

Solution 02 a: $\pi_{pizzeria}(\sigma_{age < 18}(Person) \bowtie Frequent)$

b: $\pi_{name}(\sigma_{gender='female' \wedge pizza='mushroom'}(Person \bowtie Eats)) \cap \pi_{name}(\sigma_{gender='female' \wedge pizza='pepperoni'}(Person \bowtie Eats))$

c: $\pi_{pizzeria}(\sigma_{name='Amy'}(Eats) \bowtie \sigma_{price < 10}(Serves))$

d: $\pi_{name}(Person) - \pi_{name}(Frequent - \pi_{name.pizzeria}(Eats \bowtie Serves))$

Solution 01A:

Emp. Dept

Project code	P.Title	P.Mngr	P.Budget	E.No	E.Name	D.No	D.Name	Hourly Rate
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Solution
 Given Relation is not in 2NF. As there is a nested relation
 Nested Relation Solution \Rightarrow Decomposition

After 1NF

Project Code	P.Title	P.Mngr	P.Budget
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(R₁)

FD1

Project code	E.No	E.Name	D.No	D.Name	Hourly Rate
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FD2

FD3

FD4

FD1 and FD2 are upto 3NF.
 FD3 has partial Dependency. Therefore solve FD3 first.

Project code	E.No	Hourly Rate
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(R₂)

FD2

E.No	E.Name	D.No	D.Name
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FD3

FD4

FD3 Resolved, FD4 has transitive dependency.

E.No	E.Name	D.No
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(R₃)

FD3

D.No	D.Name
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(R₄)

FD4

Final Relations upto 3NF are R₁, R₂, R₃, and R₄.

Solution 01B:

