LIBRARY MANAGEMENT SYSTEM

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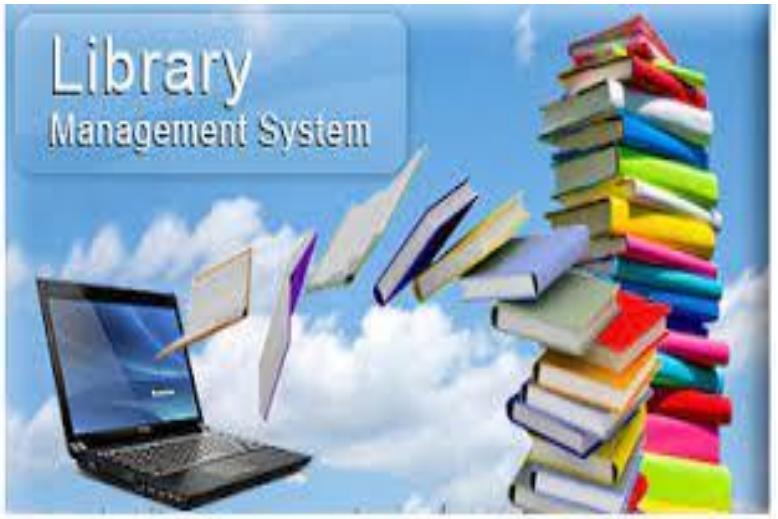


ABSTRACT FOR LIBRARY BASE

MANAGEMENT SYSTEM

- This report presents an overview of the Library database, which stores information about students, books, book issues, distributors, and fine details
- The database allows tracking student registrations, book details, book issues, and associated fine information.
- The report provides insights into the entity sets, relationship sets, relationship schemas, and concludes with a summary of the database scenario.

KEYWORDS:

Library database, students, books, book issues, distributors, fine details.

SCENARIO FOR LIBRARY BASE

MANAGEMENT SYSTEM

- The Library database manages student registrations, book details, book issues, and fine information.
- Students can register with the library, and each student is assigned a unique student ID.
- Books are categorized and stored in the database, along with their titles, authors, publication details, and edition.
- The database also maintains information about book distributors, including their contact details and addresses.
- Book issues are recorded with details such as the student ID, book code, issue date, return date, and fine range.

ENTITY SETS FOR LIBRARY BASE MANAGEMENT SYSTEM

1. Library_base:
- Attributes: STUDENT_ID (Primary Key), STUDENT_NAME, REGISTRATION_DATE, DATE_OF_EXPIRY, DURATION
- Description: Stores information about registered students.

2. Library_DISTRIBUTOR_DETAILS:
- Attributes: DISTRIBUTOR_ID (Primary Key), DISTRIBUTOR_NAME, ADDRESS, CONTACT, EMAIL
- Description: Manages details of book distributors.

3.Library_FINE_DETAILS:

- Attributes: FINE_RANGE (Primary Key), FINE_AMOUNT
- Description: Stores information about fine ranges and corresponding amounts.

4. Library_BOOK_DETAILS:

- Attributes: BOOK_CODE (Primary Key), BOOK_TITLE, CATEGORY, AUTHOR, PUBLICATION, PUBLISH_DATE, BOOK_EDITION, COST, SHELF_NUM, DISTRIBUTOR_ID (Foreign Key)
- Description: Stores information about books, including their details and the associated distributor.

5. Library_BOOK_ISSUE:

- Attributes: BOOK_ISSUE_NO (Primary Key), STUDENT_ID (Foreign Key), BOOK_CODE (Foreign Key), DATE_ISSUE, DATE_RETURN, DATE_RETURNED, FINE_RANGE (Foreign Key)
- Description: Records book issuance information, including issue and return dates,

fine range, and student and book references.

Relationship Sets for Library Management System

1. Relationship Set between Library_DISTRIBUTOR_DETAILS and Library_BOOK_DETAILS:

- Relationship: One distributor can supply multiple books.
- Cardinality: One-to-Many.

2. Relationship Set between Library_FINE_DETAILS and Library_BOOK_ISSUE:

- Relationship: Each book issue can have a specific fine range.
- Cardinality: One-to-Many.

3.Relationship Set between Library_BOOK_DETAILS and Library_BOOK_ISSUE:

- Relationship: Each book issue is associated with a specific book.
- Cardinality: One-to-Many.

4. Relationship Set between Library_BASE and Library_BOOK_ISSUE:

- Relationship: Each book issue is associated with a specific student.
- Cardinality: One-to-Many.

RELATIONAL SCHEMAS FOR LIBRARY

BASE MANAGEMENT SYSTEM

LIBRARY_BASE

Student_id : primary key.

Student Name : not null.

Registartion_date : not null.

DATE_OF_EXPIRY : not null.

Duration : not null.

STUDENT_ID	STUDENT_NAME	REGISTRATION_DATE	DATE_OF_ENTRY	DURATION

LIBRARY_DISTRIBUTOR_DETAILS

DISTRIBUTOR_ID	DISTRIBUTOR_NAME	ADDRESS	CONTACT	EMAIL

DISTRIBUTOR_ID : PRIMARY KEY

DISTRIBUTOR_NAME : NOT NULL

ADDRESS :NOT NULL

CONTACT :NOT NULL

EMAIL :NOT NULL

LIBRARY_BOOK_DETAILS

BOOK_ CODE	BOOK_TITLE	CATEGORY	AUTHOR	PUBLICATION	PUBLISH_DATE	BOOK_EDITION	COST	SHELF_NO	DISTRIBUTOR_ID

BOOK_CODE : PRIMARY KEY

BOOK_TITLE : NOT NULL

CATEGORY : NOT NULL

AUTHOR :NOT NULL

PUBLICATION :NOT NULL

PUBLISH_DATE :NOT NULL

BOOK_EDITION :NOT NULL

COST : NOT NULL

SHELF_NUM :NOT NULL

DISTRIBUTOR_ID : NOT NULL

LIBRARY_FINE_DETAILS

FINE_RANGE :NOT NULL

FINE_AMOUNT : NOT NULL,

FINE_RANGE	FINE_AMOUNT

LIBRARY_BOOK_ISSUE

BOOK_ISSUE_NO	STUDENT_ID	BOOK_CODE	DATE_ISSUE	DATE_RETURN	DATE_RETURNED	FINE_RANGE

BOOK_ISSUE_NO :PRIMARY KEY

STUDENT_ID :NOT NULL

BOOK_CODE :NOT NULL

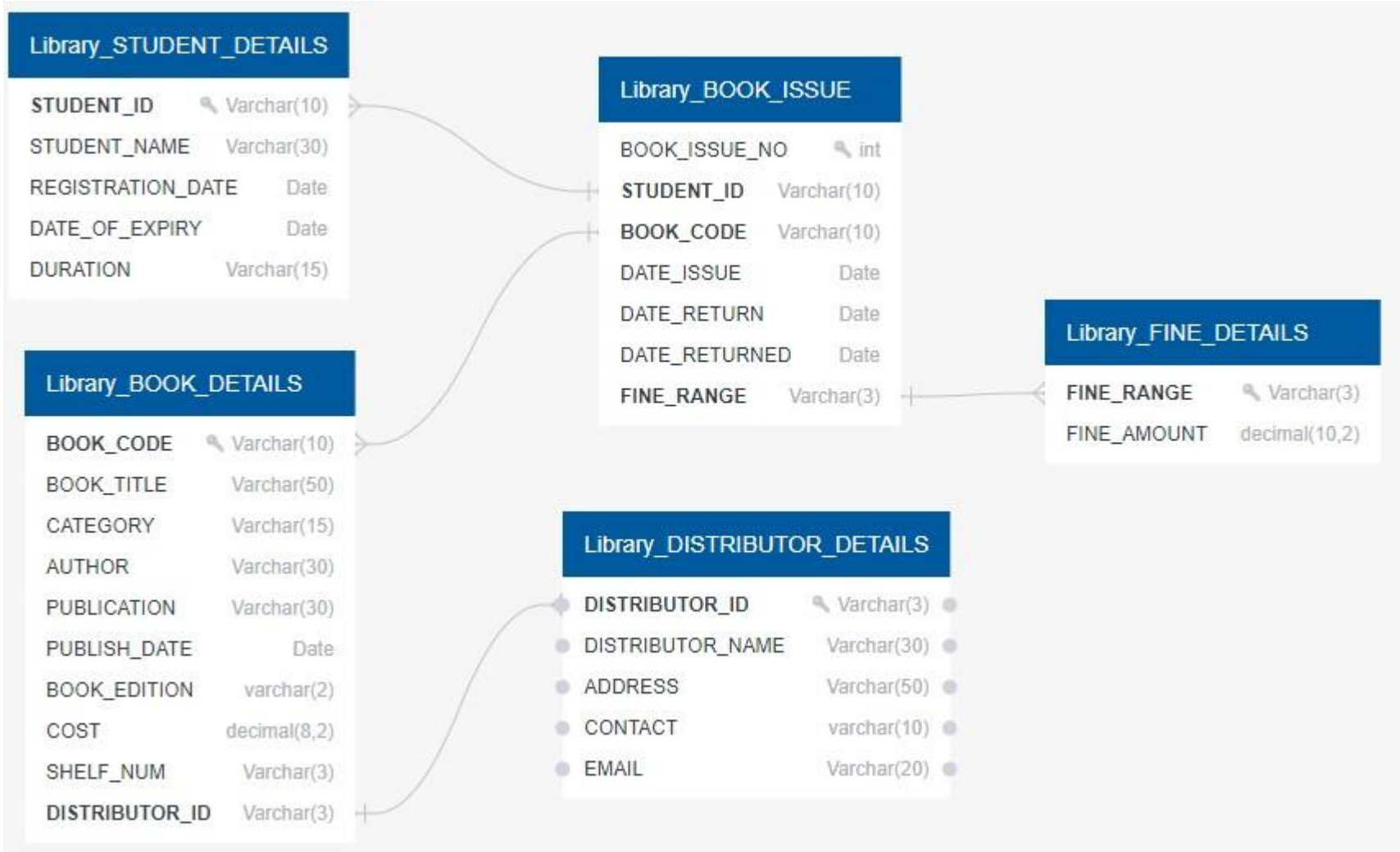
DATE_ISSUE :NOT NULL

DATE_RETURN :NOT NULL

DATE_RETURNED :NOT NULL

FINE_RANGE :NOT NULL

RELATIONAL SCHEMAS


Library_STUDENT_DETAILS
STUDENT_ID Varchar(10)
STUDENT_NAME Varchar(30)
REGISTRATION_DATE Date
DATE_OF_EXPIRY Date
DURATION Varchar(15)
Library_BOOK_ISSUE
BOOK_ISSUE_NO int
STUDENT_ID Varchar(10)
BOOK_CODE Varchar(10)
DATE_ISSUE Date
DATE_RETURN Date
DATE_RETURNED Date
FINE_RANGE Varchar(3)
Library_FINE_DETAILS
FINE_RANGE Varchar(3)
FINE_AMOUNT decimal(10,2)
Library_BOOK_DETAILS
BOOK_CODE Varchar(10)
BOOK_TITLE Varchar(50)
CATEGORY Varchar(15)
AUTHOR Varchar(30)
PUBLICATION Varchar(30)
PUBLISH_DATE Date
BOOK_EDITION varchar(2)
COST decimal(8,2)
SHELF_NUM Varchar(3)
DISTRIBUTOR_ID Varchar(3)
Library_DISTRIBUTOR_DETAILS
DISTRIBUTOR_ID Varchar(3)
DISTRIBUTOR_NAME Varchar(30)
ADDRESS Varchar(50)
CONTACT varchar(10)
EMAIL Varchar(20)

CODE

```
Create table Library_base
(
STUDENT_ID Varchar(10),
STUDENT_NAME Varchar(30) NOT NULL,
REGISTRATION_DATE Date NOT NULL,
DATE_OF_EXPIRY Date ,
DURATION Varchar(15)NOT NULL,
Constraint Library_cts1 PRIMARY KEY(STUDENT_ID)
);
Create table Library_DISTRIBUTOR_DETAILS
(DISTRIBUTOR_ID Varchar(3),
DISTRIBUTOR_NAME Varchar(30) NOT NULL,
ADDRESS Varchar(50),
CONTACT varchar(10) NOT NULL,
EMAIL Varchar(20) NOT NULL,
Constraint Library_cts2 PRIMARY KEY(DISTRIBUTOR_ID)
);
Create table Library_FINE_DETAILS
(
FINE_RANGE Varchar(3),
FINE_AMOUNT decimal(10,2) NOT NULL,
Constraint Library_cts3 PRIMARY KEY(FINE_RANGE)
);
```

```
Create table Library_BOOK_DETAILS
(
BOOK_CODE Varchar(10),
BOOK_TITLE Varchar(50) NOT NULL,
CATEGORY Varchar(15) NOT NULL,
AUTHOR Varchar(30) NOT NULL,
PUBLICATION Varchar(30),
PUBLISH_DATE Date,
BOOK_EDITION varchar(2),
COST decimal(8,2) NOT NULL,
SHELF_NUM Varchar(3),
DISTRIBUTOR_ID Varchar(3) NOT NULL,
Constraint Library_cts4 PRIMARY KEY(BOOK_CODE),
Constraint Library_cts41 FOREIGN KEY(DISTRIBUTOR_ID) References
    Library_DISTRIBUTOR_DETAILS(DISTRIBUTOR_ID)
);
```

```
Create table Library_BOOK_ISSUE
(
BOOK_ISSUE_NO int,
STUDENT_ID Varchar(10) NOT NULL,
BOOK_CODE Varchar(10) NOT NULL,
DATE_ISSUE Date NOT NULL,
DATE_RETURN Date NOT NULL,
DATE_RETURNED Date NULL,
FINE_RANGE Varchar(3),
Constraint Library_cts5 PRIMARY KEY(BOOK_ISSUE_NO),
Constraint Library_Mem FOREIGN KEY(STUDENT_ID) References
    Library_base(STUDENT_ID),
Constraint Library_BookDetail FOREIGN KEY(BOOK_CODE) References
    Library_BOOK_DETAILS(BOOK_CODE),
Constraint Library_FineDetail FOREIGN KEY(FINE_RANGE) References
    Library_FINE_DETAILS(FINE_RANGE)
);
```

INSERTING DATA INTO TABLES

```
Insert into Library_base
Values('21EEB0A49', 'JAMES ANDERSON', '2022-02-12', '2023-02-11'
    ,'Temporary');
Insert into Library_base
Values('21EEB0A50', 'ABHINAV KUMAR', '2022-04-10', '2023-04-09'
    ,'Temporary');
Insert into Library_base
Values('21EEB0A10', 'RAHUL RAJ', '2022-05-13','2023-05-12',
    'Permanent');
Insert into Library_base
Values('21EEB0F01', 'PRANAY TEJA', '2022-04-22', '2023-04-21',
    'Temporary');
Insert into Library_base
Values('21EEB0A23', 'RAM CHARAN', '2022-03-30', '2023-05-16'
    ,'Temporary');
select * from library_base;
```

	STUDENT_ID	STUDENT_NAME	REGISTRATION_DATE	DATE_OF_EXPIRY	DURATION
1	21EEB0A10	RAHUL RAJ	2022-05-13	2023-05-12	Permanent
2	21EEB0A23	RAM CHARAN	2022-03-30	2023-05-16	Temporary
3	21EEB0A49	JAMES ANDERSON	2022-02-12	2023-02-11	Temporary
4	21EEB0A50	ABHINAV KUMAR	2022-04-10	2023-04-09	Temporary
5	21EEB0F01	PRANAY TEJA	2022-04-22	2023-04-21	Temporary

```
Insert into Library_DISTRIBUTOR_DETAILS
Values ('A99','THE BOOK SHOPPEE', 'ANDHRAPRADESH', 9550953494
    ,'hello@shoppe.co');
Insert into Library_DISTRIBUTOR_DETAILS
Values ('A59','PAGE TURNING BOOKS', 'MADHYAPRADESH', 9759384994
    ,'jks@yahoo.com');
Insert into Library_DISTRIBUTOR_DETAILS
Values ('A30','THE BOOKSHELF', 'CHANDIGARH', 9444444444,'shelf@gmail
    .com');
Insert into Library_DISTRIBUTOR_DETAILS
Values ('A12','WHITE WHALE BOOK STORE', 'KARNATAKA', 8630001434
    ,'whale@redif.com');
Insert into Library_DISTRIBUTOR_DETAILS
Values ('A38','THE READING NOOK', 'HYDERABAD', 9542120000,'nook
    .@gmail.com');
select * from Library_DISTRIBUTOR_DETAILS;
```

	DISTRIBUTOR_ID	DISTRIBUTOR_NAME	ADDRESS	CONTACT	EMAIL
1	A12	WHITE WHALE BOOK STORE	KARNATAKA	8630001434	whale@redif.com
2	A30	THE BOOKSHELF	CHANDIGARH	9444444444	shelf@gmail.com
3	A38	THE READING NOOK	HYDERABAD	9542120000	nook.@gmail.com
4	A59	PAGE TURNING BOOKS	MADHYAPRADESH	9759384994	jks@yahoo.com
5	A99	THE BOOK SHOPPEE	ANDHRAPRADESH	9550953494	hello@shoppe.co

```
Insert into Library_FINE_DETAILS Values('R0', 0);
Insert into Library_FINE_DETAILS Values('R1', 20);
insert into Library_FINE_DETAILS Values('R2', 50);
Insert into Library_FINE_DETAILS Values('R3', 75);
Insert into Library_FINE_DETAILS Values('R4', 100);
Insert into Library_FINE_DETAILS Values('R5', 150);
Insert into Library_FINE_DETAILS Values('R6', 200);
select * from Library_FINE_DETAILS;
```

	FINE_RANGE	FINE_AMOUNT
1	R0	0.00
2	R1	20.00
3	R2	50.00
4	R3	75.00
5	R4	100.00
6	R5	150.00
7	R6	200.00

```
Insert into Library_BOOK_DETAILS
Values('1-38-57', 'Java ForvDummies', 'JAVA', 'Paul J. Deitel',
    'Prentice Hall', '1999-12-10', 6, 575.00, 'A1', 'A99');
Insert into Library_BOOK_DETAILS
Values('0-56-24', 'Java: The Complete Reference ', 'JAVA', 'Herbert
    Schildt', 'Tata Mcgraw Hill ', '2011-10-10', 5, 750.00, 'A1',
    'A30');
Insert into Library_BOOK_DETAILS
Values('2-35-21', 'Java How To Do Program', 'JAVA', 'Paul J. Deitel'
    , 'Prentice Hall', '1999-05-10', 6, 600.00, 'A1', 'A12');
Insert into Library_BOOK_DETAILS
Values('8-50-19', 'Java: The Complete Reference ', 'JAVA', 'Herbert
    Schildt', 'Tata Mcgraw Hill ', '2011-10-10', 5, 750.00, 'A1',
    'A99');
Insert into Library_BOOK_DETAILS
Values('7-49-19', 'Java How To Do Program', 'JAVA', 'Paul J. Deitel'
    , 'Prentice Hall', '1999-12-10', 6, 600.00, 'A1', 'A30');
select * from Library_BOOK_DETAILS;
```

```
Insert into Library_BOOK_ISSUE
Values (001, '21EEB0A49', '7-49-19', '2022-05-01', '2022-05-16',
    '2022-05-16', 'R0');
Insert into Library_BOOK_ISSUE
Values (002, '21EEB0A10', '8-50-19', '2022-05-01', '2022-05-06'
    ,'2022-05-16', 'R2');
Insert into Library_BOOK_ISSUE
Values (003, '21EEB0F01', '2-35-21', '2022-04-01', '2022-04-16',
    '2022-04-20','R1');
Insert into Library_BOOK_ISSUE
Values (004, '21EEB0A23', '0-56-24', '2022-04-01', '2022-04-16'
    ,'2022-04-20', 'R1');
Insert into Library_BOOK_ISSUE
Values (004, '21EEB0A50', '1-38-57', '2022-04-01', '2022-04-16'
    ,'2022-04-20', 'R1');
select * from Library_BOOK_ISSUE ;
```

SELECT QUERIES

Students having permanent status

```
select STUDENT_ID,STUDENT_NAME,REGISTRATION_DATE,DATE_OF_EXPIRY,DURATION
from library_base
where DURATION='Permanent'
```

100 %

Results | Messages

	STUDENT_ID	STUDENT_NAME	REGISTRATION_DATE	DATE_OF_EXPIRY	DURATION
1	21EEB0A10	RAHUL RAJ	2022-05-13	2023-05-12	Permanent

Distributer having address Andhra Pradesh

```
SELECT DISTRIBUTOR_ID,DISTRIBUTOR_NAME,ADDRESS,CONTACT,EMAIL
FROM Library_DISTRIBUTOR_DETAILS
WHERE ADDRESS = 'ANDHRAPRADESH';
```

Output

DISTRIBUTOR_ID	DISTRIBUTOR_NAME	ADDRESS	CONTACT	EMAIL
A99	THE BOOK SHOPPEE	ANDHRAPRADESH	9550953494	hello@shoppe.co

CONCLUSION

The Library database provides an organized structure for managing student registrations, book details, book issues, and fine information. It allows efficient tracking of students, books, and associated records. The relationships between entities ensure data integrity and enable effective management of the library system.