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This project database exhibits how the books are issued and returned to library in organised manner and how the library works

ENTITIES:

1. BRANCH
2. EMPLOYEES
3. CUSTOMER
4. BOOKS
5. ISSUECARD
6. RETURNCARD

Normalisation And Functional Dependencies:

The tables we created in this project are all in BCNF normal form:

1) In Table BOOKS:

ISBN IS THE PRIMARY KEY AND BRANCH_NO AS FOREIGN KEY REFERENCES TO BRANCH TABLE

2) In Table BRANCH:

BRANCH_NO IS THE PRIMARY KEY

3) In Table EMPLOYEES:

EMP_ID IS THE PRIMARY KEY AND BRANCH_NO AS FOREIGN KEY REFERENCES TO BRANCH TABLE

4) In Table CUSTOMER:

CUSTOMER_ID IS THE PRIMARY KEY

5) In Table ISSUECARD:

ISSUE_ID IS THE PRIMARY KEY AND CUSTOMER_ID IS FOREIGN KEY REFERENCINGTO CUSTOMER TABLE.

6) In Table RETURNCARD:

RETURN_ID IS THE PRIMARY KEY AND CUSTOMER_ID IS FOREIGN KEY REFERENCINGTO CUSTOMER TABLE.

Creating Database using MySQL

CREATE DATABASE LIBRARY;

USE LIBRARY;

BRANCH TABLE

```
CREATE TABLE BRANCH(
        BRANCH_NO INT PRIMARY KEY,
        MANAGER_ID INT,
        B_ADDRESS VARCHAR(25)
);
```

BOOKS TABLE

```
CREATE TABLE BOOKS(
        ISBN INT PRIMARY KEY,
        GENRE VARCHAR(25),
        TITLE VARCHAR(25),
        PUBLISHER VARCHAR(25),
        PRICE INT,
        AUTHOR VARCHAR(25),
        STAT VARCHAR(25),
        BRANCH_NO INT,
        FOREIGN KEY (BRANCH_NO) REFERENCES BRANCH(BRANCH_NO)
);
```

EMPLOYEES TABLE

```
CREATE TABLE EMPLOYEES(
        EMP_ID INT PRIMARY KEY,
        SALARY INT,
        DES VARCHAR(25),
        EMP_NAME VARCHAR(25),
        BRANCH_NO INT,
        FOREIGN KEY (BRANCH_NO) REFERENCES BRANCH(BRANCH_NO)
);
```

CUSTOMER TABLE

```
CREATE TABLE CUSTOMER(
        CUSTOMER_ID INT PRIMARY KEY,
        BOOKS_ISSUED INT,
        CUSTOMER_NAME VARCHAR(25),
        CUS_ADDRESS VARCHAR(25),
        BRANCH_NO INT
```
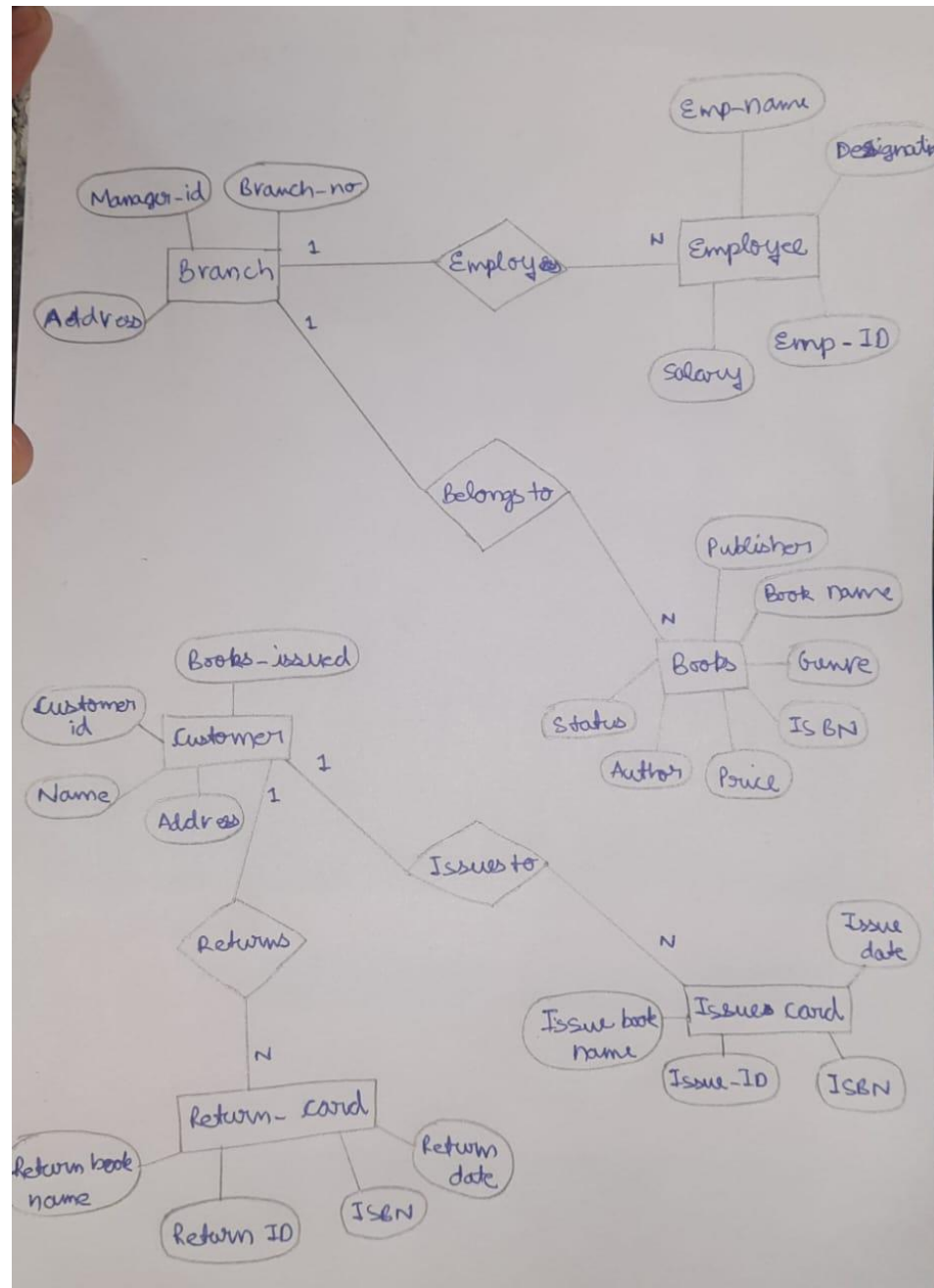
);

ISSUECARD TABLE

CREATE TABLE ISSUECARD(
      ISSUE_ID INT PRIMARY KEY,
      ISSUE_DATE DATE,
      ISBN INT,
      ISSUE_BOOK_NAME VARCHAR(25),
      CUSTOMER_ID INT,
      FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER(CUSTOMER_ID)
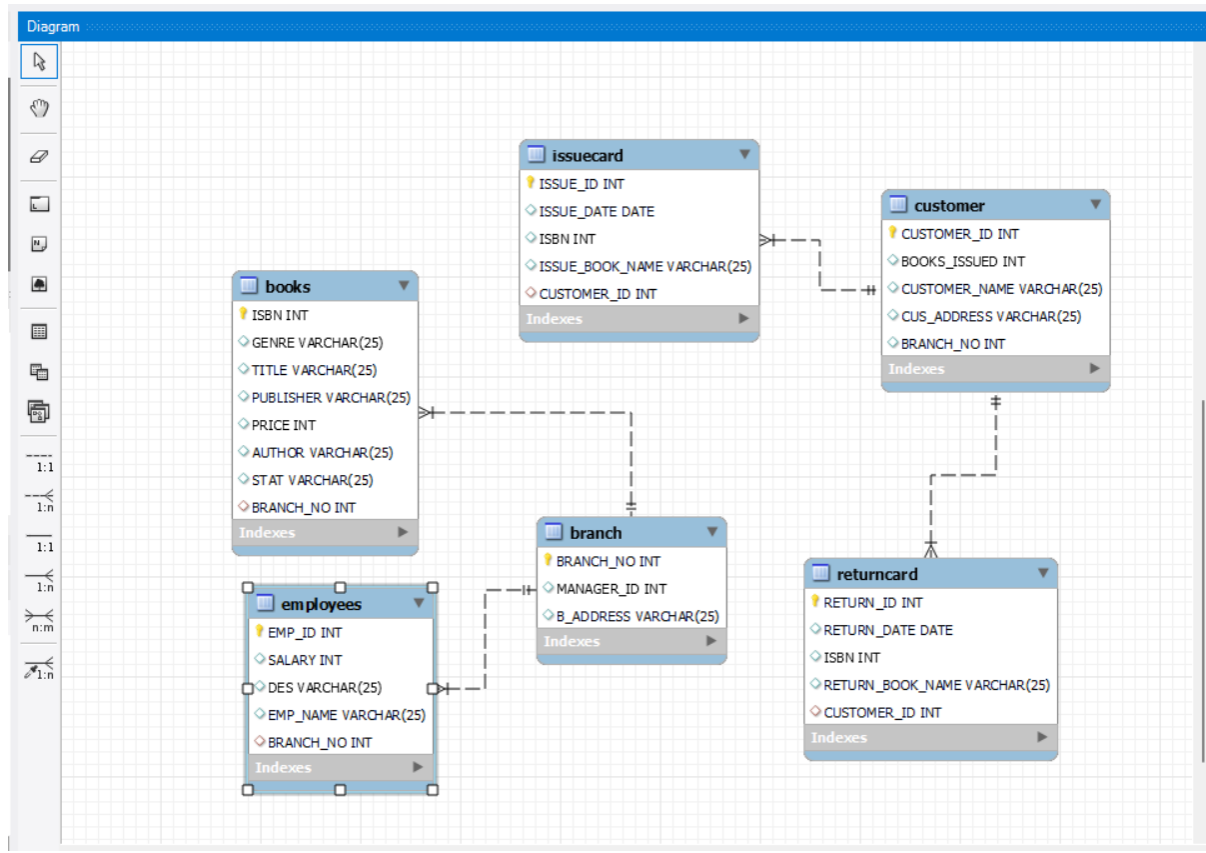);

RETURNCARD TABLE

CREATE TABLE RETURNCARD(
      RETURN_ID INT PRIMARY KEY,
      RETURN_DATE DATE,
      ISBN INT,
      RETURN_BOOK_NAME VARCHAR(25),
      CUSTOMER_ID INT,
      FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER(CUSTOMER_ID)
);

ER DIAGRAM

RELATIONAL TABLE

Inserting Values In Database

Insertion Into BOOKS Table:

INSERT INTO BOOKS VALUES
        (101, 'HORROR', 'IT', 'BLOOMSBURRY', 500, 'STEPHEN KING', 'VERY GOOD', 301),
        (102,'FANTASY','HARRY POTTER','BLOOMSBURRY',1000,'JK ROWLING','GOOD',302),
        (103,'PSYCHOLOGICAL THRILLER','MISERY','PENGUIN',1500,'STEPHEN KING','VERY GOOD',303),
        (104,'PSYCHOLOGICAL HORROR','THE SHINING','PUFFIN',5000,'STEPHEN KING','EXCELLENT',304),
        (105,'DETECTIVE THRILLER','SHERLOCK HOLMES','PRAJAPATI',2500,'SIR ARTHUR CONAN DOYLE','GOOD',305),
        (106,'PHILOSOPHY','WAR AND PEACE','BLOOMSBURRY',1200,'LEO TOLSTOY','AVERAGE',301),
        (107,'ROMANCE','ROMEO AND JULIET','ROYAL',5600,'WILLIAM SHAKESPEARE','VERY GOOD',302),

(108,'BIOGRAPHY','THE GOOD BOATMAN','NATIONAL
PRESS',3500,'RAJMOHAN GANDHI','GOOD',303),
        (109,'THRILLER','TINTIN','SCOTTISH PRESS',500,'HERGE','VERY
GOOD',305),
        (110,'FANTASY','THE LORD OF THE RINGS','BLOOMSBURRY',500,'JJ
TOLKIENS','EXCELLENT',306),
        (111,'HORROR','SERPENT','PENGUIN',5100,'RAMACHAND','POOR',306
);

	ISBN	GENRE	TITLE	PUBLISHER	PRICE	AUTHOR	STAT	BRANCH_NO
▶	101	HORROR	IT	BLOOMSBURRY	500	STEPHEN KING	VERY GOOD	301
	102	FANTASY	HARRY POTTER	BLOOMSBURRY	1000	JK ROWLING	GOOD	302
	103	PSYCHOLOGICAL THRILLER	MISERY	PENGUIN	1500	STEPHEN KING	VERY GOOD	303
	104	PSYCHOLOGICAL HORROR	THE SHINING	PUFFIN	5000	STEPHEN KING	EXCELLENT	304
	105	DETECTIVE THRILLER	SHERLOCK HOLMES	PRAJAPATI	2500	SIR ARTHUR C...	GOOD	305
	106	PHILOSOPHY	WAR AND PEACE	BLOOMSBURRY	1200	LEO TOLSTOY	AVERAGE	301
	107	ROMANCE	ROMEO AND JULIET	ROYAL	5600	WILLIAM SHAK...	VERY GOOD	302
	108	BIOGRAPHY	THE GOOD BOATMAN	NATIONAL PRESS	3500	RAJMOHAN GA...	GOOD	303
	109	THRILLER	TINTIN	SCOTTISH PRESS	500	HERGE	VERY GOOD	305
	110	FANTASY	THE LORD OF THE RINGS	BLOOMSBURRY	500	JJ TOLKIENS	EXCELLENT	306
	111	HORROR	SERPENT	PENGUIN	5100	RAMACHAND	POOR	304

Insertion into BRANCH Table:

INSERT INTO BRANCH VALUES
        (301,900,'ABC ROAD DELHI'),
        (302,901,'MG ROAD'),
        (303,902,'KALUSARAI'),
        (304,903,'PRESS COLONY'),
        (305,904,'XYZ LANE'),
        (306,905,'SALT LAKE');

	BRANCH_NO	MANAGER_ID	B_ADDRESS
▶	301	900	ABC ROAD DELHI
	302	901	MG ROAD
	303	902	KALUSARAI
	304	903	PRESS COLONY
	305	904	XYZ LANE
	306	905	SALT LAKE

Insertion into CUSTOMER Table:

INSERT INTO CUSTOMER VALUES
        (1230,5,'SHASWATA','SECONDARY ROAD',301),
        (1231,10,'RISHAV','MG ROAD',302),
        (1232,11,'PREETAM','KALUSARAI',303),
        (1233,7,'AYUSH','BIDHANNAGAR',301),
        (1234,8,'SOUMODEEP','23 KALUSARAI',303),
        (1235,9,'SOHAM','NEHRU ROAD',302),
        (1236,2,'RAJDEEP','AKBAR STREET',304),
        (1237,1,'RATAN','NEWTON AVENUE',306),

```
(1238,3,'ISHAAN','SALT LAKE',306),
(1239,20,'PRATEEK','AKBAR ROAD',304),
(1240,12,'DEVANSH','SHIVAJI COLONY',305),
(1241,11,'PUSHPAL','RAMKRISHNA ROAD',301);
```

CUSTOMER_ID	BOOKS_ISSUED	CUSTOMER_NAME	CUS_ADDRESS	BRANCH_NO
1230	5	SHASWATA	SECONDARY ROAD	301
1231	10	RISHAV	MG ROAD	302
1232	11	PREETAM	KALUSARAI	303
1233	7	AYUSH	BIDHANNAGAR	301
1234	8	SOUMODEEP	23 KALUSARAI	303
1235	9	SOHAM	NEHRU ROAD	302
1236	2	RAJDEEP	AKBAR STREET	304
1237	1	RATAN	NEWTON AVENUE	306
1238	3	ISHAAN	SALT LAKE	306
1239	20	PRATEEK	AKBAR ROAD	304
1240	12	DEVANSH	SHIVAJI COLONY	305
1241	11	PUSHPAL	RAMKRISHNA ROAD	301

Insertion Into EMPLOYEES Table:

```
INSERT INTO EMPLOYEES VALUES
    (30101,56000,'SR LIBRARIAN','ROHAN ANAND',301),
    (30102,40000,'DATABASE MANAGER','RITESH MISHRA',301),
    (30103,300000,'MANAGER','RITESH KHAN',301),
    (30201,66000,'SR LIBRARIAN','NURUL HAQUE',302),
    (30202,26000,'CLERK','ANANDA DEY',302),
    (30203,76000,'MANAGER','SWARUP SARKAR',302),
    (30204,16000,'GUARDSMAN','SUPRATIM MISHRA',302),
    (30301,86000,'MANAGER','SANJAY YADAV',303),
    (30302,36000,'SR LIBRARIAN','TITU BISOI',303),
    (30401,96000,'MANAGER','PRADEEP RAOUTH',304),
    (30402,40000,'DATABASE MANAGER','BITTU MISHRA',304),
    (30501,100000,'MANAGER','ANKIT ANAND',305),
    (30601,200000,'MANAGER','ROHAN BASU',306),
    (30502,56000,'COMPUTER TECH','MOHIBUL ISLAM',305),
    (30602,40000,'CLERK','MONORANJAN MODI',306),
    (30603,45000,'JR LIBRARIAN','RAJIV DEY',306);
```

EMP_ID	SALARY	DES	EMP_NAME	BRANCH_NO
30101	56000	SR LIBRARIAN	ROHAN ANAND	301
30102	40000	DATABASE MANAGER	RITESH MISHRA	301
30103	300000	MANAGER	RITESH KHAN	301
30201	66000	SR LIBRARIAN	NURUL HAQUE	302
30202	26000	CLERK	ANANDA DEY	302
30203	76000	MANAGER	SWARUP SARKAR	302
30204	16000	GUARDSMAN	SUPRATIM MISHRA	302
30301	86000	MANAGER	SANJAY YADAV	303
30302	36000	SR LIBRARIAN	TITU BISOI	303
30401	96000	MANAGER	PRADEEP RAOUTH	304
30402	40000	DATABASE MANAGER	BITTU MISHRA	304
30501	100000	MANAGER	ANKIT ANAND	305

Insertion into ISSUECARD Table:

INSERT INTO ISSUECARD VALUES
```
(6601,'2022-01-03',101,'IT',1230),
(6602,'2022-01-05',103,'MISERY',1233),
(6603,'2022-01-07',102,'HARRY POTTER',1231),
(6604,'2022-01-11',103,'MISERY',1239),
(6605,'2022-01-15',104,'THE SHINING',1240),
(6606,'2022-01-17',105,'SHERLOCK HOLMES',1241),
(6607,'2022-01-20',101,'IT',1232),
(6608,'2022-01-21',102,'HARRY POTTER',1232),
(6609,'2022-01-24',106,'WAR AND PEACE',1236),
(6610,'2022-01-26',107,'ROMEO AND JULIET',1237),
(6611,'2022-01-27',108,'THE GOOD BOATMAN',1238),
(6612,'2022-01-31',109,'TINTIN',1234),
(6613,'2022-02-03',110,'THE LORD OF THE RINGS',1235),
(6614,'2022-02-05',110,'THE LORD OF THE RINGS',1235),
(6615,'2022-02-10',109,'TINTIN',1230),
(6616,'2022-02-15',109,'TINTIN',1233),
(6617,'2022-02-19',107,'ROMEO AND JULIET',1237);
```

ISSUE_ID	ISSUE_DATE	ISBN	ISSUE_BOOK_NAME	CUSTOMER_ID
6601	2022-01-03	101	IT	1230
6602	2022-01-05	103	MISERY	1233
6603	2022-01-07	102	HARRY POTTER	1231
6604	2022-01-11	103	MISERY	1239
6605	2022-01-15	104	THE SHINING	1240
6606	2022-01-17	105	SHERLOCK HOLMES	1241
6607	2022-01-20	101	IT	1232
6608	2022-01-21	102	HARRY POTTER	1232
6609	2022-01-24	106	WAR AND PEACE	1236
6610	2022-01-26	107	ROMEO AND JULIET	1237
6611	2022-01-27	108	THE GOOD BOATMAN	1238
6612	2022-01-31	109	TINTIN	1234
6613	2022-02-03	110	THE LORD OF THE …	1235
6614	2022-02-05	110	THE LORD OF THE …	1235
6615	2022-02-10	109	TINTIN	1230
6616	2022-02-15	109	TINTIN	1233
6617	2022-02-19	107	ROMEO AND JULIET	1237

Insertion into RETURNCARD Table:

INSERT INTO RETURNCARD VALUES
        (7701,'2022-03-01',101,'IT',1230),
        (7702,'2022-03-03',103,'MISERY',1233),
        (7703,'2022-03-05',102,'HARRY POTTER',1231),
        (7704,'2022-03-07',103,'MISERY',1239),
        (7705,'2022-03-15' ,104,'THE SHINING',1240),
        (7706,'2022-03-17', 105,'SHERLOCK HOLMES',1241),
        (7707,'2022-03-20',101,'IT',1232),
        (7708,'2022-03-22',102,'HARRY POTTER',1232),
        (7709,'2022-03-29',106,'WAR AND PEACE',1236),
        (7710,'2022-03-31',107,'ROMEO AND JULIET',1237),
        (7711,'2022-04-01',108,'THE GOOD BOATMAN',1238),
        (7712,'2022-04-02',109,'TINTIN',1234),
        (7713,'2022-04-03',110,'THE LORD OF THE RINGS',1235),
        (7714,'2022-04-05',110,'THE LORD OF THE RINGS',1235),
        (7715,'2022-04-07',109,'TINTIN',1230),
        (7716,'2022-04-08',109,'TINTIN',1233),
        (7717,'2022-04-10',107,'ROMEO AND JULIET',1237);

RETURN_ID	RETURN_DATE	ISBN	RETURN_BOOK_NAME	CUSTOMER_ID
7701	2022-03-01	101	IT	1230
7702	2022-03-03	103	MISERY	1233
7703	2022-03-05	102	HARRY POTTER	1231
7704	2022-03-07	103	MISERY	1239
7705	2022-03-15	104	THE SHINING	1240
7706	2022-03-17	105	SHERLOCK HOLMES	1241
7707	2022-03-20	101	IT	1232
7708	2022-03-22	102	HARRY POTTER	1232
7709	2022-03-29	106	WAR AND PEACE	1236
7710	2022-03-31	107	ROMEO AND JULIET	1237
7711	2022-04-01	108	THE GOOD BOATMAN	1238
7712	2022-04-02	109	TINTIN	1234
7713	2022-04-03	110	THE LORD OF THE RI…	1235
7714	2022-04-05	110	THE LORD OF THE RI…	1235
7715	2022-04-07	109	TINTIN	1230
7716	2022-04-08	109	TINTIN	1233
7717	2022-04-10	107	ROMEO AND JULIET	1237