CMM022 Data Management  
TUTORIAL 1 - Databases Solutions

1. Relation: BOOKS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attributes** | **book\_id** | **Title** | **Author** | **Category** | **Status** |
| **Data types** | NCHAR(7) | NVARCHAR(20) | NVARCHAR(15) | NVARCHAR(15) | BIT |
|  |  |  |  |  |  |
| **Sample Data** | 100.SCI  110.FIC | The Martian  The Pearl | Andy Weir  Steinbeck | Sc-Fi  Fiction | 1  0 |
|  |  |  |  |  |  |

Relation: MEMBERS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attributes** | **mem\_id** | **name** | **address** | **Tel\_phone** |
| **Data types** | NCHAR(4) | NVARCHAR(20) | NVARCHAR(15) | NVARCHAR(15) |
|  |  |  |  |  |
| **Sample Data** | M191  M200 | robin  jeanie | aberdeen  dundee | 0773-897234  0776-987234 |
|  |  |  |  |  |

Note that primary keys are underlined and the field size in the text data types are just suggestions

2. **Relation:** LOAN

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attributes** | **loan\_num** | **book\_id** | **mem\_id** | **loan\_date** | **return\_date** |
| **Data types** | NCHAR(5) | NCHAR(7) | NCHAR(4) | DATETIME | DATETIME |
|  |  |  |  |  |  |
| **Sample Data** | L1000  L2000 | 100.SCI  110.FIC | M191  M200 | 2110/01/01  2010/01/28 | 2010/01/22  2010/02/20 |
|  |  |  |  |  |  |

primary key loan\_num [i.e loan number], assuming each loan would have a unique number

attached.

Links:­

BOOKS LOAN MEMBERS

book\_id loan\_num memid\_id

title book\_id name

author mem\_id address

….. ….. …..

3(a)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***PROJ-NO*** | ***PROJ-MANAGER*** | ***TEL-EXT*** | ***PART-NO*** | ***QTY-USED*** |
| P1 | Jill | 001 | HAMMER | 7 |
| P2 | Henry | 012 | HAMMER | 11 |
| P2 | Henry | 012 | SAW | 20 |
| P1 | Jill | 001 | DRILL | 2 |

PROJ-MANAGER details repeated unnecessarily. Split into 2 table:

|  |  |  |
| --- | --- | --- |
| ***PROJ-NO*** | ***PROJ-MANAGER*** | ***TEL-EXT*** |
| P1 | Jill | 001 |
| P2 | Henry | 012 |

|  |  |  |  |
| --- | --- | --- | --- |
| ***PROJ\_ID*** | ***PART-NO*** | ***QTY-USED*** | ***PROJ-NO*** |
| 1 | HAMMER | 7 | P1 |
| 2 | HAMMER | 11 | P2 |
| 3 | SAW | 20 | P2 |
| 4 | DRILL | 2 | P1 |

A more sophisticated design creates 3 tables: Project, Manager and Orders. To be covered in future lectures.

3(b)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***DEL-NO*** | ***TRUCK-USED*** | ***TRUCK-REGNO*** | ***DRIVER-NAME*** | ***DRIVER-ID*** |
| 1 | V6 Foden | G564 LSE | Joe HAWKER | d01 |
| 2 | Volvo SV20 | H765 HGN | Jim MAGPIE | d02 |
| 3 | Volvo SV20 | H765 HGN | Joe HAWKER | d01 |
| 4 | V6 Foden | G564 LSE | Jim MAGPIE | d02 |

TRUCK-USED and DRIVER-HANDLE repeated unnecessarily. Split into 3 tables

Trucks

|  |  |
| --- | --- |
| ***TRUCK-REGNO*** | ***TRUCK-USED*** |
| G564 LSE | V6 Foden |
| H765 HGN | Volvo SV20 |

Deliveries

|  |  |  |
| --- | --- | --- |
| ***DEL-NO*** | ***TRUCK-REGNO*** | ***DRIVER-ID*** |
| 1 | G564 LSE | d01 |
| 2 | H765 HGN | d02 |
| 3 | H765 HGN | d01 |
| 4 | G564 LSE | d02 |

Drivers

|  |  |
| --- | --- |
| ***DRIVER-ID*** | ***DRIVER-NAME*** |
| d01 | Joe HAWKER |
| d02 | Jim MAGPIE |