

# More on JOIN

- There exist several types of JOIN:
  - **Inner join**
    - This is the one we have focused on so far
    - Most 'restrictive' version. No null values added
  - **Full/Left/Right Outer join**
    - Less restrictive variants
    - We add rows even when the information is only partial
      - I.e., even if it appears in only one of the two tables
    - To do this, we add null values

# Inner JOIN (most restrictive)

Left: Employees

Code	Name	Site
123	Rossi	Bologna
345	Bianchi	Milano
167	Verdi	Parma
189	Rosati	Palermo

Right: Site

Site	Task
Bologna	Coding
Milano	Testing
Siena	Marketing

Inner join  
on Site

Yellow/orange tuples will not appear in the join.  
We don't have information:

- on **Parma** and **Palermo** in the **Right** table
- On **Siena** in the **Left** table

Code	Name	Site	Task
123	Rossi	Bologna	Coding
345	Bianchi	Milano	Testing

# Full Outer JOIN

Left: Employees

Code	Name	Site
123	Rossi	Bologna
345	Bianchi	Milano
167	Verdi	Parma
189	Rosati	Palermo

Right: Site

Site	Task
Bologna	Coding
Milano	Testing
Siena	Marketing

Full outer join  
on Site

Most permissive.

- No info is lost
- A lost of missing values

Code	Name	Site	Task
123	Rossi	Bologna	Coding
345	Bianchi	Milano	Testing
167	Verdi	Parma	NULL
189	Rosati	Palermo	NULL
NULL	NULL	Siena	Marketing

# Left Outer JOIN

Left: Employees

Code	Name	Site
123	Rossi	Bologna
345	Bianchi	Milano
167	Verdi	Parma
189	Rosati	Palermo

Right: Site

Site	Task
Bologna	Coding
Milano	Testing
Siena	Marketing

Left outer join  
on Site

We focus on Left

- No info on Employees is lost
- Info on Sites might get lost

Code	Name	Site	Task
123	Rossi	Bologna	Coding
345	Bianchi	Milano	Testing
167	Verdi	Parma	NULL
189	Rosati	Palermo	NULL

# Right Outer JOIN

Left: Employees

Code	Name	Site
123	Rossi	Bologna
345	Bianchi	Milano
167	Verdi	Parma
189	Rosati	Palermo

Right: Site

Site	Task
Bologna	Coding
Milano	Testing
Siena	Marketing

Right outer join  
on Site

We focus on Right

- No info on Sites is lost
- Info on Employees might get lost

Code	Name	Site	Task
123	Rossi	Bologna	Coding
345	Bianchi	Milano	Testing
NULL	NULL	Siena	Marketing