

1 Library — Book

Relationship name: manages

Meaning

- One **Library** manages **many Books**
- Each **Book** belongs to **one and only one Library**

Cardinality

- Library 1 —————< M Book

2 Library — Staff

Relationship name: employs

Meaning

- One **Library** employs **many Staff**
- Each **Staff member** works at **only one Library**

Cardinality

- Library 1 —————< M Staff

3 Member — Loan

Relationship name: borrows

Meaning

- One **Member** can borrow **many Books** over time
- Each **Loan** belongs to **one Member**

Cardinality

- Member 1 —————< M Loan

4 Book — Loan

Relationship name: is loaned

Meaning

- One **Book** can appear in **many Loans** (at different times)
- Each **Loan** refers to **one Book**

Cardinality

- Book 1 —————< M Loan

5 Loan — Payment

Relationship name: has paid

Meaning

- One **Loan** can have **zero or many Payments**
- Each **Payment** belongs to **one Loan only**

Cardinality

- Loan 1 ——————< M Payment

Member → Review (1 to many)

This relationship is **one to many** because **one member can write many reviews, but each review is written by only one member.**

Insert into Library

| | library_id | name | location | contactnumber | establishedyear |
|---|------------|-----------------|----------|---------------|-----------------|
| 1 | 1 | Central Library | Muscat | 91234567 | 1990 |
| 2 | 2 | North Branch | Sohar | 92345678 | 2000 |
| 3 | 3 | East Branch | Sur | 93456789 | 2010 |
| 4 | 4 | West Branch | Nizwa | 94567890 | 2015 |

-- Insert into Book

| | book_id | isbn | title | price | isavailable | genre | shelflocation | library_id |
|---|---------|----------------|--------------------|-------|-------------|-------------|---------------|------------|
| 1 | 1 | 978-1111111111 | Database Systems | 25.50 | 1 | Reference | A1 | 1 |
| 2 | 2 | 978-2222222222 | Children Stories | 10.00 | 1 | Children | B2 | 1 |
| 3 | 3 | 978-3333333333 | Fiction Novel | 15.75 | 1 | Fiction | C3 | 2 |
| 4 | 4 | 978-4444444444 | Science Facts | 20.00 | 1 | Non-fiction | D4 | 2 |
| 5 | 5 | 978-5555555555 | Programming Basics | 30.00 | 1 | Reference | E5 | 3 |

-- Insert into Staff

| | staff_id | fullname | position | contactnumber | library_id |
|---|----------|-------------|------------|---------------|------------|
| 1 | 1 | Ali Hassan | Manager | 95123456 | 1 |
| 2 | 2 | Fatima Said | Assistant | 95234567 | 1 |
| 3 | 3 | Omar Khalid | Librarian | 95345678 | 2 |
| 4 | 4 | Sara Ahmed | Technician | 95456789 | 3 |

-- Insert into Member

| | member_id | fullname | email | membershipstartdate | phonenumer |
|---|-----------|---------------|----------------------|---------------------|------------|
| 1 | 1 | Mohammed Ali | mohammed@example.com | 2023-01-10 | 96123456 |
| 2 | 2 | Aisha Noor | aisha@example.com | 2023-02-15 | 96234567 |
| 3 | 3 | Khalid Yousuf | khalid@example.com | 2023-03-20 | 96345678 |
| 4 | 4 | Layla Hassan | layla@example.com | 2023-04-25 | 96456789 |

-- Insert into Loan

| | loan_id | loandate | duedate | returndate | status | member_id | book_id |
|---|---------|------------|------------|------------|----------|-----------|---------|
| 1 | 1 | 2023-05-01 | 2023-05-15 | 2023-05-10 | Returned | 1 | 1 |
| 2 | 2 | 2023-06-01 | 2023-06-15 | NULL | Issued | 2 | 2 |
| 3 | 3 | 2023-07-01 | 2023-07-15 | 2023-07-20 | Overdue | 3 | 3 |
| 4 | 4 | 2023-08-01 | 2023-08-15 | NULL | Issued | 4 | 4 |

-- Insert into Review

| | review_id | rating | comments | reviewdate | book_id | member_id |
|---|-----------|--------|------------------------|------------|---------|-----------|
| 1 | 1 | 5 | Excellent book! | 2023-05-12 | 1 | 1 |
| 2 | 2 | 4 | Very useful reference. | 2023-06-18 | 2 | 2 |
| 3 | 3 | 3 | Good but a bit long. | 2023-07-22 | 3 | 3 |
| 4 | 4 | 2 | Not very interesting. | 2023-08-05 | 4 | 4 |

-- Insert into Payment

| | payment_id | paymentdate | amount | method | loan_id |
|---|------------|-------------|--------|--------|---------|
| 1 | 1 | 2023-05-12 | 5.00 | Cash | 1 |
| 2 | 2 | 2023-07-22 | 10.00 | Card | 3 |
| 3 | 3 | 2023-08-10 | 7.50 | Cash | 4 |
| 4 | 4 | 2023-09-01 | 12.00 | Online | 2 |

