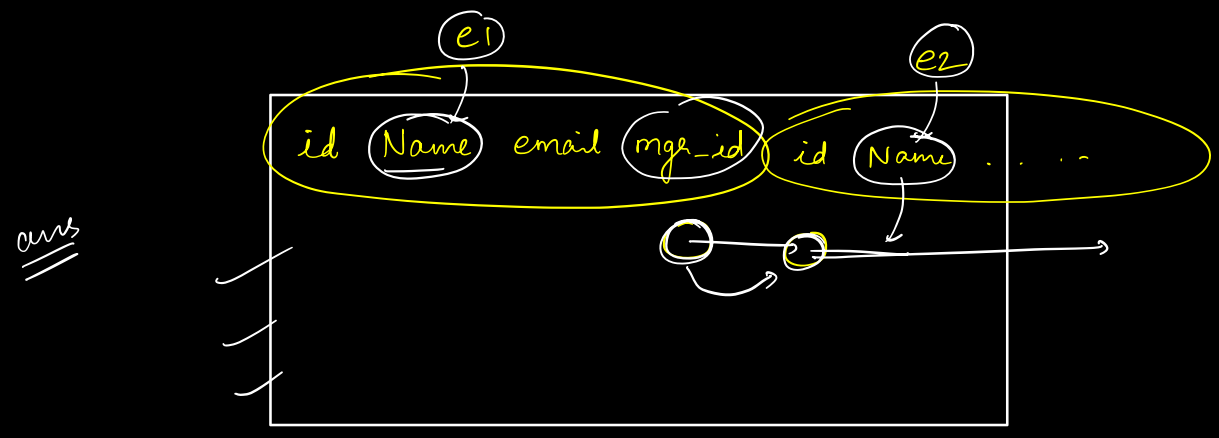
id	Name	email	phNo	mgr_id
1	Umang	—	—	3
2	—	—	—	6
3	Ravi	—	—	4
4	Deepak	—	—	5

for every emp Name, print mgr name.





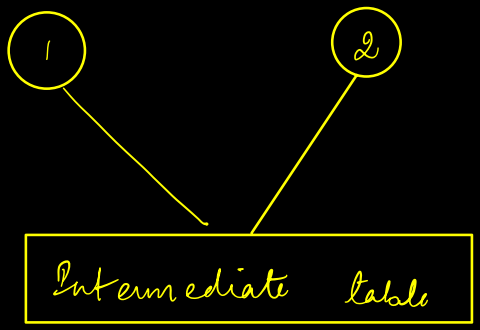

```
Select e1.name, e2.name
from Employee e1
join Employee e2
on e1.mgr_id = e2.id
```



Break of 6 Min

a = z

b = a



Student

id	Name	instructor_id	batch_id

Instructor

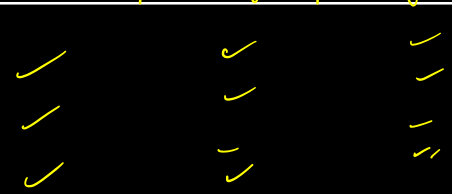
id	Name

Batches

id	Name

for every student, give their name along with the instructor who is teaching them & their batch name

Satish	Umang	May 24



$$(((1 + 2) + 3) + 4)$$

You can also join multiple tables very similar to how you add multiple nos.

(Join Pair by Pair)

```
Select s.name, i.name, b.name
from Students s
join Instructor i
on s.instructor_id = i.id
join batches b
on s.batch_id = b.id
```

} Select colu

create a new intermedia table

Create a inter

Students				Instructors	
id	Name	ins_id	b_id	id	Name
1	Achyut	1	2	1	Umang

Combine with batches table

Batches

id	Name

final table

Students			Instructors		Batches	
id	N	i_id	b_id	id	Nam	id	Na

Select columns

Pseudo Code :-

```
table 1
table 2
table 3
ans = [   ]
for each row in table 1
    for each row in table 2
        if ( con is T)
            ans.add (row stitched)
```

```
ans2 = [ ]

for each row in ans
|   for each row in table3
|   |   if (con is T)
|   |   |   ans2.add (stitched row)
|   |   }
|   }
}

for each row in ans2
|   print (row[S.name], row[i.name], row[b.name])
}
```
