1. **(1NF)**

**There is Multivalued attributed so, the table was separated into multiple tables (Members table, Books table,** **Borrow Transactions Table).**

**Members Table**

|  |  |  |
| --- | --- | --- |
| **Borrow\_ID (PK)** | **Member\_Name** | **Member\_phone** |
| 201 | Ali Hassan | 9876543210 |
| 202 | Fatma Noor | 9871234560 |

**Books Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Book \_ID (PK)** | **Book\_Title** | **Author\_Name** | **Author\_Nationality** |
| 200 | Database Systems | Ramez Elmasri | USA |
| 201 | Data Science | Joel Grus | USA |
| 202 | Python Basics | Mark Lutz | UK |

**Borrow Transactions Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Borrow\_ID (PK)** | **Book \_ID** | **Borrow \_Date** | **Return \_Date** | **Fine \_Amount** |
| 201 | 200 | 2025-01-10 | 2025-01-20 | 0 |
| 202 | 201 | 2025-01-12 | 2025-01-25 | 5 |
| 201 | 202 | 2025-01-10 | 2025-01-22 | 2 |

1. **(2NF)**

No need because there have total relationship.

1. (3NF)

It have transitive dependency **Author\_Name and Author\_Nationality**

**Authors Table**

|  |  |
| --- | --- |
| **Author Name** | **Author Nationality** |
| Ramez Elmasri | USA |
| Joel Grus | USA |
| Mark Lutz | UK |

**Members Table**

|  |  |  |
| --- | --- | --- |
| **Borrow ID (PK)** | **Member Name** | **Member phone** |
| 201 | Ali | 9876543210 |
| 202 | Fatma | 9871234560 |

**Books Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Book ID (PK)** | **Book Title** | **Author Name** | **Author Nationality** |
| 200 | Database Systems | Ramez Elmasri | USA |
| 201 | Data Science | Joel Grus | USA |
| 202 | Python Basics | Mark Lutz | UK |

**Borrow Transactions Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Borrow \_ID (PK)** | **Book \_ID** | **Borrow \_Date** | **Return \_Date** | **Fine \_Amount** |
| 201 | 200 | 2025-01-10 | 2025-01-20 | 0 |
| 202 | 201 | 2025-01-12 | 2025-01-25 | 5 |
| 201 | 202 | 2025-01-10 | 2025-01-22 | 2 |

**ERD**

