

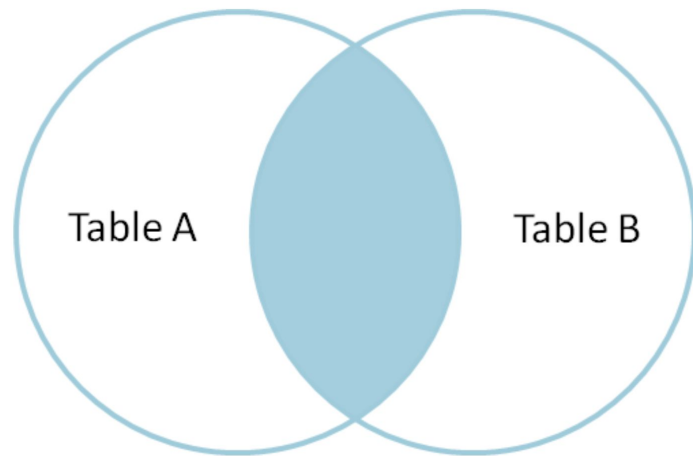


# CIS 678 Machine Learning

Database Table Joins

## Inner join

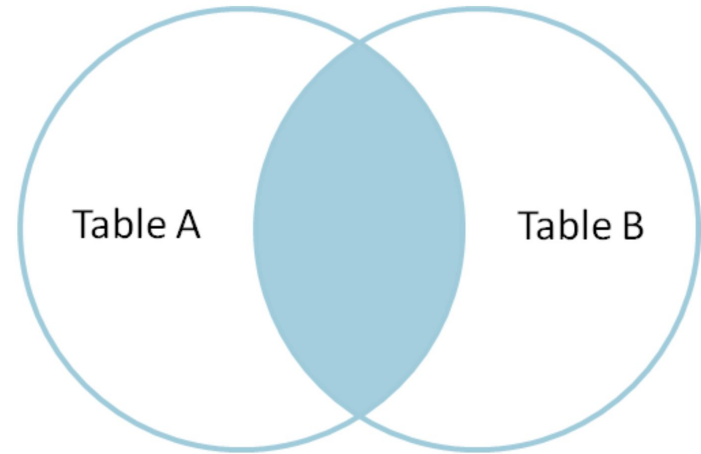
- Joins are performed through some common keys, shared across tables
- Only preserve records for which data is available in both tables.



## Inner join

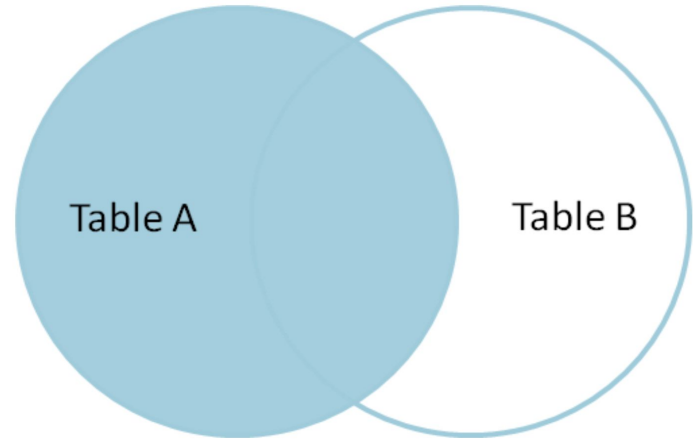
- Only preserve records for which data is available in both tables.
- We see below an example with `student_id` be the join key.

Table A		Table B	
student_id	major	student_id	grade
1	cs	10	A
2	ee	2	B
5	math	5	B+
		9	C



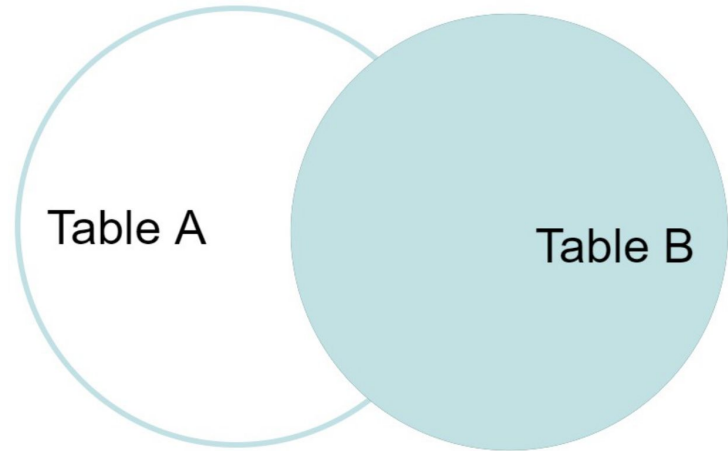
## Left join

- Joins are performed through some common keys, shared across tables
- All records from the **left table** are preserved, even though no corresponding information is available in the right table



## Right join

- Joins are performed through some common keys, shared across tables
- All records from the **right table** are preserved, even no corresponding information is available in the right table



## Outer/full join

- Joins are performed through some common keys, shared across tables
- All records from the **both tables** are preserved, even no corresponding information is available in the other table

