BACHELOR OF INFORMATION SYSTEMS
SCHOOL OF INFORMATION SYSTEMS
BINA NUSANTARA UNIVERSITY
JAKARTA

ASSESSMENT FORM
Course: ISYS6123 Introduction to Database Systems
Method of Assessment: Group Project
Semester/Academic Year : Even/2022-2023

Name of Lecturer : SAN KARYA, S.Kom., MMSI
Date : 1 June 2023
Class : LF11
Topic : Database Architecture & Relational Model, Entity Relationship (ER) Modeling, SQL - Data Definition, SQL Data Manipulation (Basic Queries 1), SQL Data Manipulation (Basic Queries 2), SQL Data Manipulation (Multi-tables Queries), SQL Data Manipulation (Sub Queries) and View

Group Members :	1. 2602193912 - Huandika Ekaputra 2. 2602194171 - Rachel Natasya Angel Sinaga 3. 2602194240 - Aiko Machfuudzoh 4. 2602195205 - Nur Fitri Alya Inayah 5. 2602198024 - Muhammad Zianurahman 6. 2602199733 - Nur'Ayn Marina 7. 2602202324 - Salsabila Arundita Pramono

Student Outcomes:
SO 1 - Able to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

Learning Objectives:
LObj 1.1 - Able to identify the needs of database for complex computing problems.

No	Assessment criteria	Weight	Excellent (85 - 100)	Good (75-84)	Average (65-74)	Poor (0 - 64)	Score	(Score x Weight)
1	Ability to develop Conceptual and Logical Entity Relationship Diagram (ERD)	**40%**	The ERD completely describes the conceptual and logical data model	The ERD misses 1-2 components or associations	The ERD misses 3-5 components or associations	The ERD misses more than 5 components or associations		
2	Ability to develop Data Definition Language (DDL)	**40%**	The DDL is complete and describes all the tables and constraints	The DDL misses 1-2 tables or constraints	The DDL misses 3-5 tables or constraints	The DDL misses more than 5 tables or constraints		
3	Ability to create View using Data Manipulation Language (DML) Basic and Multi-tables	**20%**	Minimum 1 view using DML Basic and minimum 1 view using DML Multi-tables, and each view displays correct data	Minimum 1 view using DML Basic and minimum 1 view using DML Multi-tables, with 1 or 2 errors in the creation of view	Minimum 1 view using DML Basic and minimum 1 view using DML Multi-tables, with 3 to 4 errors in the creation of view	Minimum 1 view using DML Basic and minimum 1 view using DML Multi-tables, with more than 4 errors in the creation of view		
	Total Score: ∑(Score x Weight)							

Remarks:

ASSESSMENT METHOD

Instructions

- Each group finds and chooses 1 case study around their environment
- Each group designs **Conceptual** and **Logical Entity Relationship Diagram (ERD)** based on chosen case study
- Each group submits Conceptual and Logical ERD to the lecturer on Week 2
- Lecturer giving feedback for Conceptual and Logical ERD and giving instruction how to create database and tables with Data Definition Language (DDL) on Week 6
- Each group creates **database and tables with DDL** based on Logical ERD, and submits DDL to the lecturer on Week 7
- Lecturer giving feedback for DDL and giving instruction how to **Create View of database system** on Week 10
- Each group creates documentation consists of Conceptual ERD, Logical ERD, DDL, Create View of database system, and submits to the lecturer on Week 12

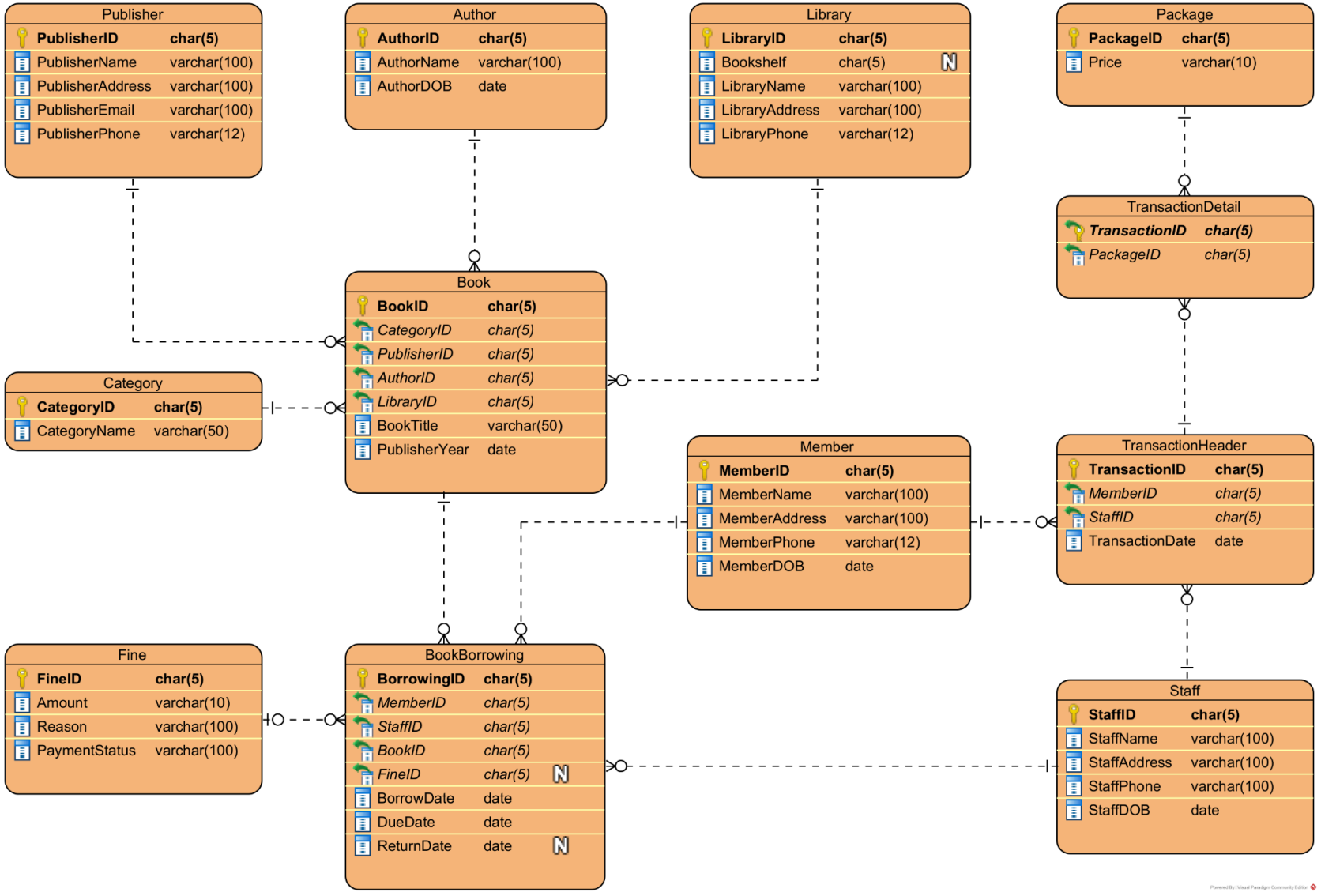
Note for Lecturers:

- Lecturers must inform this project assignment on 1st week to the students
- Lecturers must give feedback for students answer
- Lecturers must submit this score to SCC Business Intelligence maximum on Week 13 via email (richard-slc@binus.edu)

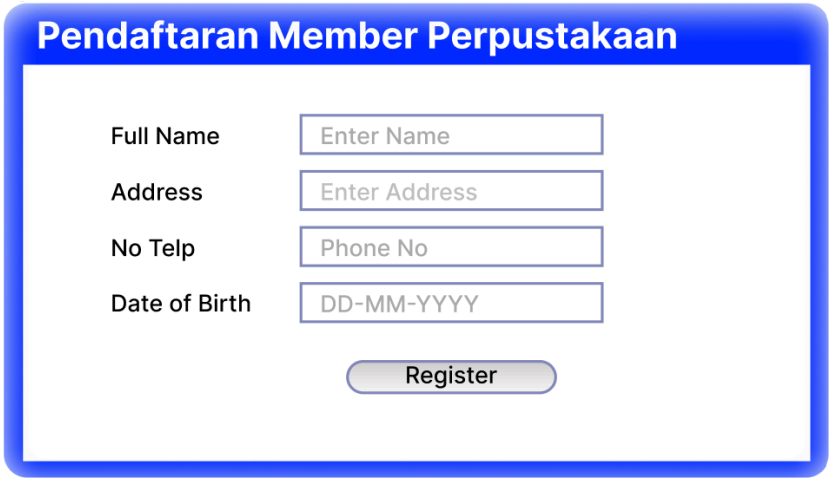
ANSWER SHEET

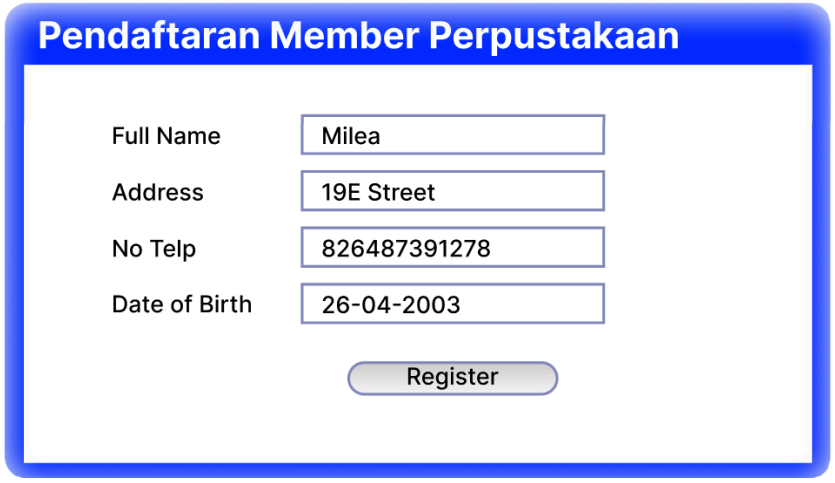
DATABASE SYSTEMS FOR LIBRARY MANAGEMENT

1. Entity Relationship Diagram (ERD)



2. Pendaftaran Member





a. **CREATE TABLE Member — DDL**

```
CREATE TABLE Member (
      MemberID CHAR(5) PRIMARY KEY CHECK (MemberID LIKE 'MM[0-9][0-9][0-9]'),
      MemberName VARCHAR(50) NOT NULL,
      MemberAddress VARCHAR(100) NOT NULL,
      MemberPhone VARCHAR(50) NOT NULL,
      MemberDOB DATE NOT NULL
)
```

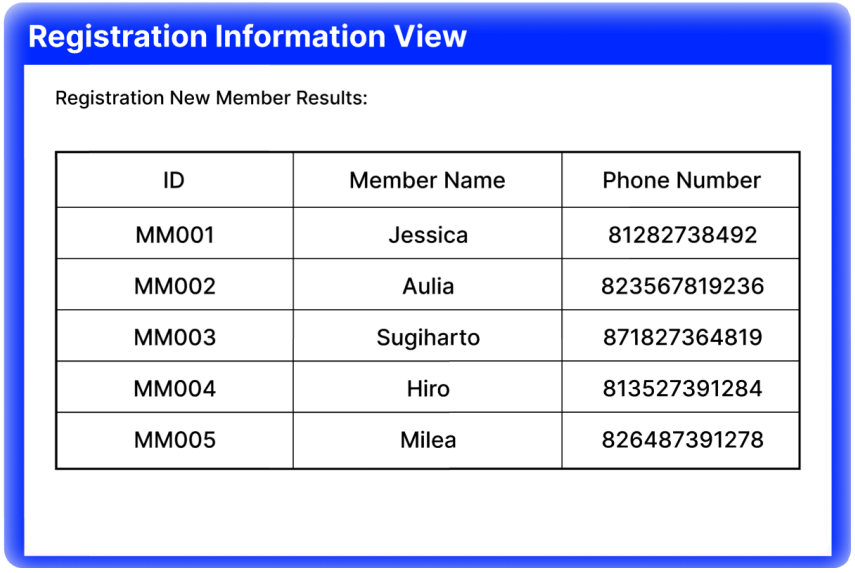
b. **INSERT INTO — DML**

- Menekan tombol “Register”

```
INSERT INTO Member VALUES
      ('MM001', 'Jessica', '12B Street', '81282738492', '12-02-2000'),
      ('MM002', 'Aulia', '12A Street', '823567819236', '14-04-2001'),
```

```
    ('MM003', 'Sugiharto', '15C Street', '871827364819', '05-12-2001'),
    ('MM004', 'Hiro', '17D Street', '813527391284', '02-01-2002'),
    ('MM005', 'Milea', '19E Street', '826487391278', '26-04-2003')
```

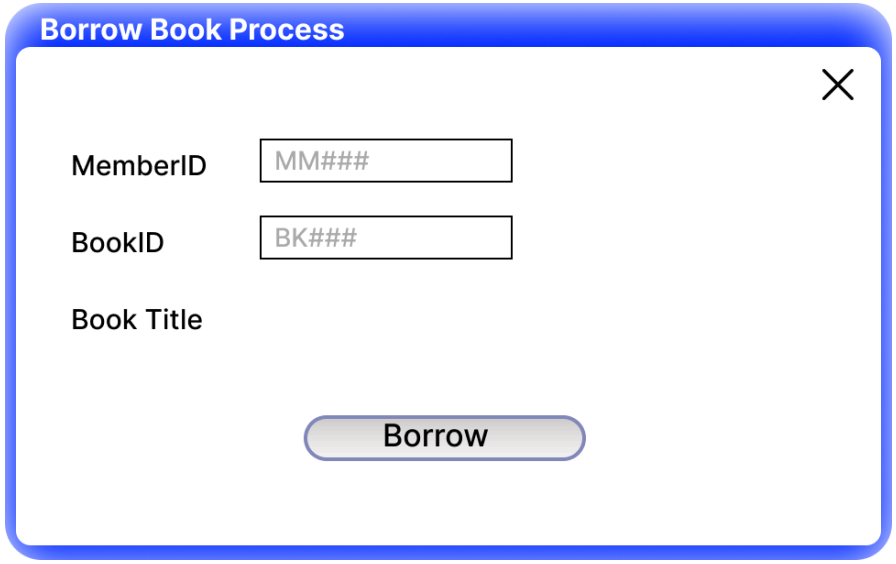
c. **CREATE VIEW — DML**

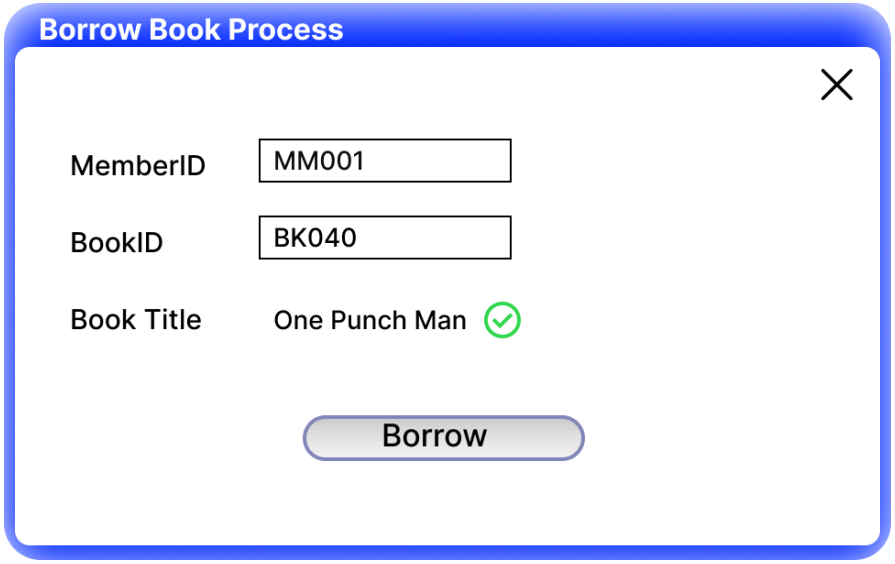


- Akan keluar sebuah popup untuk view

```
CREATE VIEW ViewRegistrationInformation AS
SELECT
      MemberID,
      MemberName,
      MemberPhone
FROM Member
```

3. Menu Peminjaman Buku





d. **CREATE TABLE Book and BookBorrowing — DDL**

```
CREATE TABLE Book (
      BookID CHAR(5) PRIMARY KEY CHECK (BookID CHECK 'BK[0-9][0-9][0-9]'),
      CategoryID CHAR(5) FOREIGN KEY REFERENCES Category(CategoryID) NOT NULL,
      PublisherID CHAR(5) FOREIGN KEY REFERENCES Publisher(PublisherID) NOT NULL,
      AuthorID CHAR(5) FOREIGN KEY REFERENCES Author(AuthorID) NOT NULL,
      LibraryID CHAR(5) FOREIGN KEY REFERENCES Library(LibraryID) NOT NULL,
      BookTitle VARCHAR(50) NOT NULL,
      PublisherDate DATE NOT NULL
)

CREATE TABLE BookBorrowing (
      BorrowingID CHAR(5) PRIMARY KEY CHECK (BorrowingID CHECK 'BR[0-9[0-9][0-9]'),
      MemberID CHAR(5) FOREIGN KEY REFERENCES Member(MemberID) NOT NULL,
```

```
      StaffID CHAR(5) FOREIGN KEY REFERENCES Staff(StaffID) NOT NULL,
      BookID CHAR(5) FOREIGN KEY REFERENCES Book(BookID) NOT NULL,
      FineID CHAR(5) FOREIGN KEY REFERENCES Fine(FineID),
      BorrowDate DATE NOT NULL,
      DueDate DATE NOT NULL,
      ReturnDate DATE
)
```

e. **INSERT INTO — DML**

- Insert data ke dalam tabel Book

```
INSERT INTO Book VALUES
      ('BK039', 'CT002', 'PB008', 'AT008', 'LB090', 'The Hunger Games', '07-07-2000'),
      ('BK040', 'CT006', 'PB001', 'AT004', 'LB090', 'One Punch Man', '23-08-2005'),
      ('BK041', 'CT001', 'PB005', 'AT001', 'LB090', 'Divergent', '09-06-2003'),
      ('BK042', 'CT003', 'PB002', 'AT009', 'LB090', 'Songs and Birds', '10-01-2004'),
      ('BK090', 'CT002', 'PB007', 'AT006', 'LB090', 'Boku no Pico', '29-03-2006')
```

- Menampilkan Book Title

```
SELECT
      BookTitle
FROM
      Book
WHERE
      BookID = "BK040"
```

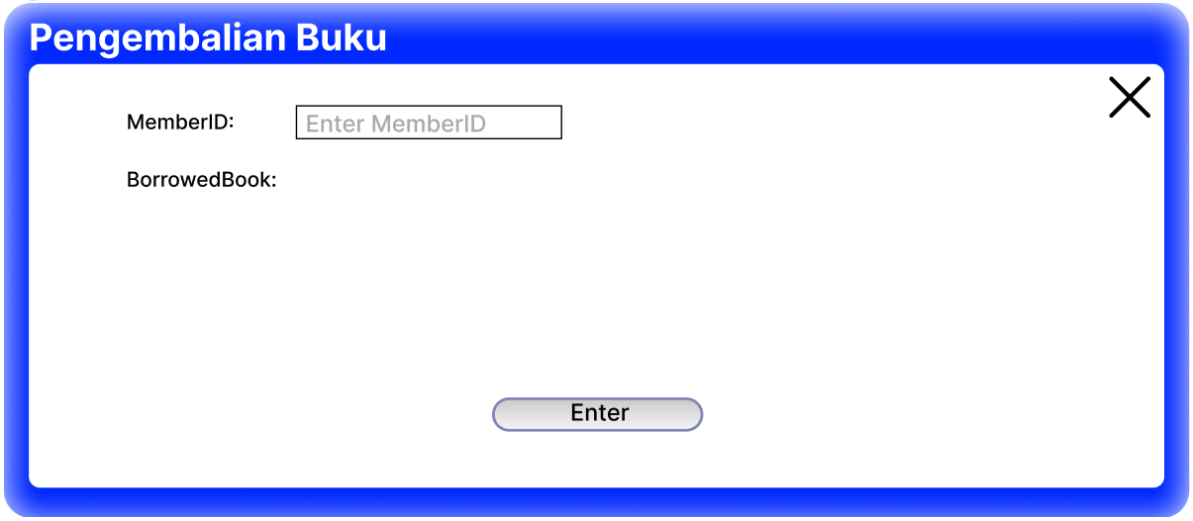
- Menekan tombol “Borrow”

```
INSERT TABLE BookBorrowing VALUES
     ('BR003', 'LB001', 'BK040', 'FN001', 'ST006', 'MM001' ,'10-June-2023', 10, '20-06-2023')
```

- Menekan tombol “Borrow” - Status peminjaman update secara otomatis

```
UPDATE Book
SET Status = 'Dipinjam'
WHERE BookID = 'BK040';
```

4. Pengembalian Buku



f. **CREATE TABLE Book and BookBorrowing — DDL**

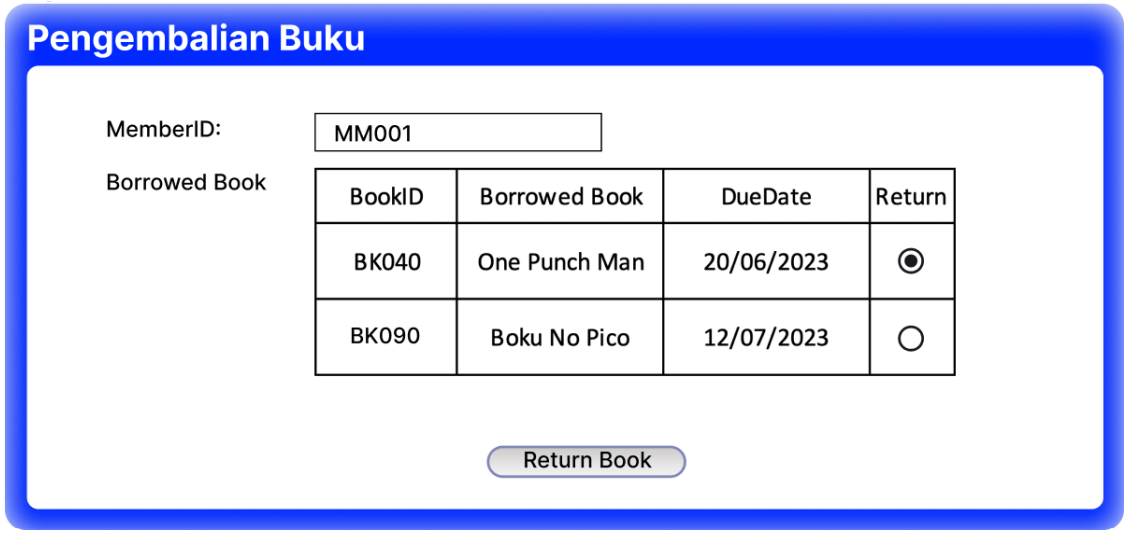
```
CREATE TABLE BookBorrowing(
      BorrowID CHAR(5) PRIMARY KEY CHECK (BorrowID LIKE 'BR[0-9][0-9][0-9]'),
      BookID CHAR(5)FOREIGN KEY REFERENCES Book(BookID) NOT NULL,
      FineID CHAR (5) FOREIGN KEY REFERENCES Fine(FineID),
      StaffID CHAR(5) FOREIGN KEY REFERENCES Staff(StaffID) NOT NULL,
      MemberID CHAR(5) FOREIGN KEY REFERENCES Member(MemberID) NOT NULL,
      BorrowDate DATE NOT NULL, DueDate DATE NOT NULL, ReturnDate DATE
)

CREATE TABLE Book(
      BookID CHAR(5) PRIMARY KEY CHECK (BookID LIKE 'BK[0-9][0-9][0-9]'),
      CategoryID CHAR(5) FOREIGN KEY REFERENCES Category(CategoryID) NOT NULL,
      PublisherID CHAR(5) FOREIGN KEY REFERENCES Publisher(PublisherID) NOT NULL,
      AuthorID CHAR(5) FOREIGN KEY REFERENCES Author(AuthorID) NOT NULL,
      GenreID CHAR(5) FOREIGN KEY REFERENCES Genre(GenreID) NOT NULL,
      LibraryID CHAR(5) FOREIGN KEY REFERENCES Library(LibraryID) NOT NULL,
      BookTitle VARCHAR(50) NOT NULL,
      PublicationYear DATE NOT NULL
)
```

g. **SELECT & UPDATE — DML**

- Setelah memasukan MemberID dan menekan tombol “Enter”

```
SELECT bb.BookID, BookTitle, DueDate
FROM BorrowBook bb
JOIN Book b ON bb.BookID = b.BookID
WHERE MemberID = 'MM001'
```

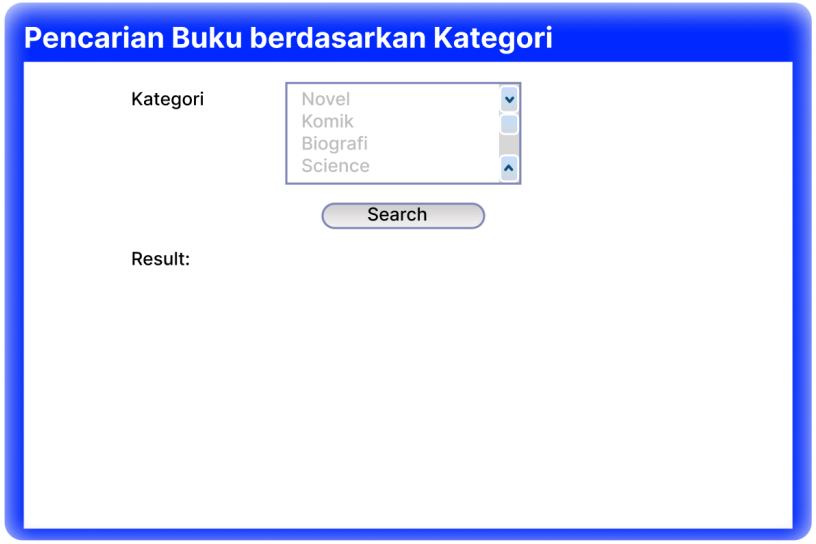


- Menekan tombol “Return Book”

```
UPDATE BorrowBook
SET ReturnDate = '18-06-2023'
WHERE BookID = 'BK040';

UPDATE Book
SET Status = 'Tersedia'
WHERE BookID = 'BK040';
```

5. Mencari Letak Buku Berdasarkan Kategori



h. **CREATE TABLE — DDL**

```
CREATE TABLE Book (
      BookID CHAR(5) PRIMARY KEY CHECK (BookID LIKE 'BK[0-9][0-9][0-9]'),
      CategoryID CHAR(5) FOREIGN KEY REFERENCES Category(CategoryID) NOT NULL,
      PublisherID CHAR(5) FOREIGN KEY REFERENCES Publisher(PublisherID) NOT NULL,
      AuthorID CHAR(5) FOREIGN KEY REFERENCES Author(AuthorID) NOT NULL,
      GenreID CHAR(5) FOREIGN KEY REFERENCES Genre(GenreID) NOT NULL,
      LibraryID CHAR(5) FOREIGN KEY REFERENCES Library(LibraryID) NOT NULL,
      BookTitle VARCHAR(50) NOT NULL,
      PublicationYear DATE NOT NULL
)

CREATE TABLE Library (
      LibraryID CHAR(5) PRIMARY KEY CHECK (LibraryID LIKE 'LB[0-9][0-9][0-9]'),
      Bookshelf CHAR(6) CHECK (Bookshelf LIKE '[A-Z][A-Z][A-Z][0-9][0-9][0-9]'),
      LibraryName VARCHAR(100) NOT NULL,
```

```
      LibraryAddress VARCHAR(200) NOT NULL,
      LibraryPhone INT NOT NULL
)

CREATE TABLE Category (
      CategoryID CHAR(5) PRIMARY KEY CHECK (CategoryID LIKE 'CT[0-9][0-9][0-9]'),
      CategoryName VARCHAR(50) NOT NULL
)
```

i. **CREATE VIEW — DML**

- Setelah memilih kategori novel dan menekan tombol "Search"

```
CREATE VIEW BookCategory
AS
SELECT
      CategoryName,
```

```
      BookID,
      BookTitle,
      Bookshelf
FROM
      Category mc
      JOIN Book mb ON mc.CategoryID = mb.CategoryID
      JOIN Library ml ON mb.LibraryID = ml.LibraryID
WHERE
      CategoryName = 'Novel'
```

6. Mendonasikan Buku ke Perpustakaan

j. **CREATE TABLE — DDL**

```
CREATE TABLE Book(
      BookID CHAR(5) PRIMARY KEY CHECK (BookID LIKE 'BK[0-9][0-9][0-9]'),
      CategoryID CHAR(5) FOREIGN KEY REFERENCES Category(CategoryID) NOT NULL,
```

```
      PublisherID CHAR(5) FOREIGN KEY REFERENCES Publisher(PublisherID) NOT NULL,
      AuthorID CHAR(5) FOREIGN KEY REFERENCES Author(AuthorID) NOT NULL,
      GenreID CHAR(5) FOREIGN KEY REFERENCES Genre(GenreID) NOT NULL,
      LibraryID CHAR(5) FOREIGN KEY REFERENCES Library(LibraryID) NOT NULL,
      BookTitle VARCHAR(50) NOT NULL,
      PublicationYear DATE NOT NULL
)
```

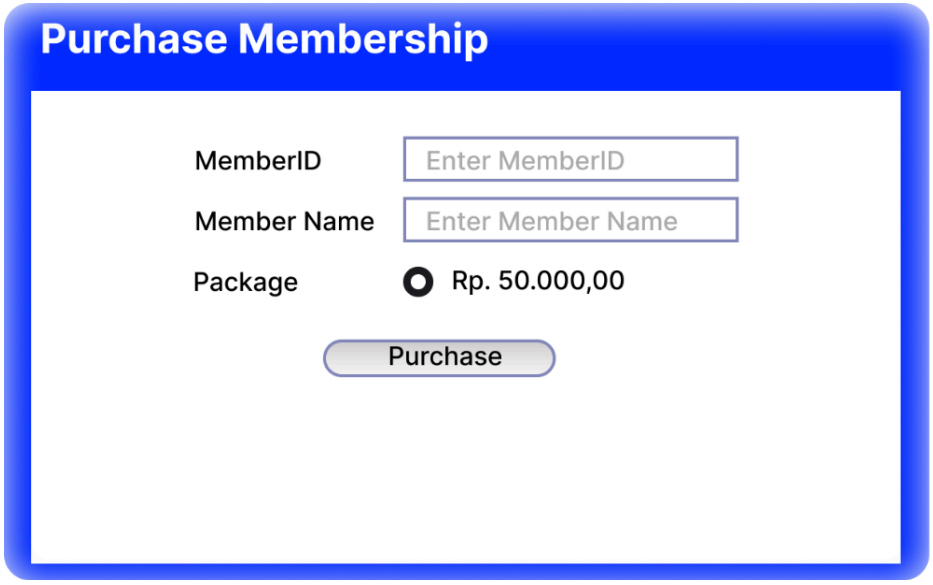
k. **INSERT INTO — DML**

```
INSERT INTO Author VALUES
      ('AU023', 'Robert Rijayadi', '22-08-1992')

INSERT INTO Publisher VALUES
      ('PB001', 'GramaPublish', 'Birmingham Street Blok 15B', 'gramapublish@company', '129003129')

INSERT INTO Book VALUES
      ('BK212', 'CT004', 'PB001', 'AU023', 'GR012', 'NV004', 'Para Pencari Domba', '10-09-2022')
```

7. Pembelian Membership



l. **CREATE TABLE — DDL**

```
CREATE TABLE TransactionHeader(
      TransactionID CHAR(5) PRIMARY KEY CHECK (TransactionID LIKE 'TA[0-9][0-9[0-9]'),
      MemberID CHAR(5) FOREIGN KEY REFERENCES Member(MemberID) NOT NULL,
      StaffID CHAR(5) FOREIGN KEY REFERENCES Staff(StaffID) NOT NULL,
      TransactionDate DATE NOT NULL
)

CREATE TABLE TransactionDetail(
      TransactionID CHAR(5) FOREIGN KEY REFERENCES TransactionHeader(TransactionID) NOT NULL,
      PackageID CHAR(5) FOREIGN KEY REFERENCES Package(PackageID) NOT NULL
)
```

m. **INSERT INTO — DML**

- Menekan Tombol “Purchase”

```
INSERT INTO TransactionHeader VALUES
     ('TA023', 'MM001', 'ST006', '20-07-2023')

INSERT INTO TransactionDetail VALUES
     ('TA023', 'PG001')
```