

- [[Modified Chen Notation]]

Entity

- objects of the real world
- entity type/set
 - collection of entities
- [[Weak Entity]]
 - entities that are dependent on existing entity



Weak
entities



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Relationship Type

- defines behaviour between entities
- connected to concrete entities
- special types:
 - [[N-ary Relationships]]
 - [[Recursive Relationships]]



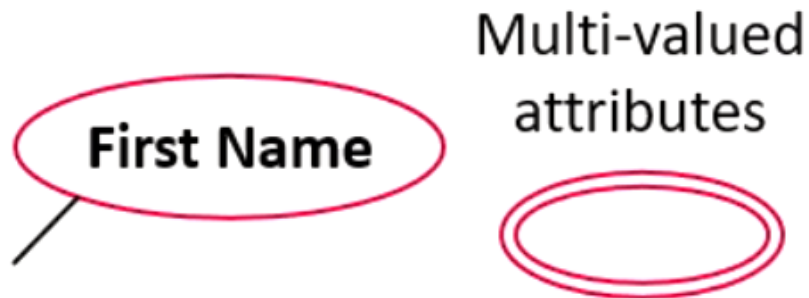
$$works \subseteq A \times B$$

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Attribute

- entities or relationships may have attribute value pairs
- attributes describe entity/object

- [[Attribute Types]]
 - multi-value
 - derived
 - composite
 - nullable



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Keys

- unique attribute to identify entity
 - e.g. IDs
- every entity needs key



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Role

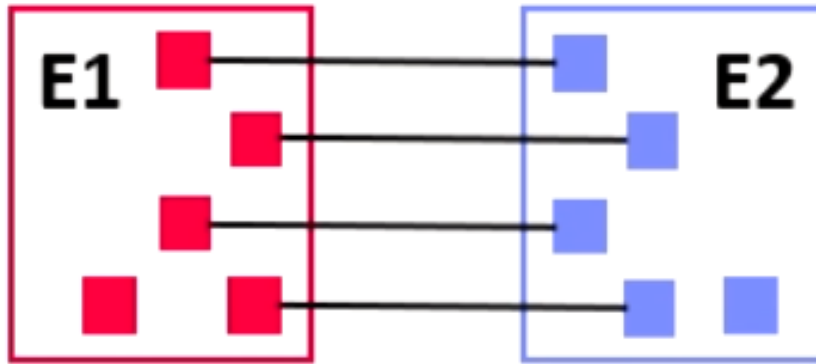
- optional description of relationship



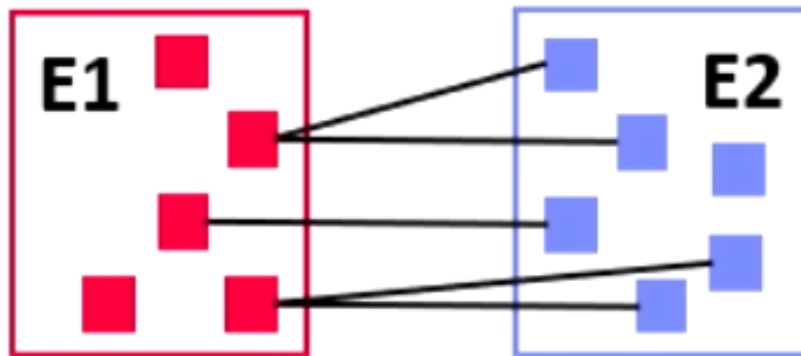
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Cardinality

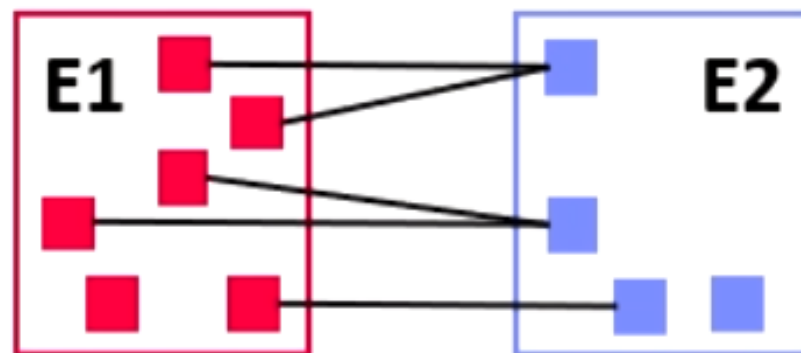
- one-to-one 1:1



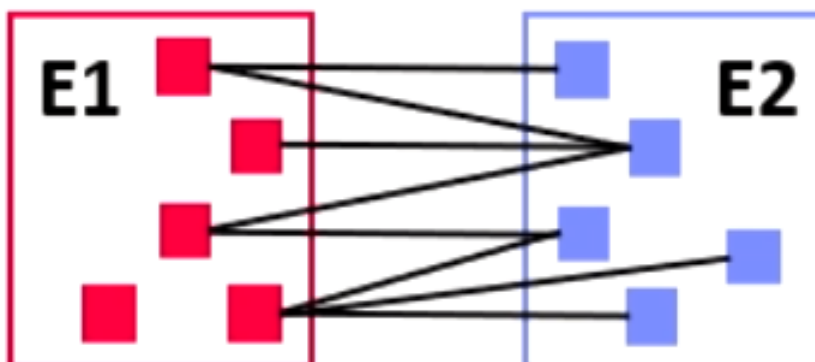
- one-to-many 1:N



- many-to-one N:1

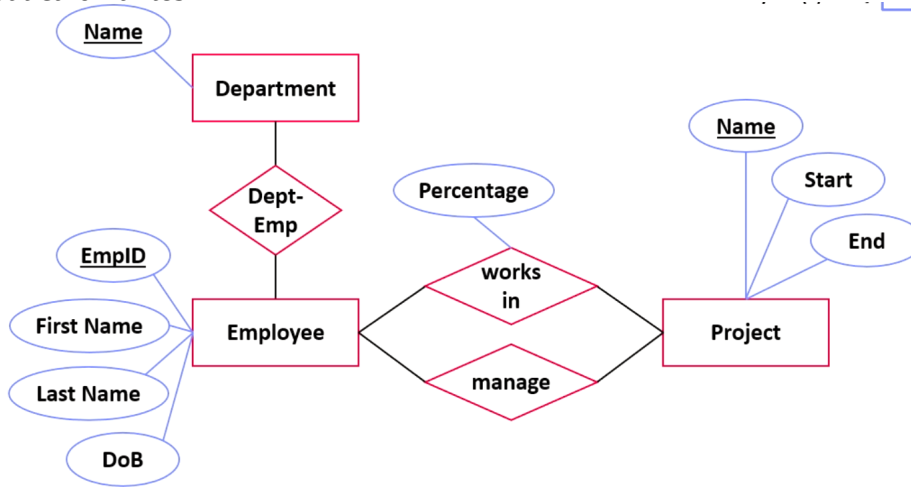


- many-to-many N:M

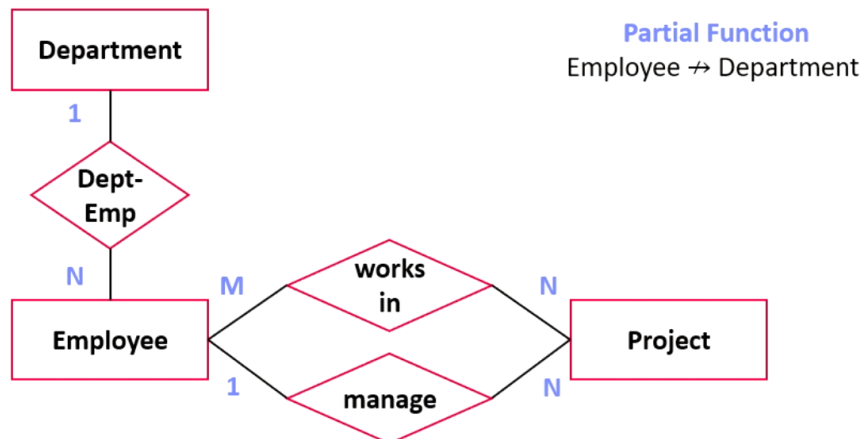


Employee DB Example

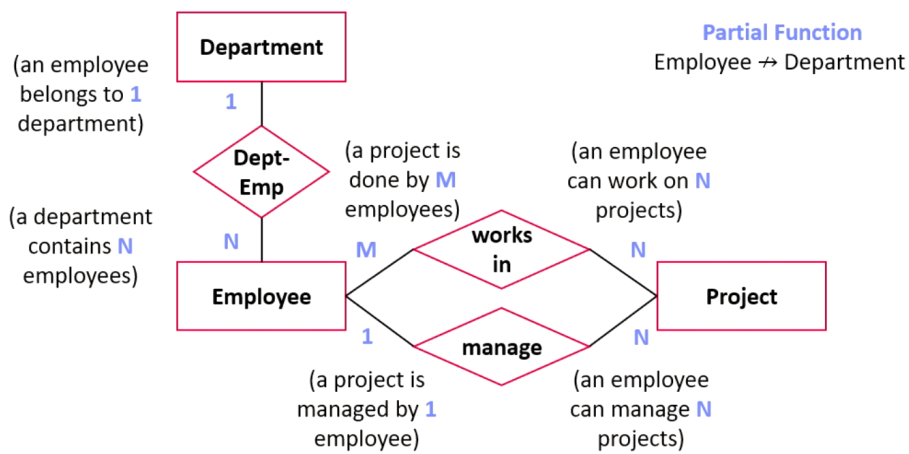
- without cardinalities



- with cardinalities



- with additional information



[[ER Diagram]]