

Lab03. Database Normalization

Exercise 1

A college maintains details of its lecturers' subject area skills. These details comprise:

- Lecturer Number
- Lecturer Name
- Lecturer Grade
- Department Code
- Department Name
- Subject Code
- Subject Name
- Subject Level

Assume that each lecturer may teach many subjects but may not belong to more than one department.

Subject Code, Subject Name and Subject Level are repeating fields.

Normalise this data to Third Normal Form.

Exercise 2

A software contract and consultancy firm maintains details of all the various projects in which its employees are currently involved. These details comprise:

- Employee Number
- Employee Name
- Date of Birth
- Department Code
- Department Name
- Project Code
- Project Description
- Project Supervisor

Assume the following:

- Each employee number is unique.
- Each department has a single department code.
- Each project has a single code and supervisor.
- Each employee may work on one or more projects.
- Employee names need not necessarily be unique.
- Project Code, Project Description and Project Supervisor are repeating fields.

Normalise this data to Third Normal Form.

Q7 (Database-1)-Sales Management System

Read the following description concerning a sales management system, and then answer Subquestions 1 and 2.

Company Y sells health foods through the door-to-door sales by the contracted sales staff (hereinafter, sales staff). Each sales staff member is in charge of multiple customers, and sells the products only to those customers. A single sale includes multiple items.

Company Y has reviewed the functions offered by the system currently used for managing product sales (hereinafter, the sales management system), and decided to develop a new system. The current sales management system is used to improve efficiency of the entire sales operation, from order reception to billing, but it is not equipped with functions for aggregating and evaluating the sales results of each sales staff member. With the new system, sales results of each sales personnel will be summarized for assessment.

Prior to designing the new system, a survey of the existing system was conducted. The layout of the “Sales Slip” produced by the sales management system is shown in Fig.1.

Row_number	Product_code	Product_name	Unit_price	Quantity
1	T001	Green tea	500	12
2	T002	Herb tea	600	12
3	W002	Vanadium water	300	24
4	T004	Du zhong tea	800	6
⋮	⋮	⋮	⋮	⋮
Total quantity				

Notes:

- * Values for Sales_number, Customer_code, Sales_staff_code, and Product_code are uniquely assigned by the sales management system.
- * One sales staff member is assigned to each customer.

Fig. 1 “Sales Slip” layout

3NF should be:

Exercise 1:

Lecturer Number, Lecturer Name, Lecturer Grade, *Department Code

Department Code, Department Name

Lecturer Number, Subject Code

Subject Code, Subject Name, Subject Level

Exercise 2:

Employee Number, Employee Name, Date of Birth, *Department Code

Department Code, Department Name

Employee Number, Project Code

Project Code, Project Description, Project Supervisor