**Assignment 3 Database Normalization by Joshua Troup**

**Exercise 1:**

**Functional Dependencies**: staffNo-> name; staffNo-> position; branchNo-> BranchAddress

**Assumptions**: Assistants do not have dedicated workplaces being they’re temporary working at different branches part time.

**Primary Key/Composite Key:** StaffNo,branchNo

|  |  |  |
| --- | --- | --- |
| staffNo | branchNo | hoursPerWeek |
| S4555 | B002 | 16 |
| S4555 | B004 | 9 |
| S4612 | B002 | 14 |
| S4612 | B004 | 10 |

**Primary Composite Key:** staffNo, branchNo

**Foreign Key:** staffNo, branchNo

|  |  |
| --- | --- |
| branchNo | BranchAddress |
| B002 | City Center Plaza, Seattle, WA 98122 |
| B004 | 16-14th Avenue, Seattle, WA, 98128 |

**Primary Key:** branchNo

|  |  |  |
| --- | --- | --- |
| staffNo | Name | position |
| S4555 | Ellen Layman | Assistant |
| S4612 | Dave Sinclair | Assistant |

**Primary Key:** staffNo

**Exercise 2:**

**Functional Dependencies:** driverID-> dFName; driverId -> dLname; clientID -> cFName; clientID-> cLName; clientID-> cAddress

**Assumptions**: Two groups ofcandidates for separate tables including (driverID, dFName, dLName) and (clientID, cFName, cLName, cAddress).

3NF Table:

|  |  |  |  |
| --- | --- | --- | --- |
| jobID | pickupDateTime | driverID | clientID |
| 1001 | 25/07/00.10.00 | I456 | C034 |
| 1102 | 29/07/00.10.00 | I456 | C034 |
| 1203 | 30/07/00.11.00 | I344 | C034 |
| 1334 | 2/08/00.13.00 | I666 | C089 |
| 1455 | 2/08/00.13.00 | I957 | C019 |
| 1676 | 25/08/00.10.00 | I344 | C039 |

**Primary Key**: jobID

**Foreign Keys**: driverID, clientID

|  |  |  |
| --- | --- | --- |
| driverID | dFName | dLName |
| I456 | Jane | Watt |
| I344 | Tom | Jones |
| I666 | Karen | Black |
| I957 | Steven | Smith |

**Primary Key:** driverID

|  |  |  |  |
| --- | --- | --- | --- |
| clientID | cFName | cLName | cAddress |
| C034 | Anne | Way | 111 Storrie Road, Paisley |
| C034 | Anne | Way | 111 Storrie Road, Paisley |
| C034 | Anne | Way | 111 Storrie Road, Paisley |
| C089 | Mark | Fields | 120 Lady Lane, Paisley |
| C019 | John | Brown | 13 Renfrew Road, Paisley |
| C039 | Karen | Worth | 34 High Street, Paisley |

**Primary Key:** clientID

**Exercise 3:**

**1NF:**

BRANCH (Branch#, Branch Addr)

PUBLISHED (Branch#, ISBN#, Title, Author, Publisher, Num copies)

**2NF, 3NF:**

BRANCH (Branch#, Branch Addr)

PUBLISHED (Branch#, ISBN, Num copies)

BOOK (ISBN, Title, Author, Publisher)

**1NF, 2NF:**

PATIENT (Patient#, Name, DOB, Address)

PRESCRIPTION (Prescription#, Drug, Date, Dosage, Doctor#, Doctor, Secretary, Patient#)

**3NF:**

PATIENT (Patient#, Name, DOB, Address)

PRESCRIPTION (Prescription#, Drug, Date, Dosage, Doctor#, Patient#)

DOCTOR (Doctor#, Doctor, Secretary)