

SQL JOIN part 1

COMS10012 Software Tools

Who teaches Databases?

Unit		
id	title	director
11	Databases	36
16	Security 101	36
...	...	

Lecturer	
id	name
36	David
35	Janet
...	

By hand

```
SELECT director FROM Unit  
WHERE title='Databases';
```

gives 36

```
SELECT name FROM Lecturer  
WHERE id=36;
```

gives 'David'

Unit	
id	
title	
director	

Lecturer	
id	
name	

INNER JOIN

```
SELECT name FROM Unit  
INNER JOIN Lecturer  
ON Unit.director = Lecturer.id  
WHERE Unit.title = 'Databases';
```

Unit
id
title
director

Lecturer
id
name

SELECT * FROM Unit, Lecturer;

Unit			Lecturer	
id	title	director	id	name
11	Databases	36	34	Dominic
11	Web Technologies	34	34	Dominic
11	Databases	36	35	Janet
12	Web Technologies	34	35	Janet
12	Databases	36	36	David
12	Web Technologies	34	36	David
...

```
SELECT * FROM Unit, Lecturer  
WHERE Unit.director = Lecturer.id;
```

Unit			Lecturer	
id	title	director	id	name
11	Databases	36	34	Dominic
11	Web Technologies	34	34	Dominic
11	Databases	36	35	Janet
12	Web Technologies	34	35	Janet
12	Databases	36	36	David
12	Web Technologies	34	36	David
...

```
SELECT * FROM Unit INNER JOIN Lecturer  
ON Unit.director = Lecturer.id;
```

Unit		
id	title	director
11	Databases	36
16	Security 101	36

Lecturer	
id	name
36	David
35	Janet

id	title	director	id	name
11	Databases	36	36	David
16	Security 101	36	36	David

New example

Find all (student, unit) pairs where the student has passed the unit with a grade ≥ 50 .

Student
id
name
...

Enrol
student
unit
grade

Unit
id
title
...

New example

```
SELECT name, title FROM Student  
INNER JOIN Enrol ON Student.id=Enrol.student  
INNER JOIN Unit ON Enrol.unit=Unit.id  
WHERE Enrol.grade >= 50;
```

Student
id
name
...

Enrol
student
unit
grade

Unit
id
title
...

JOIN USING

```
SELECT name, title FROM Unit  
INNER JOIN Lecturer  
USING (lecturer_id);
```

Unit
unit_id
title
lecturer_id

Lecturer
lecturer_id
name



NATURAL JOIN

```
SELECT name, title FROM Unit  
NATURAL JOIN Lecturer;
```

Unit
unit_id
title
lecturer_id

Lecturer
lecturer_id
name

