TEAM : **SOUBHIK SINHA** → **19BIT0303**

ABHISHEK SHARMA → **17BIT0026**

TUSHAR KUMAR B P → **19BIT0358**

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DATABASE MANAGEMENT SYSTEM – ITE1003

SLOT : L33+L34

[J COMPONENT PROJECT]

REVIEW : 1

LIBRARY MANAGEMENT SYSTEM

1. Choose a mini world for design and implementation of its database assigning an appropriate title for the database.

ANSWER :

There was a time when people went to libraries to get the purposeful books to read , get them issued by the librarian on a Big , fat register , which was most of the time unmaintained due to the lack of consistency. Many a times books were found to be outdated , damaged (torn OR ripped of) due to rigorous usage. Record keeping in early days were quite laborious and time-expensive work , especially for a librarian who has the responsibility of thousands of books.

Now , we are living in the 21st century – the **Era of Technology**. Paperwork is slowly getting obsolete as newer technologies are emerging in different fields. And so are the library systems.

Nowadays , if someone visits a library (say it be in a University , College , Public Library , etc) , book-bugs need not have to search the whole self (OR may be the floor) for a book. The **Library Management System (LBS)** can be accessed at any time – both by the library staff and Book readers. Whether or not a particular reading material is available, whether it's outdated , whether it is issued , fines for late submission , etc. can easily be known to any person using the system.

Above all , the date stored shall be safe and secured. Otherwise , in the early days , data was noted down on a big register , which may get replaced **OR** get damaged due to physical accidents.

The system is dynamic enough to withstand any number of changes at any point of time , that too without any scrutiny.

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2. Write down the data requirements and functional requirements for the database (***in approximately 1500 words***). The data requirements, apart from data to be stored in the database should also take into account the necessary integrity constraints that are reasonable for the database under consideration. The functional requirements should involve at least four different scenarios of removal of old data, four different scenarios for modification of existing data and eight different scenarios of data retrieval.

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ANSWER :

DATA REQUIREMENTS :

- A **library** has its own **name**(should not be null) **, address , id** (which is a primary key) , and sometimes a library can also have some **branches**.
- The branches of a particular library will also have their own **name , address , id** (which is again a primary key).
- Now we can say that a **branch** of the library can be identified using the **id** of the **main library.** This means that we can use the **id** of the **main library** as a **reference** while creating the table for the **branch libraries**.
- Considering the **books** , we know that libraries have huge number of books. Each book having its own **name , id**(primary key) , **publisher , author**.
- Each student is identified by name. Each student has its own unique id. Each student has an address and phone number.
- A library always has books of **different themes** (E.g. : Horror , Action , Romance , Comedy , History-related) and a book may also have a **number of copies** of its own.
- Books will be published by the **publishers**. So , we need to include a table having **Publisher's** information.
- Publishers are identified by their **name , id(**primary key**) , address** and an **e-mail** of the publisher.
- Books have **Author's** information on it. Author's will be having their own **id , name , date of birth** and also the **address.**
- A library allows you to borrow books. There are people who borrow books from the library so that they can use it for their own purposes privately (we call them **Borrowers**).
- Borrowers will be having their own **id , name , mobile no. and email.**

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- In case the borrower forgets to return the book in time , he should pay the **fine**. We need to include **the date the book was issued to the borrower** and **the date the book was returned** to the library.
- **Staff** will have their own **id , name , address , type of work** (Librarians , janitors , technicians , etc), **salary given to them , phone number.**
- Excluding borrowers , there are others who just want to read a book in the library itself.
- This **Others** have their own **id**(Aadhar Card number)(is not null) , **name , address , mobile number , the enter time** and **the exit time.**

CARDINALITY RELATIONSHIP :

It refers to the relationship between two tables.

- Considering **library** and **book** , a library can have (n) number of books and a book can be found in (m) number of libraries.
- Considering **publisher** and **book ,** a publisher can publish (m) number of books but a book is published by only (1) publisher.
- Similarly , considering **library** and **branch** , a library can have (m) branches but a branch belongs to (1) library.
- Considering **author** and **book ,** an author can write (n) number of books and a book can be written by (m) number of authors.
- Considering **borrower** and **book ,** a borrower can borrow (n) number of books and a book can have (m) number of borrowers.
- Considering **library** and **borrower ,** a library can have (n) number of borrowers and borrower can go to (m) number of libraries.
- Considering **library** and **staff ,** a library can have (m) number of staff , but a staff member should work only in (1) library.

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FUNCTIONAL REQUIREMENTS :

I) REMOVAL OF DATA :

- Being able to remove the details of a particular branch in case it stops its functioning.
- Being able to remove the data of a particular book in case it has been torn or damaged or went missing.
- Being able to remove a member from the staff section in case they leave working in the library.
- Being able to remove the name of the borrower in case they expired.

II) MODIFICATION OF DATA (OR UPDATING THE DATA) :

- Updating the status of the borrower from “Not Paid” to “Paid” in case the borrower has paid the fine.
- Updating the address of the borrower / author / publisher / staff / library / branch library in case they change it.
- Updating the salary of the staff in case they get a promotion.
- Updating the phone numbers of borrowers or staff in case they change it.

III) RETRIEVAL OF A PARTICULAR DATA :

- Library is able to retrieve the information of itself and its branches.
- Library is able to retrieve the information of a particular book , author of the book or the publisher of the book.
- Library is able to retrieve the information of the borrower and check if they have returned the book on time.
- Library is able to view the information of its staff and check their details
- Borrower is able to retrieve the details of himself/herself.
- Borrower is able to view the details of a particular book.

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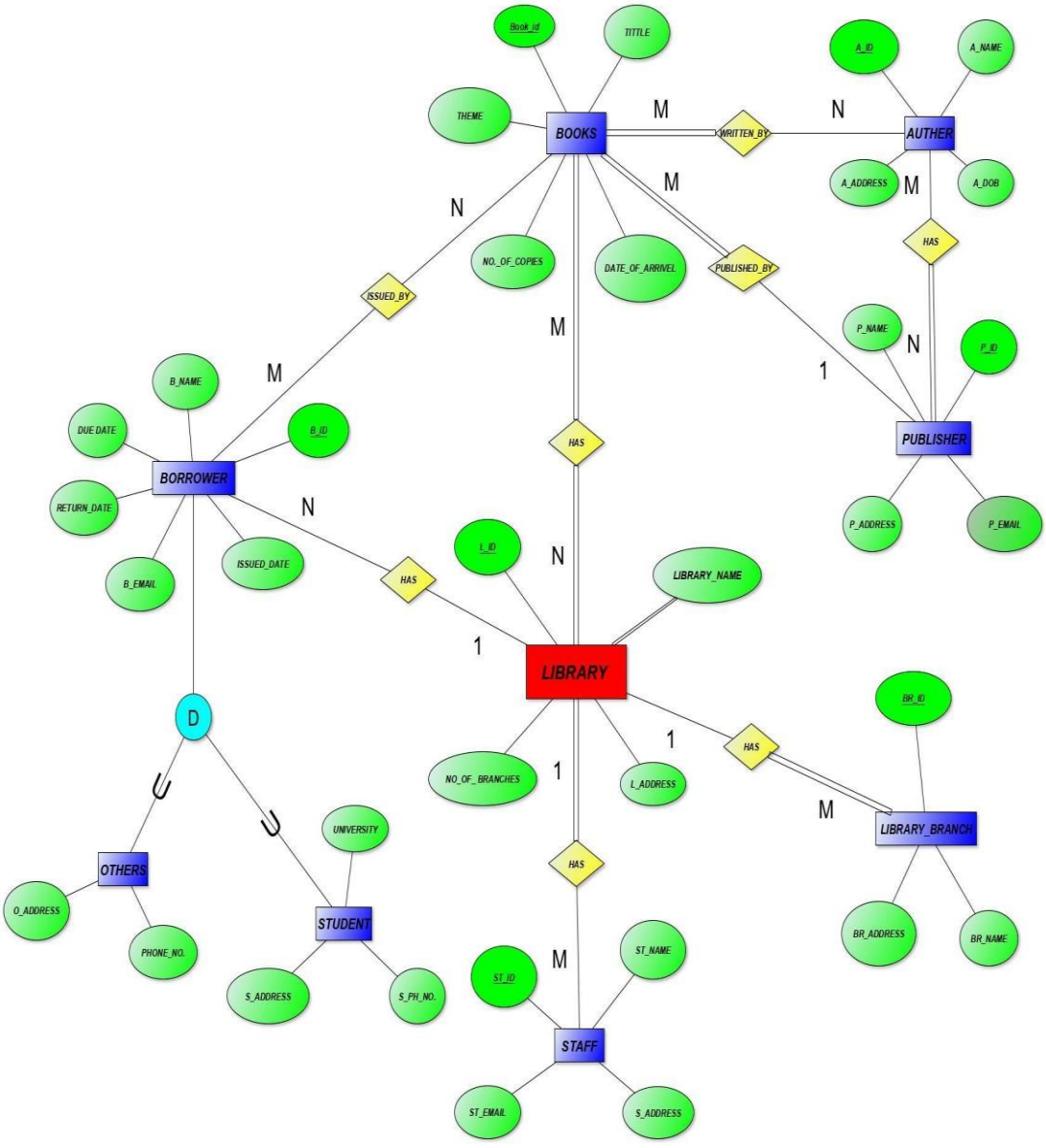
- Borrower is able to view the details of the author of a particular book
- Borrower is able to view information of the publisher of the particular book.

3. Draw an ER/EER diagram based on the data requirements. Indicate key constraints, cardinality constraints and participation constraints on the diagram.

ANSWER :



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KEY CONSTRAINTS:

BOOKS –
Book_id , Title , Theme ,

AUTHOR –
A_ID, A_NAME , A_ADDRESS , A_DOB

PUBLISHER –
P_ID , P_NAME , P_ADDRESS , P_EMAIL

LIBRARY –
L_ID , L_ADDRESS , LIBRARY_NAME

LIBRARY BRANCH –
BR_ID , BR_ADDRESS , BR_NAME

STAFF –
ST_ID , ST_NAME , ST_ADDRESS

BORROWER –
B_ID , B_NAME , B_EMAIL

OTHERS –
O_ADDRESS , PHONE_NO

CARDINALITY CONSTRAINTS –

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library and book – N:M
publisher and book – 1:M
library and branch – 1:M
author and book – N:M
borrower and book – M:N
library and borrower – 1:N
library and staff – 1:M

PARTICIPATION CONSTRAINTS –

library and book – N:M (TOTAL PARTICIPATION)
publisher and book – 1:M (PARTIAL PARTICIPATION)
library and branch – 1:M (PARTIAL PARTICIPATION)
author and book – N:M (TOTAL PARTICIPATION)
borrower and book – M:N (PARTIAL PARTICIPATION)
library and borrower – 1:N (PARTIAL PARTICIPATION)
library and staff – 1:M (TOTAL PARTICIPATION)

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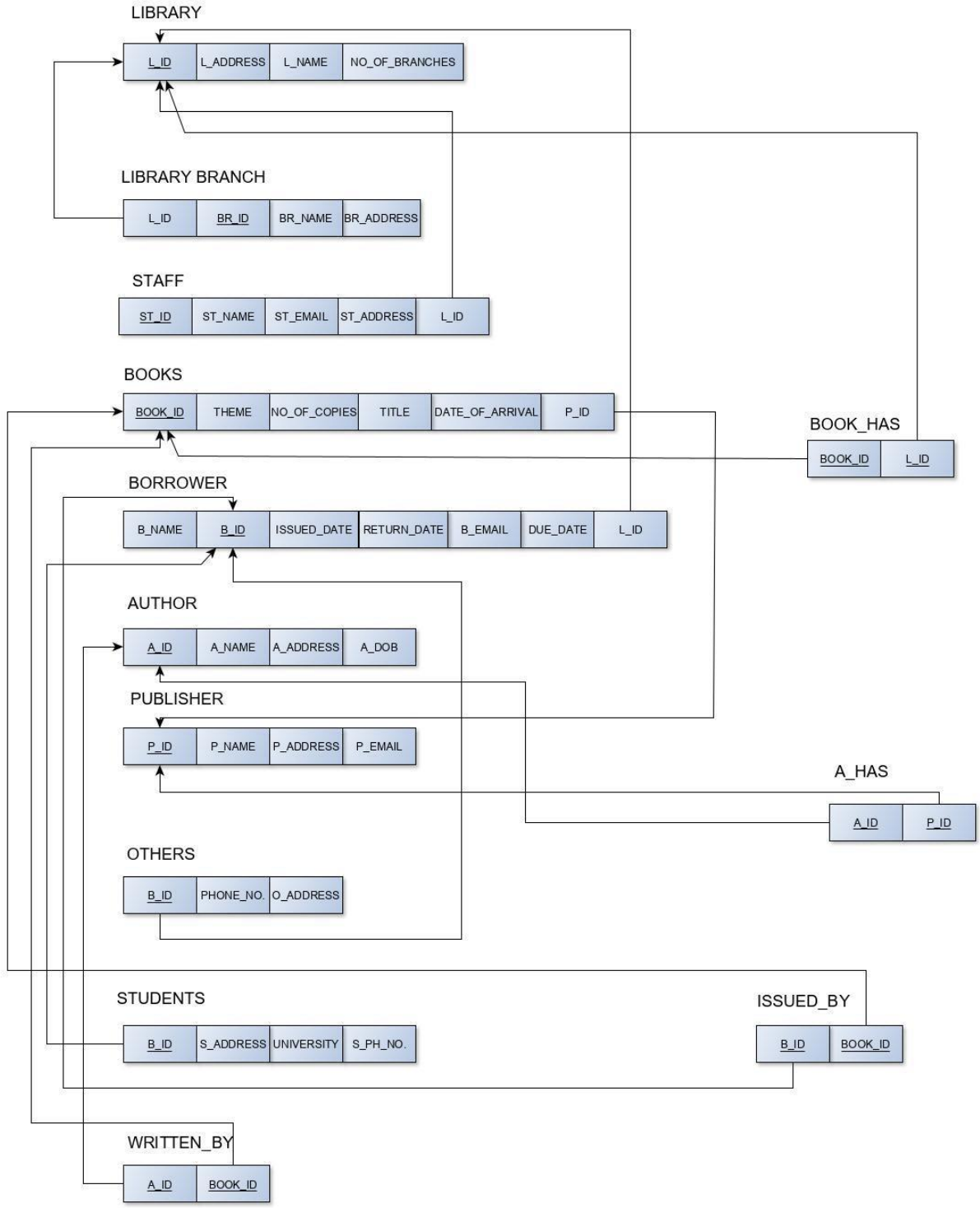
REVIEW : 2

4. Convert the ER/EER diagram into a relational database schema diagram.

ANSWER :



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5. (a) Implement the relational database schema incorporating appropriate (based on data requirements) integrity constraints. Each integrity constraint should be assigned a name.

ANSWER :

A. Creating **Library** Table --

```
SQL> create table library (l_id char(10) constraint lib_1 primary key , l_address varchar(100) ,
  2  l_name varchar(40) , no_of_branches number(3) constraint L_br_num check(no_of_branches > 0));

Table created.

SQL> desc library;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 L_ID                                      NOT NULL CHAR(10)
 L_ADDRESS                                          VARCHAR2(100)
 L_NAME                                             VARCHAR2(40)
 NO_OF_BRANCHES                                     NUMBER(3)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'LIBRARY';

CONSTRAINT_NAME               C
----------------------------- -
L_BR_NUM                      C
LIB_1                         P
```

B. Creating **Library_Branch** Table –

```
SQL> create table library_branch (L_ID constraint lib_br_1 references library ,
  2  BR_ID char(15) constraint lib_br_2 primary key , BR_NAME varchar(50) ,
  3  BR_ADDRESS varchar(100));

Table created.

SQL> desc library_branch;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 L_ID                                               CHAR(10)
 BR_ID                                     NOT NULL CHAR(15)
 BR_NAME                                            VARCHAR2(50)
 BR_ADDRESS                                         VARCHAR2(100)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'LIBRARY_BRANCH';

CONSTRAINT_NAME               C
----------------------------- -
LIB_BR_2                      P
LIB_BR_1                      R
```

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C. Creating **Staff** Table –

```
SQL> create table staff (st_id char(12) constraint st_1 primary key , st_name varchar(40) ,
  2  st_email varchar(50) , st_address varchar(100) , l_id constraint st_2 references library);

Table created.

SQL> desc staff;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ST_ID                                     NOT NULL CHAR(12)
 ST_NAME                                            VARCHAR2(40)
 ST_EMAIL                                           VARCHAR2(50)
 ST_ADDRESS                                         VARCHAR2(100)
 L_ID                                               CHAR(10)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'STAFF';

CONSTRAINT_NAME               C
------------------------------ -
ST_1                          P
ST_2                          R
```

D. Creating **Borrower** Table –

```
SQL> create table borrower (b_name varchar(40) , b_id char(13) constraint bor_1 primary key ,
  2  issued_date date , return_date date , b_email varchar(50) ,
  3  due_date date , l_id constraint bor_2 references library);

Table created.

SQL> desc borrower;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 B_NAME                                             VARCHAR2(40)
 B_ID                                      NOT NULL CHAR(13)
 ISSUED_DATE                                        DATE
 RETURN_DATE                                        DATE
 B_EMAIL                                            VARCHAR2(50)
 DUE_DATE                                           DATE
 L_ID                                               CHAR(10)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'BORROWER';

CONSTRAINT_NAME               C
------------------------------ -
BOR_1                         P
BOR_2                         R
```

E. Creating **Author** Table –

```
SQL> create table author (a_id char(11) constraint auth_1 primary key , a_name varchar(40) ,
  2  a_address varchar(100) , a_dob date);

Table created.

SQL> desc author;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 A_ID                                      NOT NULL CHAR(11)
 A_NAME                                             VARCHAR2(40)
 A_ADDRESS                                          VARCHAR2(100)
 A_DOB                                              DATE

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'AUTHOR';

CONSTRAINT_NAME               C
------------------------------ -
AUTH_1                        P
```

F. Creating **Publisher** Table –

```
SQL> create table publisher (p_id char(11) constraint pub_1 primary key , p_name varchar(40) ,
  2  p_address varchar(100) , p_email varchar(50) );

Table created.

SQL>
SQL> desc publisher;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 P_ID                                      NOT NULL CHAR(11)
 P_NAME                                             VARCHAR2(40)
 P_ADDRESS                                          VARCHAR2(100)
 P_EMAIL                                            VARCHAR2(50)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'PUBLISHER';

CONSTRAINT_NAME                C
------------------------------ -
PUB_1                          P
```

G. Creating **Books** Table –

```
SQL> create table books (book_id char(6) constraint books_1 primary key , theme varchar(20) ,
  2  no_of_copies number(3) constraint books_2 check(no_of_copies > 0) , title varchar(20) ,
  3  date_of_arrival date , p_id constraint books_3 references publisher);

Table created.

SQL> desc books;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BOOK_ID                                   NOT NULL CHAR(6)
 THEME                                              VARCHAR2(20)
 NO_OF_COPIES                                       NUMBER(3)
 TITLE                                              VARCHAR2(20)
 DATE_OF_ARRIVAL                                    DATE
 P_ID                                               CHAR(11)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'BOOKS';

CONSTRAINT_NAME                C
------------------------------ -
BOOKS_2                        C
BOOKS_1                        P
BOOKS_3                        R
```

H. Creating **Book_Has** Table –

```
SQL> create table book_has (book_id constraint bk_has_1 references books , l_id constraint bk_has_2
  2  references library , constraints bk_has_3 primary key(book_id , l_id));

Table created.

SQL> desc book_has;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BOOK_ID                                   NOT NULL CHAR(6)
 L_ID                                      NOT NULL CHAR(10)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'BOOK_HAS';

CONSTRAINT_NAME                C
------------------------------ -
BK_HAS_3                       P
BK_HAS_1                       R
BK_HAS_2                       R
```

I. Creating **A_Has** Table –

```
SQL> create table a_has (a_id constraint a_hs_1 references author , p_id constraint a_hs_2 references publisher ,
  2  constraint a_hs_3 primary key (a_id , p_id));

Table created.

SQL> desc a_has;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 A_ID                                      NOT NULL CHAR(11)
 P_ID                                      NOT NULL CHAR(11)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'A_HAS';

CONSTRAINT_NAME               C
----------------------------- -
A_HS_3                        P
A_HS_1                        R
A_HS_2                        R
```

J. Creating **Students** Table –

```
SQL> create table students (b_id constraint stu_1 references borrower , s_address varchar(100) ,
  2  univeristy varchar(50) , s_ph_no char(10) , constraint stu_2 primary key (b_id));

Table created.

SQL> desc students;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 B_ID                                      NOT NULL CHAR(13)
 S_ADDRESS                                          VARCHAR2(100)
 UNIVERISTY                                         VARCHAR2(50)
 S_PH_NO                                            CHAR(10)

SQL>
SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'STUDENTS';

CONSTRAINT_NAME               C
----------------------------- -
STU_2                         P
STU_1                         R
```

K. Creating **Others** Table –

```
SQL> create table others (b_id constraint oth_1 references borrower , phone_no char(10) , o_address varchar(100) ,
  2  constraint oth_2 primary key (b_id));

Table created.

SQL> desc others
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 B_ID                                      NOT NULL CHAR(13)
 PHONE_NO                                           CHAR(10)
 O_ADDRESS                                          VARCHAR2(100)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'OTHERS';

CONSTRAINT_NAME               C
----------------------------- -
OTH_2                         P
OTH_1                         R
```

L. Creating **Issued_By** Table –

```
SQL> create table issued_by (b_id constraint is_by_1 references borrower ,
  2  book_id constraint is_by_2 references books ,
  3  constraint is_by_3 primary key (b_id , book_id));

Table created.

SQL> desc issued_by;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 B_ID                                      NOT NULL CHAR(13)
 BOOK_ID                                   NOT NULL CHAR(6)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'ISSUED_BY';

CONSTRAINT_NAME               C
----------------------------- -
IS_BY_3                       P
IS_BY_1                       R
IS_BY_2                       R
```

M. Creating **Written_By** Table –

```
SQL> create table written_by (a_id constraint wr_by_1 references author ,
  2  book_id constraint wr_by_2 references books , constraint wr_by_3 primary key (a_id , book_id));

Table created.

SQL> desc written by;
Usage: DESCRIBE [schema.]object[@db_link]
SQL> desc written_by;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 A_ID                                      NOT NULL CHAR(11)
 BOOK_ID                                   NOT NULL CHAR(6)

SQL> select constraint_name , constraint_type from user_constraints
  2  where table_name = 'WRITTEN_BY';

CONSTRAINT_NAME               C
----------------------------- -
WR_BY_3                       P
WR_BY_1                       R
WR_BY_2                       R
```

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5. (b) Enter necessary sample data (at least two rows into each table) into the tables and display the content of each table.

ANSWER : (INPUTTING METHOD – " INTERACTIVELY ")

NOTE : ALL THE DISPLAYED OUTPUT HAS APPLIED THE BELOW COMMAND TO BEAUTIFY THE OUTPUT AS FAR AS POSSIBLE --

Column <column_name> format XXX;

/

A1. Inputting data into **Library** Table :

```
SQL> insert into library values (&l_id , &l_address , &l_name , &no_of_branches);
Enter value for l_id: 'DEL-123210'
Enter value for l_address: 'Chanakyapuri , Delhi'
Enter value for l_name: 'M.K. Gandhi Library'
Enter value for no_of_branches: 1
old   1: insert into library values (&l_id , &l_address , &l_name , &no_of_branches)
new   1: insert into library values ('DEL-123210' , 'Chanakyapuri , Delhi' , 'M.K. Gandhi Library' , 1)

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library values (&l_id , &l_address , &l_name , &no_of_branches);
Enter value for l_id: 'UP-5678332'
Enter value for l_address: 'Laalkuan , Ghaziabad , UP'
Enter value for l_name: 'Sarojini Library'
Enter value for no_of_branches: 2
old   1: insert into library values (&l_id , &l_address , &l_name , &no_of_branches)
new   1: insert into library values ('UP-5678332' , 'Laalkuan , Ghaziabad , UP' , 'Sarojini Library' , 2)

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library values (&l_id , &l_address , &l_name , &no_of_branches);
Enter value for l_id: 'TN-4487901'
Enter value for l_address: 'Vellore , Tamil Nadu'
Enter value for l_name: 'Vellore District Library'
Enter value for no_of_branches: 1
old   1: insert into library values (&l_id , &l_address , &l_name , &no_of_branches)
new   1: insert into library values ('TN-4487901' , 'Vellore , Tamil Nadu' , 'Vellore District Library' , 1)

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library values (&l_id , &l_address , &l_name , &no_of_branches);
Enter value for l_id: 'WB-9967332'
Enter value for l_address: 'New Town , Kolkata , WB'
Enter value for l_name: 'Netaji Central Library'
Enter value for no_of_branches: 3
old   1: insert into library values (&l_id , &l_address , &l_name , &no_of_branches)
new   1: insert into library values ('WB-9967332' , 'New Town , Kolkata , WB' , 'Netaji Central Library' , 3)

1 row created.

SQL> commit;

Commit complete.
```

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```
SQL> insert into library values (&l_id , &l_address , &l_name , &no_of_branches);
Enter value for l_id: 'MP-1230098'
Enter value for l_address: 'Singrauli , MP'
Enter value for l_name: 'Batuk Maharaj Library'
Enter value for no_of_branches: 1
old   1: insert into library values (&l_id , &l_address , &l_name , &no_of_branches)
new   1: insert into library values ('MP-1230098' , 'Singrauli , MP' , 'Batuk Maharaj Library' , 1)

1 row created.

SQL> commit;

Commit complete.
```

A2. Displaying the data of **Library** Table :

```
SQL> select * from library;

L_ID       L_ADDRESS                 L_NAME                    NO_OF_BRANCHES
---------- ------------------------- ------------------------- --------------
DEL-123210 Chanakyapuri , Delhi      M.K. Gandhi Library                    1
UP-5678332 Laalkuan , Ghaziabad , UP Sarojini Library                       2
TN-4487901 Vellore , Tamil Nadu      Vellore District Library               1
WB-9967332 New Town , Kolkata , WB   Netaji Central Library                 3
MP-1230098 Singrauli , MP            Batuk Maharaj Library                  1
```

B1. Inputting data into **Library_branch** Table :

```
SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'DEL-123210'
Enter value for br_id: 'DEL-123210-1101'
Enter value for br_name: 'M.K. Gandhi Library'
Enter value for br_address: 'Chankyapuri , Delhi'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('DEL-123210' , 'DEL-123210-1101' , 'M.K. Gandhi Library' , 'Chankyapuri ,
 Delhi')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'UP-5678332'
Enter value for br_id: 'UP-5678332-0012'
Enter value for br_name: 'Sarojini Library'
Enter value for br_address: 'Laalkuan , Ghaziabad , UP'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('UP-5678332' , 'UP-5678332-0012' , 'Sarojini Library' , 'Laalkuan , Ghazi
abad , UP')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'UP-5678332'
Enter value for br_id: 'UP-5678332-0020'
Enter value for br_name: 'Sarojini Library Branch 2'
Enter value for br_address: 'Dhoom Manikpur , UP'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('UP-5678332' , 'UP-5678332-0020' , 'Sarojini Library Branch 2' , 'Dhoom M
anikpur , UP')

1 row created.

SQL> commit;

Commit complete.
```

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```
SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'TN-4487901'
Enter value for br_id: 'TN-4487901-2201'
Enter value for br_name: 'Vellore District Library'
Enter value for br_address: 'Vellore , Tamil Nadu'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('TN-4487901' , 'TN-4487901-2201' , 'Vellore District Library' , 'Vellore
, Tamil Nadu')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'WB-9967332'
Enter value for br_id: 'WB-9967332-0098'
Enter value for br_name: 'Netaji Central Library Main'
Enter value for br_address: 'New Town , Kolkata , WB'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('WB-9967332' , 'WB-9967332-0098' , 'Netaji Central Library Main' , 'New T
own , Kolkata , WB')

1 row created.

SQL> commit;

Commit complete.
```

```
SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'WB-9967332'
Enter value for br_id: 'WB-9967332-0100'
Enter value for br_name: 'Netaji Central Library Branch 2'
Enter value for br_address: 'Bellur , WB'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('WB-9967332' , 'WB-9967332-0100' , 'Netaji Central Library Branch 2' , 'B
ellur , WB')

1 row created.

SQL> commit
  2  ;

Commit complete.

SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'WB-9967332'
Enter value for br_id: 'WB-9967332-0110'
Enter value for br_name: 'Netaji Central Library Branch 3'
Enter value for br_address: 'Bali , Uttarpara , WB'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('WB-9967332' , 'WB-9967332-0110' , 'Netaji Central Library Branch 3' , 'B
ali , Uttarpara , WB')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into library_branch values (&l_id , &br_id , &br_name , &br_address);
Enter value for l_id: 'MP-1230098'
Enter value for br_id: 'MP-1230098-9981'
Enter value for br_name: 'Batuk Maharaj Library (NO BRANCH)'
Enter value for br_address: 'Singrauli , MP'
old   1: insert into library_branch values (&l_id , &br_id , &br_name , &br_address)
new   1: insert into library_branch values ('MP-1230098' , 'MP-1230098-9981' , 'Batuk Maharaj Library (NO BRANCH)' ,
'Singrauli , MP')

1 row created.

SQL> commit;

Commit complete.
```

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B2. Displaying the data of **Library_branch** Table :

```
SQL> select * from library_branch
  2  ;

L_ID       BR_ID           BR_NAME                        BR_ADDRESS
---------- --------------- ------------------------------ ------------------
DEL-123210 DEL-123210-1101 M.K. Gandhi Library            Chankyapuri , Delh
UP-5678332 UP-5678332-0012 Sarojini Library               Laalkuan , Ghaziab
                                                           , UP

UP-5678332 UP-5678332-0020 Sarojini Library Branch 2      Dhoom Manikpur , U
TN-4487901 TN-4487901-2201 Vellore District Library       Vellore , Tamil Na
WB-9967332 WB-9967332-0098 Netaji Central Library Main    New Town , Kolkata
                                                           WB

WB-9967332 WB-9967332-0100 Netaji Central Library Branch  Bellur , WB
                           2

L_ID       BR_ID           BR_NAME                        BR_ADDRESS
---------- --------------- ------------------------------ ------------------

WB-9967332 WB-9967332-0110 Netaji Central Library Branch  Bali , Uttarpara ,
                           3                              B

MP-1230098 MP-1230098-9981 Batuk Maharaj Library (NO BRAN Singrauli , MP
                           CH)


8 rows selected.
```

MORE CLEAR OUTPUT -----

```
SQL> select l_id , br_id , br_name from library_branch;

L_ID       BR_ID           BR_NAME
---------- --------------- ------------------------------------------------------
DEL-123210 DEL-123210-1101 M.K. Gandhi Library
UP-5678332 UP-5678332-0012 Sarojini Library
UP-5678332 UP-5678332-0020 Sarojini Library Branch 2
TN-4487901 TN-4487901-2201 Vellore District Library
WB-9967332 WB-9967332-0098 Netaji Central Library Main
WB-9967332 WB-9967332-0100 Netaji Central Library Branch 2
WB-9967332 WB-9967332-0110 Netaji Central Library Branch 3
MP-1230098 MP-1230098-9981 Batuk Maharaj Library (NO BRANCH)

8 rows selected.
```

```
SQL> select l_id , br_id , br_address from library_branch;

L_ID       BR_ID           BR_ADDRESS
---------- --------------- ------------------------
DEL-123210 DEL-123210-1101 Chanakyapuri , Delhi
UP-5678332 UP-5678332-0012 Laalkuan , Ghaziabad , UP
UP-5678332 UP-5678332-0020 Dhoom Manikpur , UP
TN-4487901 TN-4487901-2201 Vellore , Tamil Nadu
WB-9967332 WB-9967332-0098 New Town , Kolkata , WB
WB-9967332 WB-9967332-0100 Bellur , WB
WB-9967332 WB-9967332-0110 Bali , Uttarpara , WB
MP-1230098 MP-1230098-9981 Singrauli , MP

8 rows selected.
```

SOUBHIK SINHA ABHISHEK SHARMA TUSHAR KUMAR B P

C1. Inputting data into **Staff** Table :

```
SQL> insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id);
Enter value for st_id: 'DEL-123210-1'
Enter value for st_name: 'RAHUL KUMAR'
Enter value for st_email: 'rahulkr@gmail.com'
Enter value for st_address: '108/9 , Chanakyapuri , Delhi'
Enter value for l_id: 'DEL-123210'
old   1: insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id)
new   1: insert into staff values ('DEL-123210-1' , 'RAHUL KUMAR' , 'rahulkr@gmail.com' , '108/9 , Chanakyapuri , Del
hi' , 'DEL-123210')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id);
Enter value for st_id: 'UP-5678332-1'
Enter value for st_name: 'RAJESH KASANA'
Enter value for st_email: 'rajesh23@gmail.com'
Enter value for st_address: '23/002 , Accheja , G.B. Nagar , UP'
Enter value for l_id: 'UP-5678332'
old   1: insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id)
new   1: insert into staff values ('UP-5678332-1' , 'RAJESH KASANA' , 'rajesh23@gmail.com' , '23/002 , Accheja , G.B.
 Nagar , UP' , 'UP-5678332')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id);
Enter value for st_id: 'TN-4487901-9'
Enter value for st_name: 'ROHIT K'
Enter value for st_email: 'rohit78@gmail.com'
Enter value for st_address: '27/9 , Vellore , Tamil Nadu'
Enter value for l_id: 'TN-4487901'
old   1: insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id)
new   1: insert into staff values ('TN-4487901-9' , 'ROHIT K' , 'rohit78@gmail.com' , '27/9 , Vellore , Tamil Nadu' ,
 'TN-4487901')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id);
Enter value for st_id: 'WB-9967332'
Enter value for st_name: 'NANDESHWAR KUMAR'
Enter value for st_email: 'nand.kr@hotmail.com'
Enter value for st_address: '23 , H K STREET , New Town , Kolkata , WB'
Enter value for l_id: 'WB-9967332'
old   1: insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id)
new   1: insert into staff values ('WB-9967332' , 'NANDESHWAR KUMAR' , 'nand.kr@hotmail.com' , '23 , H K STREET , New
 Town , Kolkata , WB' , 'WB-9967332')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id);
Enter value for st_id: 'MP-1230098-9'
Enter value for st_name: 'BHOLA DAS'
Enter value for st_email: 'bh.das@gmail.com'
Enter value for st_address: '44/12 , Singrauli , MP'
Enter value for l_id: 'MP-1230098'
old   1: insert into staff values (&st_id , &st_name , &st_email , &st_address , &l_id)
new   1: insert into staff values ('MP-1230098-9' , 'BHOLA DAS' , 'bh.das@gmail.com' , '44/12 , Singrauli , MP' , 'MP
-1230098')

1 row created.

SQL> commit;
```

C2. Displaying the data of **Staff** Table :

```
SQL> select * from staff;

ST_ID        ST_NAME              ST_EMAIL
------------ -------------------- --------------------
ST_ADDRESS                    L_ID
----------------------------- ----------
DEL-123210-1 RAHUL KUMAR          rahulkr@gmail.com
108/9 , Chankayapuri , Delhi   DEL-123210

UP-5678332-1 RAJESH KASANA        rajesh23@gmail.com
23/002 , Accheja , G.B. Nagar  UP-5678332
, UP

TN-4487901-9 ROHIT K              rohit78@gmail.com
27/9 , Vellore , Tamil Nadu    TN-4487901
```

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SOUBHIK SINHA **ABHISHEK SHARMA** **TUSHAR KUMAR B P**

```
ST_ID        ST_NAME              ST_EMAIL
------------ -------------------- --------------------
ST_ADDRESS                     L_ID
------------------------------ ----------

WB-9967332-8 NANDESHWAR KUMAR     nand.kr@hotmail.com
23 , H K Street , New Town , K WB-9967332
olkata , WB

MP-1230098-9 BHOLA DAS            bh.das@gmail.com
44/12 , Singrauli , MP         MP-1230098
```

MORE CLEAR OUTPUT ----

```
SQL> select st_id , st_name , st_email from staff;

ST_ID        ST_NAME              ST_EMAIL
------------ -------------------- --------------------
DEL-123210-1 RAHUL KUMAR          rahulkr@gmail.com
UP-5678332-1 RAJESH KASANA        rajesh23@gmail.com
TN-4487901-9 ROHIT K              rohit78@gmail.com
WB-9967332-8 NANDESHWAR KUMAR     nand.kr@hotmail.com
MP-1230098-9 BHOLA DAS            bh.das@gmail.com
```

```
SQL> select st_id , st_name , st_address,l_id from staff;

ST_ID        ST_NAME              ST_ADDRESS                                L_ID
------------ -------------------- ----------------------------------------- ----------
DEL-123210-1 RAHUL KUMAR          108/9 , Chanakyapuri , Delhi              DEL-123210
UP-5678332-1 RAJESH KASANA        23/002 , Accheja , G.B. Nagar , UP        UP-5678332
TN-4487901-9 ROHIT K              27/9 , Vellore , Tamil Nadu               TN-4487901
WB-9967332-8 NANDESHWAR KUMAR     23 , H K STREET , New Town , Kolkata ,    WB-9967332
                                   WB

MP-1230098-9 BHOLA DAS            44/12 , Singrauli , MP                    MP-1230098
```

D1. Inputting data into **Borrower** Table :

```
SQL> insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id);
Enter value for b_name: 'SOUBHIK SINHA'
Enter value for b_id: 'UP-B-45678732'
Enter value for issued_date: to_date('23-05-2021' , 'DD-MM-YYYY')
Enter value for return_date: to_date('30-05-2021' , 'DD-MM-YYYY')
Enter value for b_email: 'soub69@gmail.com'
Enter value for due_date: to_date('02-06-2021' , 'DD-MM-YYYY')
Enter value for l_id: 'UP-5678332'
old   1: insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id)
new   1: insert into borrower values ('SOUBHIK SINHA' , 'UP-B-45678732' , to_date('23-05-2021' , 'DD-MM-YYYY') , to_d
ate('30-05-2021' , 'DD-MM-YYYY') , 'soub69@gmail.com' , to_date('02-06-2021' , 'DD-MM-YYYY') , 'UP-5678332')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id);
Enter value for b_name: 'BHANDU KUMAR'
Enter value for b_id: 'DEL-B-1456745'
Enter value for issued_date: to_date('22-05-2021' , 'DD-MM-YYYY')
Enter value for return_date: to_date('28-05-2021' , 'DD-MM-YYYY')
Enter value for b_email: 'bhandu.kr@gmail.com'
Enter value for due_date: to_date('30-05-2021' , 'DD-MM-YYYY')
Enter value for l_id: 'DEL-123210'
old   1: insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id)
new   1: insert into borrower values ('BHANDU KUMAR' , 'DEL-B-1456745' , to_date('22-05-2021' , 'DD-MM-YYYY') , to_da
te('28-05-2021' , 'DD-MM-YYYY') , 'bhandu.kr@gmail.com' , to_date('30-05-2021' , 'DD-MM-YYYY') , 'DEL-123210')

1 row created.

SQL> commit;

Commit complete.
```

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```
SQL> insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id);
Enter value for b_name: 'BHURESH BHAU'
Enter value for b_id: 'MP-B-90765654'
Enter value for issued_date: to_date('25-05-2021' , 'DD-MM-YYYY')
Enter value for return_date: to_date('01-06-2021' , 'DD-MM-YYYY')
Enter value for b_email: 'bhau672@rocketmail.com'
Enter value for due_date: to_date('05-06-2021' , 'DD-MM-YYYY')
Enter value for l_id: 'MP-1230098'
old   1: insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id)
new   1: insert into borrower values ('BHURESH BHAU' , 'MP-B-90765654' , to_date('25-05-2021' , 'DD-MM-YYYY') , to_da
te('01-06-2021' , 'DD-MM-YYYY') , 'bhau672@rocketmail.com' , to_date('05-06-2021' , 'DD-MM-YYYY') , 'MP-1230098')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id);
Enter value for b_name: 'SRINITA M'
Enter value for b_id: 'TN-B-00987896'
Enter value for issued_date: to_date('26-05-2021' , 'DD-MM-YYYY')
Enter value for return_date: to_date('30-05-2021' , 'DD-MM-YYYY')
Enter value for b_email: 'srini888@gmail.com'
Enter value for due_date: to_date('04-06-2021' , 'DD-MM-YYYY')
Enter value for l_id: 'TN-4487901'
old   1: insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id)
new   1: insert into borrower values ('SRINITA M' , 'TN-B-00987896' , to_date('26-05-2021' , 'DD-MM-YYYY') , to_date(
'30-05-2021' , 'DD-MM-YYYY') , 'srini888@gmail.com' , to_date('04-06-2021' , 'DD-MM-YYYY') , 'TN-4487901')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id);
Enter value for b_name: 'KAMALESH'
Enter value for b_id: 'WB-B-87980987'
Enter value for issued_date: to_date('20-05-2021' , 'DD-MM-YYYY')
Enter value for return_date: to_date('27-05-2021' , 'DD-MM-YYYY')
Enter value for b_email: 'kamalesh778@gmail.com'
Enter value for due_date: to_date('30-05-2021' , 'DD-MM-YYYY')
Enter value for l_id: 'WB-9967332'
old   1: insert into borrower values (&b_name , &b_id , &issued_date , &return_date , &b_email , &due_date , &l_id)
new   1: insert into borrower values ('KAMALESH' , 'WB-B-87980987' , to_date('20-05-2021' , 'DD-MM-YYYY') , to_date('
27-05-2021' , 'DD-MM-YYYY') , 'kamalesh778@gmail.com' , to_date('30-05-2021' , 'DD-MM-YYYY') , 'WB-9967332')

1 row created.

SQL> commit;

Commit complete.
```

D2. Displaying the data of **Borrower** Table :

```
SQL> select * from borrower;

B_NAME                                   B_ID          ISSUED_DATE
---------------------------------------- ------------- -------------------
RETURN_DATE          B_EMAIL
-------------------- ------------------------------------------------------
DUE_DATE             L_ID
-------------------- ----------
SRINITA M                                TN-B-00987896 26-MAY-21
30-MAY-21            srini888@gmail.com
04-JUN-21            TN-4487901

KAMALESH                                 WB-B-87980987 20-MAY-21
27-MAY-21            kamalesh778@gmail.com
30-MAY-21            WB-9967332

B_NAME                                   B_ID          ISSUED_DATE
---------------------------------------- ------------- -------------------
RETURN_DATE          B_EMAIL
-------------------- ------------------------------------------------------
DUE_DATE             L_ID
-------------------- ----------
```

```
SOUBHIK SINHA                                UP-B-45678732 23-MAY-21
30-MAY-21           soub69@gmail.com
02-JUN-21           UP-5678332

BHANDU KUMAR                                 DEL-B-1456745 22-MAY-21
28-MAY-21           bhandu.kr@gmail.com

B_NAME                                       B_ID          ISSUED_DATE
-------------------------------------------- ------------- -----------------
RETURN_DATE         B_EMAIL
------------------- ------------------------------------------------------
DUE_DATE            L_ID
------------------- ----------
30-MAY-21           DEL-123210

BHURESH BHAU                                 MP-B-90765654 25-MAY-21
01-JUN-21           bhau672@rocketmail.com
05-JUN-21           MP-1230098
```

MORE CLEAR OUTPUT :

```
SQL> select b_name , b_id , issued_date , return_date from borrower;

B_NAME          B_ID          ISSUED_DATE  RETURN_DATE
--------------- ------------- ------------ ------------
SRINITA M       TN-B-00987896 26-MAY-21    30-MAY-21
KAMALESH        WB-B-87980987 20-MAY-21    27-MAY-21
SOUBHIK SINHA   UP-B-45678732 23-MAY-21    30-MAY-21
BHANDU KUMAR    DEL-B-1456745 22-MAY-21    28-MAY-21
BHURESH BHAU    MP-B-90765654 25-MAY-21    01-JUN-21

SQL> select b_name , b_id , b_email , due_date , l_id from borrower;

B_NAME          B_ID          B_EMAIL                    DUE_DATE   L_ID
--------------- ------------- -------------------------- ---------- ----------
SRINITA M       TN-B-00987896 srini888@gmail.com         04-JUN-21  TN-4487901
KAMALESH        WB-B-87980987 kamalesh778@gmail.com      30-MAY-21  WB-9967332
SOUBHIK SINHA   UP-B-45678732 soub69@gmail.com           02-JUN-21  UP-5678332
BHANDU KUMAR    DEL-B-1456745 bhandu.kr@gmail.com        30-MAY-21  DEL-123210
BHURESH BHAU    MP-B-90765654 bhau672@rocketmail.com     05-JUN-21  MP-1230098
```

E1. Inputting data into **Author** Table :

```
SQL> insert into author values (&a_id , &a_name , &a_address , &a_dob);
Enter value for a_id: '999-9087612'
Enter value for a_name: 'BHAVDESH PANDIT'
Enter value for a_address: 'AHMEDABAD , GUJARAT'
Enter value for a_dob: to_date('01-08-1978' , 'DD-MM-YYYY')
old   1: insert into author values (&a_id , &a_name , &a_address , &a_dob)
new   1: insert into author values ('999-9087612' , 'BHAVDESH PANDIT' , 'AHMEDABAD , GUJARAT' , to_date('01-08-1978'
, 'DD-MM-YYYY'))

1 row created.

SQL> commit;

Commit complete.

SQL> insert into author values (&a_id , &a_name , &a_address , &a_dob);
Enter value for a_id: '933-1189786'
Enter value for a_name: 'SRINIVAS M'
Enter value for a_address: 'BENGALURU , KARNATAKA'
Enter value for a_dob: to_date('31-03-1969' , 'DD-MM-YYYY')
old   1: insert into author values (&a_id , &a_name , &a_address , &a_dob)
new   1: insert into author values ('933-1189786' , 'SRINIVAS M' , 'BENGALURU , KARNATAKA' , to_date('31-03-1969' , '
DD-MM-YYYY'))

1 row created.

SQL> commit;

Commit complete.
```

```
SQL> insert into author values (&a_id , &a_name , &a_address , &a_dob);
Enter value for a_id: '678-9089665'
Enter value for a_name: 'MAHASHIV KUMAR'
Enter value for a_address: 'MEERUT , UP'
Enter value for a_dob: to_date('09-03-1990' , 'DD-MM-YYYY')
old   1: insert into author values (&a_id , &a_name , &a_address , &a_dob)
new   1: insert into author values ('678-9089665' , 'MAHASHIV KUMAR' , 'MEERUT , UP' , to_date('09-03-1990'
YYYY'))

1 row created.

SQL> commit;

Commit complete.

SQL> insert into author values (&a_id , &a_name , &a_address , &a_dob);
Enter value for a_id: '234-9833451'
Enter value for a_name: 'HASIT NANDA'
Enter value for a_address: 'KOLKATA , WB'
Enter value for a_dob: to_date('22-05-1987' , 'DD-MM-YYYY')
old   1: insert into author values (&a_id , &a_name , &a_address , &a_dob)
new   1: insert into author values ('234-9833451' , 'HASIT NANDA' , 'KOLKATA , WB' , to_date('22-05-1987' ,
YY'))

1 row created.

SQL> commit;

Commit complete.

SQL> insert into author values (&a_id , &a_name , &a_address , &a_dob);
Enter value for a_id: '909-4534110'
Enter value for a_name: 'JATIN DESAI'
Enter value for a_address: 'LUCKNOW , UP'
Enter value for a_dob: to_date('09-12-1966' , 'DD-MM-YYYY')
old   1: insert into author values (&a_id , &a_name , &a_address , &a_dob)
new   1: insert into author values ('909-4534110' , 'JATIN DESAI' , 'LUCKNOW , UP' , to_date('09-12-1966' ,
YY'))

1 row created.

SQL> commit;

Commit complete.
```

E2. Displaying the data of **Author** Table :

```
SQL> select * from author;

A_ID        A_NAME          A_ADDRESS                    A_DOB
----------- --------------- ---------------------------- --------------------
999-9087612 BHAVDESH PANDIT AHMEDABAD , GUJARAT          01-AUG-78
933-1189786 SRINIVAS M      BENGALURU , KARNATAKA        31-MAR-69
678-9089665 MAHASHIV KUMAR  MEERUT , UP                  09-MAR-90
234-9833451 HASIT NANDA     KOLKATA , WB                 22-MAY-87
909-4534110 JATIN DESAI     LUCKNOW , UP                 09-DEC-66
```

F1. Inputting data into **Publisher** Table :

```
SQL> insert into publisher values (&p_id , &p_name , &p_address , &p_email);
Enter value for p_id: '9091-887978'
Enter value for p_name: 'S CHAND PUBLICATION'
Enter value for p_address: 'M K GANDHI ROAD , NEW DELHI'
Enter value for p_email: 's.chand@gmail.com'
old   1: insert into publisher values (&p_id , &p_name , &p_address , &p_email)
new   1: insert into publisher values ('9091-887978' , 'S CHAND PUBLICATION' , 'M K GANDHI ROAD , NEW DELHI' , 's.cha
nd@gmail.com')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into publisher values (&p_id , &p_name , &p_address , &p_email);
Enter value for p_id: '4453-009878'
Enter value for p_name: 'PREMIERRE PUBLICATION'
Enter value for p_address: 'KOLKATA , WB'
Enter value for p_email: 'premierre.pub@gmail.com'
old   1: insert into publisher values (&p_id , &p_name , &p_address , &p_email)
new   1: insert into publisher values ('4453-009878' , 'PREMIERRE PUBLICATION' , 'KOLKATA , WB' , 'premierre.pub@gmai
l.com')

1 row created.

SQL> commit;

Commit complete.
```

```
SQL> insert into publisher values (&p_id , &p_name , &p_address , &p_email);
Enter value for p_id: '6756-098781'
Enter value for p_name: 'WILEY INDIA PUBS.'
Enter value for p_address: 'NEAR CSOI , DELHI'
Enter value for p_email: 'wiley.india@gmail.com'
old   1: insert into publisher values (&p_id , &p_name , &p_address , &p_email)
new   1: insert into publisher values ('6756-098781' , 'WILEY INDIA PUBS.' , 'NEAR CSOI , DELHI' , 'wiley.india@gmail
.com')

1 row created.

SQL> commit;

Commit complete.
```

```
SQL> insert into publisher values (&p_id , &p_name , &p_address , &p_email);
Enter value for p_id: '9999-097867'
Enter value for p_name: 'CENGAGE INDIA PUBS.'
Enter value for p_address: 'CP , DELHI'
Enter value for p_email: 'cengage.ind@gmail.com'
old   1: insert into publisher values (&p_id , &p_name , &p_address , &p_email)
new   1: insert into publisher values ('9999-097867' , 'CENGAGE INDIA PUBS.' , 'CP , DELHI' , 'cengage.ind@gmail.com'
)

1 row created.

SQL> commit;

Commit complete.

SQL> insert into publisher values (&p_id , &p_name , &p_address , &p_email);
Enter value for p_id: '7876-009871'
Enter value for p_name: 'SHIVDAS AND SONS'
Enter value for p_address: 'LAJPAT NAGAR , DELHI'
Enter value for p_email: 'shivdas.pub@gmail.com'
old   1: insert into publisher values (&p_id , &p_name , &p_address , &p_email)
new   1: insert into publisher values ('7876-009871' , 'SHIVDAS AND SONS' , 'LAJPAT NAGAR , DELHI' , 'shivdas.pub@gma
il.com')

1 row created.

SQL> commit;

Commit complete.
```

F2. Displaying the data of **Publisher** Table :

```
SQL> select * from publisher;

P_ID        P_NAME                    P_ADDRESS
----------- ------------------------- ------------------------------
P_EMAIL
------------------------
9091-887978 S CHAND PUBLICATION       M K GANDHI ROAD , NEW DELHI
s.chand@gmail.com

4453-009878 PREMEIRRE PUBLICATION     KOLKATA , WB
premierre.pub@gmail.com

6756-098781 WILEY INDIA PUBS.         NEAR CSOI , DELHI
wiley.india@gmail.com
```

```
P_ID        P_NAME                    P_ADDRESS
----------- ------------------------- ------------------------------
P_EMAIL
------------------------
9999-097867 CENGAGE INDIA PUBS.       CP , DELHI
cengage.ind@gmail.com

7876-009871 SHIVDAS AND SONS          LAJPAT NAGAR , DELHI
shivdas.pub@gmail.com
```

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MORE CLEAR OUTPUT -----

```
SQL> select p_id , p_name , p_address from publisher;

P_ID        P_NAME               P_ADDRESS
----------- -------------------- ------------------------------
9091-887978 S CHAND PUBLICATION  M K GANDHI ROAD , NEW DELHI
4453-009878 PREMIERRE PUBLICAION KOLKATA , WB
6756-098781 WILEY INDIA PUBS.    NEAR CSOI , DELHI
9999-097867 CENGAGE INDIA PUBS.  CP , DELHI
7876-009871 SHIVDAS AND SONS     LAJPAT NAGAR , DELHI
```

```
SQL> select p_id , p_name , p_email from publisher;

P_ID        P_NAME               P_EMAIL
----------- -------------------- -------------------------
9091-887978 S CHAND PUBLICATION  s.chand@gmail.com
4453-009878 PREMIERRE PUBLICAION premierre.pub@gmail.com
6756-098781 WILEY INDIA PUBS.    wiley.india@gmail.com
9999-097867 CENGAGE INDIA PUBS.  cengage.ind@gmail.com
7876-009871 SHIVDAS AND SONS     shivdas.pub@gmail.com
```

G1. Inputting data into **Books** Table :

```
SQL> insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid);
Enter value for book_id: '778621'
Enter value for theme: 'Detective'
Enter value for no_of_copies: 10
Enter value for title: 'SHERLOCK HOLMES'
Enter value for date_of_arrival: to_date('21-01-2019' , 'DD-MM-YYYY')
Enter value for pid: '4453-009878'
old   1: insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid)
new   1: insert into books values ('778621' , 'Detective' , 10 , 'SHERLOCK HOLMES' , to_date('21-01-2019' , 'DD-MM-YY
YY') , '4453-009878')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid);
Enter value for book_id: '908876'
Enter value for theme: 'Technology'
Enter value for no_of_copies: 5
Enter value for title: 'C++ PROGRAMMING'
Enter value for date_of_arrival: to_date('23-11-2020' , 'DD-MM-YYYY')
Enter value for pid: '6756-098781'
old   1: insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid)
new   1: insert into books values ('908876' , 'Technology' , 5 , 'C++ PROGRAMMING' , to_date('23-11-2020' , 'DD-MM-YY
YY') , '6756-098781')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid);
Enter value for book_id: '561145'
Enter value for theme: 'Commerce'
Enter value for no_of_copies: 7
Enter value for title: 'Enterpreneurship'
Enter value for date_of_arrival: to_date('09-09-2018' , 'DD-MM-YYYY')
Enter value for pid: '9091-887978'
old   1: insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid)
new   1: insert into books values ('561145' , 'Commerce' , 7 , 'Enterpreneurship' , to_date('09-09-2018' , 'DD-MM-YYY
Y') , '9091-887978')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid);
Enter value for book_id: '991238'
Enter value for theme: 'Comics'
Enter value for no_of_copies: 4
Enter value for title: 'Chacha Chaudhary !'
Enter value for date_of_arrival: to_date('20-12-2018' , 'DD-MM-YYYY')
Enter value for pid: '7876-009871'
old   1: insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid)
new   1: insert into books values ('991238' , 'Comics' , 4 , 'Chacha Chaudhary !' , to_date('20-12-2018' , 'DD-MM-YYY
Y') , '7876-009871')

1 row created.

SQL> commit;

Commit complete.
```

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```
SQL> insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid);
Enter value for book_id: '451901'
Enter value for theme: 'Magazine'
Enter value for no_of_copies: 8
Enter value for title: 'Business Reader'
Enter value for date_of_arrival: to_date('03-05-2021' , 'DD-MM-YYYY')
Enter value for pid: '9999-097867'
old   1: insert into books values (&book_id , &theme , &no_of_copies , &title , &date_of_arrival , &pid)
new   1: insert into books values ('451901' , 'Magazine' , 8 , 'Business Reader' , to_date('03-05-2021' , 'DD-MM-YYYY
') , '9999-097867')

1 row created.

SQL> commit;

Commit complete.
```

G2. Displaying the data of **Books** Table :

BOOK_ID	THEME	NO_OF_COPIES	TITLE	DATE_OF_ARRIVAL	P_ID
778621	Detective	10	SHERLOCK HOLMES	31-JAN-19	4453-009878
908876	Technology	5	C++ PROGRAMMING	23-NOV-20	6756-098781
561145	Commerce	7	Enterpreneuship	09-SEP-18	9091-887978
991238	Comics	4	Chacha Chaudhary !	20-DEC-19	7876-009871
451901	Magazine	8	Business Reader	03-MAY-21	9999-097867

H1. Inputting data into **Book_Has** Table :

```
SQL> insert into book_has values (&book_id , &l_id);
Enter value for book_id: '451901'
Enter value for l_id: 'DEL-123210'
old   1: insert into book_has values (&book_id , &l_id)
new   1: insert into book_has values ('451901' , 'DEL-123210')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into book_has values (&book_id , &l_id);
Enter value for book_id: '561145'
Enter value for l_id: 'MP-1230098'
old   1: insert into book_has values (&book_id , &l_id)
new   1: insert into book_has values ('561145' , 'MP-1230098')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into book_has values (&book_id , &l_id);
Enter value for book_id: '778621'
Enter value for l_id: 'TN-4487901'
old   1: insert into book_has values (&book_id , &l_id)
new   1: insert into book_has values ('778621' , 'TN-4487901')

1 row created.

SQL> commit;

Commit complete.
```

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```
SQL> insert into book_has values (&book_id , &l_id);
Enter value for book_id: '908876'
Enter value for l_id: 'UP-5678332'
old   1: insert into book_has values (&book_id , &l_id)
new   1: insert into book_has values ('908876' , 'UP-5678332')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into book_has values (&book_id , &l_id);
Enter value for book_id: '991238'
Enter value for l_id: 'WB-9967332'
old   1: insert into book_has values (&book_id , &l_id)
new   1: insert into book_has values ('991238' , 'WB-9967332')

1 row created.

SQL> commit;

Commit complete.
```

H2. Displaying the data of **Book_Has** Table :

```
SQL> select * from book_has;

BOOK_ID L_ID
------- -----------
451901  DEL-123210
561145  MP-1230098
778621  TN-4487901
908876  UP-5678332
991238  WB-9967332
```

I1. Inputting data into **A_Has** Table :

```
SQL> insert into a_has values(&a_id , &p_id);
Enter value for a_id: '999-9087612'
Enter value for p_id: '9091-887978'
old   1: insert into a_has values(&a_id , &p_id)
new   1: insert into a_has values('999-9087612' , '9091-887978')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into a_has values(&a_id , &p_id);
Enter value for a_id: '933-1189786'
Enter value for p_id: '4453-009878'
old   1: insert into a_has values(&a_id , &p_id)
new   1: insert into a_has values('933-1189786' , '4453-009878')

1 row created.

SQL> commit;

Commit complete.
```

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```
SQL> insert into a_has values(&a_id , &p_id);
Enter value for a_id: '678-9089665'
Enter value for p_id: '6756-098781'
old   1: insert into a_has values(&a_id , &p_id)
new   1: insert into a_has values('678-9089665' , '6756-098781')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into a_has values(&a_id , &p_id);
Enter value for a_id: '234-9833451'
Enter value for p_id: '9999-097867'
old   1: insert into a_has values(&a_id , &p_id)
new   1: insert into a_has values('234-9833451' , '9999-097867')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into a_has values(&a_id , &p_id);
Enter value for a_id: '909-4534110'
Enter value for p_id: '7876-009871'
old   1: insert into a_has values(&a_id , &p_id)
new   1: insert into a_has values('909-4534110' , '7876-009871')

1 row created.

SQL> commit;

Commit complete.
```

I2. Displaying the data of **A_Has** Table :

```
SQL> select * from a_has;

A_ID        P_ID
----------- -----------
234-9833451 4453-009878
678-9089665 6756-098781
909-4534110 7876-009871
933-1189786 9091-887978
999-9087612 9999-097867
```

J1. Inputting data into **Students** Table :

```
SQL> insert into students values (&b_id , &s_address , &university , &s_ph_no);
Enter value for b_id: 'UP-B-45678732'
Enter value for s_address: 'Dadri , G B Nagar , UP'
Enter value for university: 'VIT Univeristy , Vellore'
Enter value for s_ph_no: '9971043198'
old   1: insert into students values (&b_id , &s_address , &university , &s_ph_no)
new   1: insert into students values ('UP-B-45678732' , 'Dadri , G B Nagar , UP' , 'VIT Univeristy , Vellore' , '9971
043198')

1 row created.

SQL> commit;

Commit complete.
```

```
SQL> insert into students values (&b_id , &s_address , &university , &s_ph_no);
Enter value for b_id: 'DEL-B-1456745'
Enter value for s_address: 'Gurugram , Haryana'
Enter value for university: 'Chandigarh Univeristy'
Enter value for s_ph_no: '9945349809'
old   1: insert into students values (&b_id , &s_address , &university , &s_ph_no)
new   1: insert into students values ('DEL-B-1456745' , 'Gurugram , Haryana' , 'Chandigarh Univeristy' , '9945349809'
)

1 row created.

SQL> commit;

Commit complete.

SQL> insert into students values (&b_id , &s_address , &university , &s_ph_no);
Enter value for b_id: 'MP-B-90765654'
Enter value for s_address: 'Jabalpur , MP'
Enter value for university: 'IIT-BHU'
Enter value for s_ph_no: '7767109799'
old   1: insert into students values (&b_id , &s_address , &university , &s_ph_no)
new   1: insert into students values ('MP-B-90765654' , 'Jabalpur , MP' , 'IIT-BHU' , '7767109799')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into students values (&b_id , &s_address , &university , &s_ph_no);
Enter value for b_id: 'TN-B-00987896'
Enter value for s_address: 'Nellore , Tamil Nadu'
Enter value for university: 'Anna Univeristy'
Enter value for s_ph_no: '6901789088'
old   1: insert into students values (&b_id , &s_address , &university , &s_ph_no)
new   1: insert into students values ('TN-B-00987896' , 'Nellore , Tamil Nadu' , 'Anna Univeristy' , '6901789088')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into students values (&b_id , &s_address , &university , &s_ph_no);
Enter value for b_id: 'WB-B-87980987'
Enter value for s_address: 'Shyambazar , Kolkata , WB'
Enter value for university: 'IIEST , Sibpur'
Enter value for s_ph_no: '8867564510'
old   1: insert into students values (&b_id , &s_address , &university , &s_ph_no)
new   1: insert into students values ('WB-B-87980987' , 'Shyambazar , Kolkata , WB' , 'IIEST , Sibpur' , '8867564510'
)

1 row created.

SQL> commit;

Commit complete.
```

J2. Displaying the data of **Students** Table :

```
SQL> select * from students;

B_ID          S_ADDRESS                    UNIVERISTY                   S_PH_NO
------------- ---------------------------- ---------------------------- ----------
UP-B-45678732 Dadri , G B Nagar , UP       VIT Univeristy , Vellore     9971043198
DEL-B-1456745 Gurugram , Haryana           Chandigarh University        9945349809
MP-B-90765654 Jabalpur , MP                IIT-BHU                      7767109799
TN-B-00987896 Nellore , Tamil Nadu         Anna University              6901789088
WB-B-87980987 Shyambazar , Kolkata , WB    IIEST , Sibpur               8867564510
```

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K1. Inputting data into **Others** Table :

```
SQL> insert into others values (&b_id , &phone_no , &o_address);
Enter value for b_id: 'DEL-B-1456745'
Enter value for phone_no: '9812676765'
Enter value for o_address: 'Chandigarh'
old   1: insert into others values (&b_id , &phone_no , &o_address)
new   1: insert into others values ('DEL-B-1456745' , '9812676765' , 'Chandigarh')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into others values (&b_id , &phone_no , &o_address);
Enter value for b_id: 'MP-B-90765654'
Enter value for phone_no: '9009091123'
Enter value for o_address: 'Indore , MP'
old   1: insert into others values (&b_id , &phone_no , &o_address)
new   1: insert into others values ('MP-B-90765654' , '9009091123' , 'Indore , MP')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into others values (&b_id , &phone_no , &o_address);
Enter value for b_id: 'TN-B-00987896'
Enter value for phone_no: '8876100098'
Enter value for o_address: 'Benagluru , Karnataka'
old   1: insert into others values (&b_id , &phone_no , &o_address)
new   1: insert into others values ('TN-B-00987896' , '8876100098' , 'Benagluru , Karnataka')

1 row created.

SQL> commot;
SP2-0042: unknown command "commot" - rest of line ignored.
SQL> commit;

Commit complete.

SQL> insert into others values (&b_id , &phone_no , &o_address);
Enter value for b_id: 'UP-B-45678732'
Enter value for phone_no: '9008655662'
Enter value for o_address: 'G B Road , Delhi'
old   1: insert into others values (&b_id , &phone_no , &o_address)
new   1: insert into others values ('UP-B-45678732' , '9008655662' , 'G B Road , Delhi')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into others values (&b_id , &phone_no , &o_address);
Enter value for b_id: 'WB-B-87980987'
Enter value for phone_no: '8220565540'
Enter value for o_address: 'Esplanade , Kolkata , WB'
old   1: insert into others values (&b_id , &phone_no , &o_address)
new   1: insert into others values ('WB-B-87980987' , '8220565540' , 'Esplanade , Kolkata , WB')

1 row created.

SQL> commit;

Commit complete.
```

K2. Displaying the data of **Others** Table :

```
SQL> select * from others;

B_ID          PHONE_NO   O_ADDRESS
------------- ---------- -------------------------
DEL-B-1456745 9812676765 Chandigarh
MP-B-90765654 9009091123 Indore , MP
TN-B-00987896 8876100098 Bengaluru , Karnataka
UP-B-45678732 9008655662 G B Road , Delhi
WB-B-87980987 8220565540 Esplanade , Kolkata , WB
```

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L1. Inputting data into **Issued_By** Table :

```
SQL> insert into issued_by values (&b_id , &book_id);
Enter value for b_id: 'DEL-B-1456745'
Enter value for book_id: '451901'
old   1: insert into issued_by values (&b_id , &book_id)
new   1: insert into issued_by values ('DEL-B-1456745' , '451901')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into issued_by values (&b_id , &book_id);
Enter value for b_id: 'MP-B-90765654'
Enter value for book_id: '561145'
old   1: insert into issued_by values (&b_id , &book_id)
new   1: insert into issued_by values ('MP-B-90765654' , '561145')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into issued_by values (&b_id , &book_id);
Enter value for b_id: 'TN-B-00987896'
Enter value for book_id: '778621'
old   1: insert into issued_by values (&b_id , &book_id)
new   1: insert into issued_by values ('TN-B-00987896' , '778621')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into issued_by values (&b_id , &book_id);
Enter value for b_id: 'UP-B-45678732'
Enter value for book_id: '778621'
old   1: insert into issued_by values (&b_id , &book_id)
new   1: insert into issued_by values ('UP-B-45678732' , '778621')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into issued_by values (&b_id , &book_id);
Enter value for b_id: 'WB-B-87980987'
Enter value for book_id: '991238'
old   1: insert into issued_by values (&b_id , &book_id)
new   1: insert into issued_by values ('WB-B-87980987' , '991238')

1 row created.

SQL> commit;

Commit complete.
```

L2. Displaying the data of **Issued_By** Table :

```
SQL> select * from issued_by;

B_ID            BOOK_ID
--------------- -------
DEL-B-1456745 451901
MP-B-90765654 561145
TN-B-00987896 778621
UP-B-45678732 908876
WB-B-87980987 991238
```

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SOUBHIK SINHA ABHISHEK SHARMA TUSHAR KUMAR B P

M1. Inputting data into **Written_By** Table :

```
SQL> insert into written_by values (&a_id , &book_id);
Enter value for a_id: '234-9833451'
Enter value for book_id: '451901'
old   1: insert into written_by values (&a_id , &book_id)
new   1: insert into written_by values ('234-9833451' , '451901')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into written_by values (&a_id , &book_id);
Enter value for a_id: '678-9089665'
Enter value for book_id: '561145'
old   1: insert into written_by values (&a_id , &book_id)
new   1: insert into written_by values ('678-9089665' , '561145')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into written_by values (&a_id , &book_id);
Enter value for a_id: '909-4534110'
Enter value for book_id: '778621'
old   1: insert into written_by values (&a_id , &book_id)
new   1: insert into written_by values ('909-4534110' , '778621')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into written_by values (&a_id , &book_id);
Enter value for a_id: '933-1189786'
Enter value for book_id: '908876'
old   1: insert into written_by values (&a_id , &book_id)
new   1: insert into written_by values ('933-1189786' , '908876')

1 row created.

SQL> commit;

Commit complete.

SQL> insert into written_by values (&a_id , &book_id);
Enter value for a_id: '999-9087612'
Enter value for book_id: '991238'
old   1: insert into written_by values (&a_id , &book_id)
new   1: insert into written_by values ('999-9087612' , '991238')

1 row created.

SQL> commit;

Commit complete.
```

M2. Displaying the data of **Written_By** Table :

```
SQL> select * from written_by;

A_ID        BOOK_ID
----------- -------
234-9833451 451901
678-9089665 561145
909-4534110 778621
933-1189786 908876
999-9087612 991238
```

==========

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SOUBHIK SINHA ABHISHEK SHARMA TUSHAR KUMAR B P

REVIEW : 3

6. Write down the necessary SQL statements for implementation of functional requirements. There should be at least four different scenarios of removal of old data, four different scenarios for modification of existing data and eight different scenarios for data retrieval through SQL delete, update and select statement.

The select statements ***must*** include one query showing the usage of ***nvl*** function and ***nullif*** function, one join query involving order by clause, one uncorrelated nested query, one correlated nested query, one query involving one of the set operators, one query involving group by, having and where clause and one query involving (left or right or full) outer join. The delete and update statements ***must*** have embedded select statement.

ANS :

1. Four (4) different scenarios of removal of old data

Statement : Delete the details of a library branch whose main branch is located in 'Singrauli , MP'.

```
SQL> delete from library_branch where l_id in (select l_id from library
  2  where l_address = 'Singrauli , MP');

1 row deleted.

SQL> commit;

Commit complete.
```

Statement : Delete the details of a Staff member who works for the library named 'Batuk Maharaj Library'.

```
SQL> delete from staff where l_id in (select l_id from library where
  2  l_name = 'Batuk Maharaj Library');

1 row deleted.

SQL> commit;

Commit complete.
```

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Statement : Delete the information of the borrower named 'SRINITA M' stored in 'Others' table , which actually consists the address and phone number of the borrowers.

```
SQL> delete from others where b_id in (select b_id from borrower
  2  where b_name = 'SRINITA M');

1 row deleted.

SQL> commit;

Commit complete.
```

Statement : Delete the Student information , who is a borrower and borrowed / issued a book from a library located in 'New Town , Kolkata , WB'.

```
SQL> delete from students where b_id in (select b_id from borrower where l_id in
  2  (select l_id from library where l_address = 'New Town , Kolkata , WB'));

1 row deleted.

SQL> commit;

Commit complete.
```

2. Four (4) different scenarios of modification of the existing data

Statement : Update the E-mail ID of a Staff member (Any new E-mail ID of your choice) , who works for a library , which has 3 branches in the country.

```
SQL> update staff set st_email = 'nandu.bhainsa69@gmail.com' where l_id in
  2  (select l_id from library where no_of_branches = 3);

1 row updated.

SQL> commit;

Commit complete.
```

Statement : Update the branch name (Any new name of your choice) of a library branch which is located in the state of 'Tamil Nadu'.

```
SQL> update library_branch set br_name = 'V.D.S.K. Library' where l_id in
  2  (select l_id from library where l_address = 'Vellore , Tamil Nadu');

1 row updated.

SQL> commit;

Commit complete.
```

Statement : Update the return date of the book issued by a borrower to ’15-06-2021’ , which was issued from a library having ID = ‘DEL-123210’.

```
SQL> update borrower set return_date = to_date('15-06-2021' , 'dd-mm-yyyy') where l_id in
  2  (select l_id from borrower where l_id = 'DEL-123210');

1 row updated.

SQL> commit;

Commit complete.
```

Statement : Update the College / Institute name of a borrower whose name is ‘BHANDU KUMAR’.

```
SQL> update students set univeristy = 'IIIT Hyderabad' where b_id in
  2  (select b_id from borrower where b_name = 'BHANDU KUMAR');

1 row updated.

SQL> commit;

Commit complete.
```

3. Eight (8) different scenarios of data retrieval (as per the following conditions - already mentioned in the Question) –

a. one query showing the usage of *nvl function* and *nullif function*

Statement : Retrieve the information of borrower ID , issuing date of the book and borrowers’ E-mail ID. If issued date section is empty for that particular borrower , give a message – ‘ISSUED DATE NOT FOUND’. Similarly , if E-mail is not found , print ‘N/A’.

```
SQL> select b_id , nvl(to_char(issued_date) , 'ISSUED DATE NOT FOUND') "ISSUED DATE",
  2  nullif(b_email , 'N/A') "E-MAIL" from borrower;
```

B_ID	ISSUED DATE	E-MAIL
TN-B-00987896	26-MAY-21	srini888@gmail.com
WB-B-87980987	20-MAY-21	kamalesh778@gmail.com
UP-B-45678732	23-MAY-21	soub69@gmail.com
DEL-B-1456745	22-MAY-21	bhandu.kr@gmail.com
MP-B-90765654	25-MAY-21	bhau672@rocketmail.com

b. one join query involving *order by* clause

Statement : Show the information about Book Theme(s) , Author name who have written the books on those themes. Apply Group by clause with respect to Authors' name(s).

```
SQL> select books.theme "THEME" , author.a_name "NAME" from books join publisher on books.p_id = publisher.p_id
  2  join a_has on publisher.p_id = a_has.p_id join author on author.a_id = a_has.a_id order by author.a_name;

THEME                NAME
-------------------- ----------------------------------------
Magazine             BHAVDESH PANDIT
Detective            HASIT NANDA
Comics               JATIN DESAI
Technology           MAHASHIV KUMAR
Commerce             SRINIVAS M
```

c. one uncorrelated nested query

Statement : Show the staff member names who work for a library (Library name not necessary).

```
SQL> select st_name "STAFF NAME" from staff where l_id in (select l_id from library);

STAFF NAME
----------------------------------------
RAHUL KUMAR
RAJESH KASANA
ROHIT K
NANDESHWAR KUMAR
```

d. one correlated nested query

Statement : Retrieve the name of the borrower , his / her ID with respect to the library from where they have borrowed the book(s).

```
SQL> select b_name "NAME" , b_id "ID" from borrower where l_id in (select l_id from library
  2  where borrower.l_id = library.l_id);

NAME                                     ID
---------------------------------------- -------------
SRINITA M                                TN-B-00987896
KAMALESH                                 WB-B-87980987
SOUBHIK SINHA                            UP-B-45678732
BHANDU KUMAR                             DEL-B-1456745
BHURESH BHAU                             MP-B-90765654

SQL> column 'NAME' format a15;
SQL> /

NAME            ID
--------------- -------------
SRINITA M       TN-B-00987896
KAMALESH        WB-B-87980987
SOUBHIK SINHA   UP-B-45678732
BHANDU KUMAR    DEL-B-1456745
BHURESH BHAU    MP-B-90765654
```

e. one query involving one of the set operators

Statement : Show the E-mail ID of only those staff member who does not work for the library having the library ID = 'DEL-123210'.

```
SQL> select st_email "E-MAIL" , st_name "NAME" from staff
  2  minus
  3  select st_email "E-MAIL" , st_name "NAME" from staff where l_id = 'DEL-123210';

E-MAIL                    NAME
------------------------- --------------------
nandu.bhainsa69@gmail.com NANDESHWAR KUMAR
rajesh23@gmail.com        RAJESH KASANA
rohit78@gmail.com         ROHIT K
```

f. one query involving group by, having and where clause

Statement : Show the name(s) of the library (Main Branch) which has less than 3 branches but not 1 branch (including the main branch itself).

```
SQL> select l_name "NAME" from library where no_of_branches < 3 group by l_name
  2  having count(no_of_branches) > 1;

no rows selected
```

g. one query involving (left or right or full) outer join.

Statement : Show that name of the borrower along with the library main branch name which has greater than 1 branch.

```
SQL> select b_name "BORROWER" , l_name "LIBRARY" from borrower full outer join library on
  2  borrower.l_id = library.l_id where library.no_of_branches > 1;

BORROWER
----------------------------------------
LIBRARY
----------------------------------------
KAMALESH
Netaji Central Library

SOUBHIK SINHA
Sarojini Library


SQL> column 'borrower' format a15;
SQL> /

BORROWER        LIBRARY
--------------- ----------------------------------------
KAMALESH        Netaji Central Library
SOUBHIK SINHA   Sarojini Library

SQL> column 'library' format a20;
SQL> /

BORROWER        LIBRARY
--------------- --------------------
KAMALESH        Netaji Central Libra
                ry

SOUBHIK SINHA   Sarojini Library

SQL> column 'library' format a25;
SQL> /

BORROWER        LIBRARY
--------------- -------------------------
KAMALESH        Netaji Central Library
SOUBHIK SINHA   Sarojini Library
```

h. A simple select statement

Statement : Show the borrowers' name , his / her E-mail ID , as well as the Borrower ID.

```
SQL> select b_name "NAME" , b_id "ID" , b_email "EMAIL" from borrower;

NAME            ID             EMAIL
--------------- -------------- --------------------------------------------------
SRINITA M       TN-B-00987896 srini888@gmail.com
KAMALESH        WB-B-87980987 kamalesh778@gmail.com
SOUBHIK SINHA   UP-B-45678732 soub69@gmail.com
BHANDU KUMAR    DEL-B-1456745 bhandu.kr@gmail.com
BHURESH BHAU    MP-B-90765654 bhau672@rocketmail.com
```

7. Define and implement two PL/SQL function involving cursor and two PL/SQL procedure involving cursor for the database under consideration (i. e. required for the project).

ANS :

FUNCTION : 1

Statement : Use the PL/SQL language as well as function and cursor to input Name of the borrower , ID of the borrower , and ID of the library and giving output as the phone number of the borrower.

```
SQL> create or replace function show(name varchar , id varchar, lid varchar) return varchar
  2  is s varchar(100);
  3  begin
  4  s:= 'The output for' || name || ' ' || id || ' ' || lid || 'is --';
  5  return s;
  6  end;
  7  /

Function created.

SQL> declare
  2  cursor crs (name borrower.b_name%type , id borrower.b_id%type , lid borrower.l_id%type)
  3  is
  4  select phone_no from others join borrower on others.b_id = borrower.b_id;
  5
  6  rcd crs%rowtype;
  7  name borrower.b_name%type;
  8  id borrower.b_id%type;
  9  lid borrower.l_id%type;
 10  s varchar(100);
 11  begin
 12  name := &name;
 13  id := &id;
 14  lid := &lid;
 15  open crs(name , id , lid);
 16  fetch crs into rcd;
 17  s := show(name , id , lid);
 18  dbms_output.put_line(s);
 19  dbms_output.put_line(rcd.phone_no);
 20  close crs;
 21  end;
 22  /
Enter value for name: 'SRINITA M'
old  12: name := &name;
new  12: name := 'SRINITA M';
Enter value for id: 'TN-B-00987896'
old  13: id := &id;
new  13: id := 'TN-B-00987896';
Enter value for lid: 'TN-4487901'
old  14: lid := &lid;
new  14: lid := 'TN-4487901';

PL/SQL procedure successfully completed.

SQL> SET SERVEROUTPUT ON
SQL> /
Enter value for name: 'SRINITA M'
old  12: name := &name;
new  12: name := 'SRINITA M';
Enter value for id: 'TN-B-00987896'
old  13: id := &id;
new  13: id := 'TN-B-00987896';
Enter value for lid: 'TN-4487901'
old  14: lid := &lid;
new  14: lid := 'TN-4487901';
The output forSRINITA M TN-B-00987896 TN-4487901is --
9812676765

PL/SQL procedure successfully completed.
```

SOUBHIK SINHA ABHISHEK SHARMA TUSHAR KUMAR B P

PROCEDURE : 1

Statement : Use PL/SQL to create a procedure along with the usage of cursor to get the book ID as the input so that the user shall get to know the Name and ID of the Publishing Company.

```
SQL> create or replace procedure show2(bookid varchar)
  2  as s varchar(100);
  3  begin
  4  s := 'The publisher info. for ' || bookid || ' is --';
  5  dbms_output.put_line(s);
  6  end;
  7  /
```

```
SQL> declare
  2  cursor crs(bookid books.book_id%type)
  3  is
  4  select publisher.p_id , publisher.p_name from publisher join books on
  5  books.p_id = publisher.p_id;
  6  rcd crs%rowtype;
  7  bookid books.book_id%type;
  8  begin
  9  dbms_output.put_line('Enter the Book ID : ');
 10  bookid := &bookid;
 11  open crs(bookid);
 12  fetch crs into rcd;
 13  show2(bookid);
 14  dbms_output.put_line(rcd.p_id);
 15  dbms_output.put_line(rcd.p_name);
 16  close crs;
 17  end;
 18  /
Enter value for bookid: '451901'
old  10: bookid := &bookid;
new  10: bookid := '451901';
Enter the Book ID :
The publisher info. for 451901 is --
4453-009878
PREMIERRE PUBLICATION

PL/SQL procedure successfully completed.
```

FUNCTION : 2

Statement : Using PL/SQL to create function with cursor to get the Author Name , the Publishing Company he / she belongs to and the theme the author is known for / famous for writing the books via the Author ID.

```
SQL> create or replace function show3(aid author.a_id%type) return varchar
  2  is s varchar(100);
  3  begin
  4  s:= 'The information of the author for ID : ' || aid || ' is --';
  5  return s;
  6  end;
  7  /

Function created.
```

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```
SQL> declare
  2  cursor crs (aid author.a_id%type)
  3  is
  4  select author.a_name , publisher.p_name , books.theme from author join a_has on author.a_id = a_has.a_id
  5  join publisher on a_has.p_id = publisher.p_id join books on books.p_id = publisher.p_id;
  6
  7  rcd crs%rowtype;
  8  aid author.a_id%type;
  9  s varchar(100);
 10  begin
 11  aid := &aid;
 12  dbms_output.put_line(' ');
 13  open crs(aid);
 14  fetch crs into rcd;
 15  s := show3(aid);
 16  dbms_output.put_line(' ');
 17  dbms_output.put_line(s);
 18  dbms_output.put_line('Author Name : ' || rcd.a_name);
 19  dbms_output.put_line('Publisher Name (which the Author belongs to) : ' || rcd.p_name);
 20  dbms_output.put_line('Theme of the book written : ' || rcd.theme);
 21  close crs;
 22  end;
 23  /
Enter value for aid: '933-1189786'
old  11: aid := &aid;
new  11: aid := '933-1189786';

PL/SQL procedure successfully completed.

SQL> SET SERVEROUTPUT ON;
SQL> /
Enter value for aid: '933-1189786'
old  11: aid := &aid;
new  11: aid := '933-1189786';
The information of the author for ID : 933-1189786 is --
Author Name : HASIT NANDA
Publisher Name (which the Author belongs to) : PREMIERRE PUBLICATION
Theme of the book written : Detective

PL/SQL procedure successfully completed.
```

PROCEDURE : 2

Statement : Use Pl/SQL to create procedure along with a cursor , to get to know the name of a particular staff member , his / her E-mail Address , and Library ID of the library s' main branch where he / she works via the Staff ID.

```
SQL> create or replace procedure show4(stid staff.st_id%type)
  2  as s varchar(100);
  3  begin
  4  s:= 'The output for ' || stid || ' is --';
  5  dbms_output.put_line(s);
  6  end;
  7  /

Procedure created.
```

SOUBHIK SINHA ABHISHEK SHARMA TUSHAR KUMAR B P

```
SQL> declare
  2  cursor crs (stid staff.st_id%type)
  3  is
  4  select staff.st_name , staff.st_email , staff.l_id from staff join library on staff.l_id = library.l_id;
  5
  6  rcd crs%rowtype;
  7  stid staff.st_id%type;
  8  begin
  9  stid :=&stid;
 10  open crs(stid);
 11  fetch crs into rcd;
 12  show4(stid);
 13  dbms_output.put_line('Name of the Staff : ' || rcd.st_name);
 14  dbms_output.put_line('E-mail ID of Staff : ' || rcd.st_email);
 15  dbms_output.put_line('Library ID : ' || rcd.l_id);
 16  close crs;
 17  end;
 18  /
Enter value for stid: 'WB-9967332-8'
old   9: stid :=&stid;
new   9: stid :='WB-9967332-8';
The output for WB-9967332-8 is --
Name of the Staff : RAHUL KUMAR
E-mail ID of Staff : rahulkr@gmail.com
Library ID : DEL-123210

PL/SQL procedure successfully completed.
```

==========

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