**Set 1 - Assignments on Normalization**

Normalize up to to 3rd Normal form. You can also add more attributes to existing table, new entities and its attributes to enhance the Normalization process.

Note 🡪 All the following 3 scenarios are completely independent of each other. Consider each as a separate Case Study and individually provide Normalization solution.

**Scenario 1:**

Rollno

Student name-(Fname,Mname,Lname)

Address

CourseId

CourseName

Semester

MarksObtained

Grade

CertificateId

DateOfCertificate

**Solution:**

**1 NF**

|  |  |  |
| --- | --- | --- |
| **Students** |  | **Marks** |
| Rollno |  | MarksObtained |
| Student name-(Fname) |  | Grade |
| Student name-(Mname) |  |  |
| Student name-(Lname) |  |  |
| Address |  |  |
| CourseId |  |  |
| CourseName |  |  |
| Semester |  |  |
| CertificateId |  |  |
| DateOfCertificate |  |  |

**2 NF**

|  |  |  |
| --- | --- | --- |
| **Students** |  | **Marks** |
| Rollno |  | Roll No |
| Student name-(Fname) |  | MarksObtained |
| Student name-(Mname) |  | Grade |
| Student name-(Lname) |  |  |
| Address |  | **Certification** |
| CourseId |  | CertificateId |
| CourseName |  | DateOfCertificate |
| Semester |  |  |

**3 NF**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Students** |  | **Marks** |  | **Course** |
| Rollno |  | Roll No |  | CourseId |
| Student name-(Fname) |  | MarksObtained |  | CourseName |
| Student name-(Mname) |  | Grade |  |  |
| Student name-(Lname) |  |  |  |  |
| Address |  | **Certification** |  |  |
| Semester |  | CertificateId |  |  |
| Course ID |  | DateOfCertificate |  |  |
| Certificatiate ID |  |  |  |  |

**Scenario 2:**

Customer Id

Customer name-(Fname,Mname,Lname)

Product Type – (Domestic, International)

Product Name

Payment Id

Payment Mode – (Cash, Cheque)

Credit Card No.

Quantity

Total

Discount

**1 NF**

|  |  |  |
| --- | --- | --- |
| **Customer Table** |  | **Product** |
| Customer Id |  | Product ID |
| Customer name-(Fname) |  | Product Type – (Domestic, International) |
| Customer name-(Mname) |  | Product Name |
| Customer name-(FLname) |  | Quantity |
| Payment Id |  | Total |
| Payment Mode – (Cash, Cheque) |  | Discount |
| Credit Card No. |  |  |

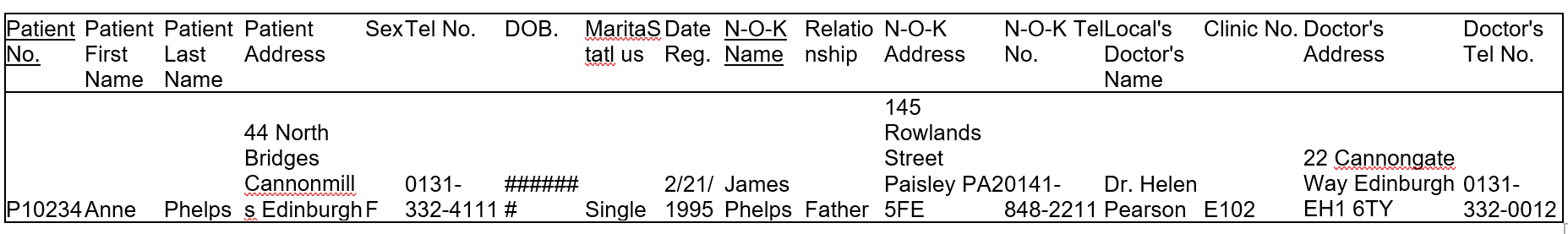
**2 NF**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Customer Table** |  | **Product Order** | |  | | **Product** | | |
| Customer Id |  | Product ID | |  | | Product ID | | |
| Customer name-(Fname) |  | Quantity | |  | | Product Type – (Domestic, International) | | |
| Customer name-(Mname) |  | Total | |  | | Product Name | | |
| Customer name-(FLname) |  | Discount | |  | | |  | | |
| Payment Id |  | |  | |  | | |  | | |
| Payment Mode – (Cash, Cheque) |  | |  | |  | | |  | | |
| Credit Card No. |  | |  | |  | | |  | | |

**3 NF**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Customer Table** |  | **Product Order** |  | **Product** | |
| Customer Id |  | Product ID |  | Product ID | |
| Customer name-(Fname) |  | Quantity |  | Product Type – (Domestic, International) | |
| Customer name-(Mname) |  | Total |  | Product Name | |
| Customer name-(FLname) |  | Discount |  | |  | |
| Product ID |  |  |  | |  | |
| Payment ID |  | **Payment** |  | |  | |
|  |  | Payment Id |  | |  | |
|  |  | Payment Mode – (Cash, Cheque) |  | |  | |
|  |  | Credit Card No. |  | |  | |

**Scenario 3:**



**1 NF**

|  |
| --- |
| **Patient** |
| Patient No. |
| Patient Fname |
| Patient Lname |
| Patient Address |
| Sex |
| Tel No. |
| DOB |
| Maritial Status |
| Date Reg. |
| NOK Name |
| RelationShip |
| NOK Address |
| NOK Tel No. |
| Local Doctor Name |
| Clinic No. |
| Doctor's Address |
| Doctor's Tel No |

**2 NF**

|  |  |  |
| --- | --- | --- |
| **Patient** |  | **Doctor** |
| Patient No. |  | Doctor ID |
| Patient Fname |  | Local Doctor Name |
| Patient Lname |  | Clinic No. |
| Patient Address |  | Doctor's Address |
| Sex |  | Doctor's Tel No |
| Tel No. |  |  |
| DOB |  |  |
| Maritial Status |  |  |
| Date Reg. |  |  |
| NOK Name |  |  |
| RelationShip |  |  |
| NOK Address |  |  |
| NOK Tel No. |  |  |
| Doctor ID |  |  |

**3 NF**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Patient** |  | **Doctor** |  | **NOK** |
| Patient No. |  | Doctor ID |  | NOK ID |
| Patient Fname |  | Local Doctor Name |  | NOK Name |
| Patient Lname |  | Clinic No. |  | Relationship |
| Patient Address |  | Doctor's Address |  | NOK Address |
| Sex |  | Doctor's Tel No |  | NOK Tel No. |
| Tel No. |  |  |  |  |
| DOB |  |  |  |  |
| Maritial Status |  |  |  |  |
| Date Reg. |  |  |  |  |
| NOK ID |  |  |  |  |
| Doctor ID |  |  |  |  |