

Lab 2: Functional dependency and Normal Form

1. Consider the relations and the appropriate functional dependencies are listed below, indicate the normal form for that relation. If the relation is not in third normal form, decompose it into 3NF relations

Invoice(OrderID, OrderDate, CustomerID, CustomerName, CustomerAddress, ProductID, ProductDescription, ProductStandardPrice, OrderedQuantity)

OrderID → OrderDate, CustomerID, CustomerName, CustomerAddress

CustomerID → CustomerName, CustomerAddress

ProductID → ProductDescription, ProductStandardPrice

OrderID, ProductID → OrderedQuantity

2. You have been given a form which shows the details of technical jobs carried out for different schools by members of staff in the local college. You will note that one job may require input from more than one member of staff. Each member of staff belongs to a department within the college and the number of hours worked on each job along with the date the job was undertaken are noted. A member of staff may work on more than one job on any given date.

The college would like to set up a relational database to manage the allocation of staff to jobs and keep a more efficient record of the number of hours worked for each school within the college.

Your task is making the database to 3NF (specify step by step: determine FDs, normalization,...).

TechNo	TechName	DeptId	Department	JobNo	Date	SchoolID	School	Hoursworked
298	Walls, Ian	1	Engineering	1002	12/9/07	192	Beauty	2.5
298	Walls, Ian	1	Engineering	1003	12/9/07	125	Computing	5.5
345	Smith, Alan	2	Helpdesk	1002	12/9/07	192	Beauty	3

345	Smith, Alan	2	Helpdesk	3440	18/9/07	346	Bus & Man	1.5
345	Smith, Alan	2	Helpdesk	1480	15/9/07	192	Beauty	3
380	Jackson, Bob	3	Labs	3670	19/9/07	560	Design	4
380	Jackson, Bob	3	Labs	3440	18/9/07	346	Bus & Man	2
300	Jones, Joe	2	Helpdesk	1450	15/9/07	125	Computing	1
300	Jones, Joe	2	Helpdesk	1480	15/9/07	192	Beauty	3
320	Young, Jill	3	Labs	3440	18/9/07	346	Bus & Man	4
320	Young, Jill	3	Labs	1002	12/9/07	192	Beauty	2.5
320	Young, Jill	3	Labs	3670	19/9/07	560	Design	2