```sql
CREATE DATABASE Assignment_UPA
USE Assignment_UPA


CREATE TABLE department (dep_id varchar(50) primary key, Department varchar(50) );
select * FROM Department
insert into Department values ('A01','BSCIT')
insert into Department values ('A02','BBM')
insert into Department values ('AO3','MSCIT')
insert into Department values ('A04','Accounting')
insert into Department values ('A05','Admin')
insert into Department values ('A06','Marketing')
insert into Department values ('A07','IT')

--Student table
CREATE TABLE Student ( Roll varchar(10) primary key, Name varchar(30), Address
varchar(25), Phone varchar(10), Email varchar(64), department varchar(10));
INSERT INTO Student VALUES ('S1', 'Dilop Khadka', 'Samakhushi',
'9856457812','dilip.khadka1@gmail.com','BSc.IT');
INSERT INTO Student VALUES ('S2', 'Hari Sigdel', 'Putalisadak',
'9865412378','hari.sigdel2@gmail.com','BSc.IT');
INSERT INTO Student VALUES ('S3', 'Jhonny Shah', 'Battisputali',
'9814536980','jhonny.shah3@gmail.com','BSc.IT');
INSERT INTO Student VALUES ('S4', 'Kushal Dotel', 'Khumaltar',
'9815451536','dotel4@gmail.com','BBM');
INSERT INTO Student VALUES ('S5', 'Prem Shah', 'New-road',
'9815454536','prema@gmail.com','BBM');
INSERT INTO Student VALUES ('S6', 'Ubisha Sigdel', 'Maitidevi',
'9815001536','ubisha.sigdel6@gmail.com','BSc.IT');
INSERT INTO Student VALUES ('S7', 'Salin Magar', 'Maitighar',
'9815451536','salin7@gmail.com','MBA');
INSERT INTO Student VALUES ('S8', 'Bablu Yadav', 'Lagankhel',
'9800112233','bablu.yadav8@gmail.com','BBM');
INSERT INTO Student VALUES ('S9', 'Nalayak Desraj', 'Thapagaun',
'9815362538','nalayak9@gmail.com','MBA');
INSERT INTO Student VALUES ('S10', 'Aayushma Chettri', 'Anamnagar',
'9815451536','aayushma.acharya10@gmail.com','MBA');
select * from Student

--Employee table
CREATE TABLE Employee( Empid varchar(10) primary key, Name varchar(30), Address
varchar(25), Phone varchar(10), Email varchar(64), Department varchar(10));

INSERT INTO Employee VALUES ('E01','Binod Basyal', 'Koteshwor',
'9812345678','binod_upau01@gmail.com','Admin');
INSERT INTO Employee VALUES ('E02', 'Parsad yadav', 'Baneshwor',
'9887654321','parsad_upau02@gmail.com','Admin');
INSERT INTO Employee VALUES ('E03', 'Sita Karki', 'Minbhawan',
'9887654300','sitaadhikari_upau03@gmail.com','Admin');
INSERT INTO Employee VALUES ('E04', 'Laxmi Devkota', 'Maitidevi',
```

```
'9887600321','laxmidevkota_upau04@gmail.com','Accounts');
INSERT INTO Employee VALUES ('E05', 'Kushal Dotel', 'Shankhamul',
'9812341234','kushaldotel_upau05mail.com','Marketing');
INSERT INTO Employee VALUES ('E06', 'Alisha Bhatta', 'Balkot',
'9826548215','alishabhatta_upau06@gmail.com','Marketing');
INSERT INTO Employee VALUES ('E07', 'Arbin Limbu', 'Mid Thimi',
'9814528745','aarbinlimbu_upau07@gmail.com','Lab');
INSERT INTO Employee VALUES ('E08', 'Aditi Budathoki', 'Hattiban',
'9801357459','aditibudathoki_upau08@gmail.com','Library');
INSERT INTO Employee VALUES ('E09', 'Shristi Bhattrai', 'Sinamangal',
'9854201530','shristibhattrai_upau08@gmail.com','Management');
INSERT INTO Employee VALUES ('E10', 'Ritika Karki', 'Lagankhel',
'9894568025','ritikakarki_upau10@gmail.com','Marketing');
select * from Employee


--Bookstore Table
CREATE TABLE bookstore (bookid varchar(10) primary key, name varchar(50), ISBN
varchar(13),
available_quanity int, price int, publisher varchar(20), author varchar(20),
published_year int, category varchar(20), status varchar(10) Default Null);
INSERT INTO bookstore VALUES ('B01','Introduction to database',
'1234567891023',6,854,'Prentince Hall','C.J. Date',2019,'yellow','');
INSERT INTO bookstore VALUES ('B02','Introduction to computing',
'1234567894423',1,345,'White Hall','Ramez Elmarsi',2009,'red','');
INSERT INTO bookstore VALUES ('B03','Introduction to SQL',
'1234560001023',3,678,'Roadheat Publication','Ramez Elmarsi',2011,'green','');
INSERT INTO bookstore VALUES ('B04','Introduction to graph database',
'1235667891023',4,340,'Blockchart Hall','C.J. Date',1989,'open','');
INSERT INTO bookstore VALUES ('B05','Relational DBMS',
'1234111891023',2,460,'Blockchart Hall','C.J. Date',2015,'yellow','');
INSERT INTO bookstore VALUES ('B06','Computational Database',
'9994567891023',3,1450,'White Hall','Ramez Elmarsi',2019,'green','');
INSERT INTO bookstore VALUES ('B07','Oracle 11g', '1234567891999',2,250,'Weasly
addision','Thomas Conolly',2006,'red','');
INSERT INTO bookstore VALUES ('B08','Post gre SQL', '1234567781023',1,750,'Magic
house','Thomas Conolly',2019,'open','');
INSERT INTO bookstore VALUES ('B09','Data visualization for beginners',
'1234567891023',2,450,'White Hall','Thomas Conolly',1999,'yellow','');
INSERT INTO bookstore VALUES ('B10','Complete computing',
'1234567891123',2,1450,'Prentince Hall','C.J. Date',2019,'green','');
INSERT INTO bookstore VALUES ('B11','Computing maths',
'1234067891123',2,18750,'Prentice Hall','William',2019,'green','reserve');
select * from bookstore



UPDATE bookstore SET author = 'Thomas Connolly' where author = 'Thomas Conolly'
UPDATE bookstore SET author = 'Ramiz Elmarsi' where author = 'Ramez Elmarsi'

--Bookissue Student Table
CREATE TABLE bookissue_student( bookid varchar(10), roll varchar(10), issued_by
```

```sql
varchar(30),issued_date DATETIME DEFAULT current_timestamp,
FOREIGN KEY(bookid) REFERENCES bookstore(bookid),FOREIGN KEY(roll) REFERENCES
student(roll));
INSERT INTO bookissue_student VALUES('B01', 'S1', 'Silviya', '2022-01-29');
INSERT INTO bookissue_student VALUES('B02', 'S1', 'Silviya', '2022-02-02');
INSERT INTO bookissue_student VALUES('B04', 'S1', 'Silviya', '2022-02-02');
INSERT INTO bookissue_student VALUES('B05', 'S1', 'Silviya', '2022-02-02');
INSERT INTO bookissue_student VALUES('B03', 'S1', 'Silviya', '2022-02-03');
INSERT INTO bookissue_student VALUES('B06', 'S2', 'Silviya', '2022-02-13');
INSERT INTO bookissue_student VALUES('B01', 'S3', 'Silviya', '2022-02-15');
INSERT INTO bookissue_student VALUES('B09', 'S4', 'Silviya', '2022-02-15');
INSERT INTO bookissue_student VALUES('B01', 'S6', 'Silviya', '2022-02-15');
INSERT INTO bookissue_student VALUES('B01', 'S9', 'Silviya', '2022-02-25');
INSERT INTO bookissue_student VALUES('B02', 'S3', 'Silviya', '2022-02-25');
select * from bookissue_student


CREATE TABLE bookreturn_student( bookid varchar(10), roll varchar(10), retruned_to
varchar(30),returned_date DATETIME DEFAULT current_timestamp,
FOREIGN KEY(bookid) REFERENCES bookstore(bookid),FOREIGN KEY(roll) REFERENCES
student(roll));
INSERT INTO bookreturn_student VALUES('B01', 'S9', 'Ram', '2022-04-17');
INSERT INTO bookreturn_student VALUES('B02', 'S3', 'Ram', '2022-03-07');
select * from bookreturn_student


CREATE TABLE bookissue_employee( bookid varchar(10), empid varchar(10), issued_by
varchar(30),issued_date DATETIME DEFAULT current_timestamp,
FOREIGN KEY(bookid) REFERENCES bookstore(bookid),FOREIGN KEY(empid) REFERENCES
employee(empid));

INSERT INTO bookissue_employee VALUES('B05', 'E04', 'Silviya', '2022-01-29');
INSERT INTO bookissue_employee VALUES('B02', 'E04', 'Silviya', '2022-02-02');
INSERT INTO bookissue_employee VALUES('B04', 'E04', 'Silviya', '2022-02-02');
INSERT INTO bookissue_employee VALUES('B07', 'E04', 'Silviya', '2022-02-03');
INSERT INTO bookissue_employee VALUES('B03', 'E04', 'Silviya', '2022-02-04');
INSERT INTO bookissue_employee VALUES('B06', 'E04', 'Silviya', '2022-02-14');
INSERT INTO bookissue_employee VALUES('B01', 'E06', 'Silviya', '2022-02-15');
INSERT INTO bookissue_employee VALUES('B09', 'E04', 'Silviya', '2022-02-16');
INSERT INTO bookissue_employee VALUES('B01', 'E06', 'Silviya', '2022-02-17');
INSERT INTO bookissue_employee VALUES('B10', 'E09', 'Silviya', '2022-02-24');
INSERT INTO bookissue_employee VALUES('B02', 'E09', 'Silviya', '2022-02-25');
select * from bookissue_employee


CREATE TABLE bookreturn_employee( bookid varchar(10), empid varchar(10), retruned_to
varchar(30),returned_date DATETIME DEFAULT current_timestamp,
FOREIGN KEY(bookid) REFERENCES bookstore(bookid),FOREIGN KEY(empid) REFERENCES
employee(empid));
```

```sql
INSERT INTO bookreturn_employee VALUES('B02', 'E09', 'Ram', '2022-04-07');
INSERT INTO bookreturn_employee VALUES('B06', 'E04', 'Ram', '2022-04-07');
select * from bookreturn_employee

CREATE TABLE reservation ( bookid varchar(10), roll varchar(10), reserved_by
varchar(30),reserved_date DATETIME DEFAULT current_timestamp,
FOREIGN KEY(bookid) REFERENCES bookstore(bookid),FOREIGN KEY(roll) REFERENCES
student(roll));

INSERT INTO reservation VALUES('B02', 'S2', 'Ram', '2022-04-07');
INSERT INTO reservation VALUES('B02', 'S5', 'Ram', '2022-04-08');
INSERT INTO reservation VALUES('B03', 'S3', 'Ram', '2022-04-09');
INSERT INTO reservation VALUES('B04', 'S1', 'Ram', '2022-04-09');
INSERT INTO reservation VALUES('B09', 'S10', 'Ram', '2022-04-17');
select * from reservation


--Fine Table
CREATE TABLE fine(fine_id varchar(10) PRIMARY KEY, roll varchar(10), bookid
varchar(10), amount int, finedate DATE DEFAULT(GETDATE()) ,
FOREIGN KEY (roll) REFERENCES student(roll),
FOREIGN KEY (bookid) REFERENCES bookstore(bookid));

INSERT INTO fine VALUES ('f1','S1', 'B01', 1000, '');
INSERT INTO fine VALUES ('f2', 'S1','B02', 700, '');
INSERT INTO fine VALUES ('f3', 'S1','B04', 300, '');
INSERT INTO fine VALUES ('f5', 'S1','B05', 300, '');
INSERT INTO fine VALUES ('f6', 'S1','B03', 400, '');
INSERT INTO fine VALUES ('f7', 'S2','B06', 700, '');
INSERT INTO fine VALUES ('f8', 'S3','B01', 300, '');
INSERT INTO fine VALUES ('f9', 'S6','B01', 300, '');
INSERT INTO fine VALUES ('f4', 'S4','B09', 1500, '');
select * from fine


alter authorization on database::University_assignment_UPA  to [sa]



--QUERIES

--1

SELECT bookissue_student.roll AS Member_id,
count(distinct(bookissue_student.bookid)) AS Books_issued,
count(distinct(bookreturn_student.bookid)) AS Books_returend,
(count(distinct(bookissue_student.bookid))-count(distinct(bookreturn_student.bookid)
)) AS currently_loaned
from bookissue_student
FULL OUTER JOIN bookreturn_student ON bookissue_student.roll =
```

```sql
bookreturn_student.roll
group by bookissue_student.roll
having
(count(distinct(bookissue_student.bookid))-count(distinct(bookreturn_student.bookid)
))>2
UNION
SELECT bookissue_employee.empid AS Member_id,
count(distinct(bookissue_employee.bookid)) AS Books_issued,
count(distinct(bookreturn_employee.bookid)) AS Books_returend,
(count(distinct(bookissue_employee.bookid))-count(distinct(bookreturn_employee.booki
d))) AS currently_loaned
from bookissue_employee
FULL OUTER JOIN bookreturn_employee ON bookissue_employee.empid =
bookreturn_employee.empid
group by bookissue_employee.empid
having
(count(distinct(bookissue_employee.bookid))-count(distinct(bookreturn_employee.booki
d)))>2


--2

SELECT category, COUNT(DISTINCT name) AS Total_Books from bookstore
GROUP BY category

SELECT category, bookstore.name AS Total_Books from bookstore
GROUP BY category, bookstore.name
ORDER BY category, name DESC

--no.3(done)

SELECT name AS Title, publisher FROM bookstore
WHERE author = 'Thomas Connolly' OR author = 'Ramiz Elmarsi';

SELECT bookissue_student.roll AS Member_ID, student.name AS
Member_Name,bookissue_student.bookid AS Book_ID, bookstore.name AS Title,
bookstore.status
FROM bookissue_student
INNER JOIN student ON bookissue_student.roll = student.roll
INNER JOIN bookstore ON bookissue_student.bookid = bookstore.bookid
WHERE CONCAT(bookissue_student.bookid,bookissue_student.roll) NOT IN (SELECT
CONCAT(bookid, roll) FROM bookreturn_student)
UNION
SELECT e.empid, e.name, i.bookid,b.name, b.status
FROM bookissue_employee AS i
INNER JOIN employee AS e ON i.empid = e.empid
INNER JOIN bookstore AS b ON i.bookid =b.bookid
WHERE CONCAT(i.bookid,i.empid) NOT IN (SELECT CONCAT(bookid, empid) FROM
bookreturn_employee)
```

```
--4
SELECT reservation.roll AS Member_ID, student.name AS Member_Name,reservation.bookid
AS Book_ID, bookstore.name AS Title, bookstore.status
FROM reservation
INNER JOIN student ON reservation.roll = student.roll
INNER JOIN bookstore ON reservation.bookid = bookstore.bookid

--5

SELECT student.department AS Department, COUNT(DISTINCT bookissue_student.bookid) AS
Num_Books FROM bookissue_student,student
WHERE bookissue_student.roll = student.roll
GROUP BY student.department
UNION
SELECT employee.department AS Department, COUNT(DISTINCT bookissue_employee.bookid)
FROM bookissue_employee,employee
WHERE bookissue_employee.empid = employee.empid
GROUP BY employee.department


--no.6 (done)
SELECT bookissue_student.roll, student.name,bookstore.name, bookstore.publisher FROM
bookissue_student
INNER JOIN student ON bookissue_student.roll = student.roll
INNER JOIN bookstore ON bookissue_student.bookid = bookstore.bookid
WHERE bookissue_student.bookid IN (SELECT bookid FROM bookstore WHERE author = 'C.J.
Date')
UNION
SELECT bookissue_employee.empid, employee.name, bookstore.name, bookstore.publisher
FROM bookissue_employee
INNER JOIN employee ON bookissue_employee.empid = employee.empid
INNER JOIN bookstore ON bookissue_employee.bookid = bookstore.bookid
WHERE bookissue_employee.bookid IN (SELECT bookid FROM bookstore WHERE author =
'C.J. Date');


--no.7(done)
SELECT * FROM bookstore
WHERE name LIKE '%Computing%' AND publisher = 'Prentice Hall' AND published_year =
2019;

--no.8  (done)   students who have not borrowed book ever or from 3 months are
inactive
SELECT * FROM student WHERE roll NOT IN (SELECT roll FROM bookissue_student WHERE
DATEDIFF(month,issued_date,GETDATE()) < 3)

--9
SELECT fine.roll AS Member_ID, student.Name AS Member_Name, fine.bookid AS Book_ID,
bookstore.name AS Title, fine.amount FROM fine
```

```sql
INNER JOIN student ON fine.roll = student.roll
INNER JOIN bookstore ON fine.bookid = bookstore.bookid


--no.10(done)
(SELECT bookissue_student.roll AS Member_Id,student.name AS Member_Name,
COUNT(DISTINCT bookid) AS Num_Books FROM bookissue_student, student
WHERE bookissue_student.roll = student.roll
GROUP BY bookissue_student.roll,student.name
HAVING COUNT(DISTINCT bookid) >= 5)
UNION
(SELECT bookissue_employee.empid,employee.name, COUNT(DISTINCT bookid) FROM
bookissue_employee, employee
WHERE bookissue_employee.empid = employee.empid
GROUP BY bookissue_employee.empid,employee.name
HAVING COUNT(DISTINCT bookid) >= 5)

ORDER BY Member_Name


--no.11(Done)

SELECT publisher, category FROM bookstore WHERE category IN('red','yellow')
ORDER BY publisher


--no.12(done)

SELECT bookissue_student.roll, student.name,bookstore.name, bookstore.publisher FROM
bookissue_student
INNER JOIN student ON bookissue_student.roll = student.roll
INNER JOIN bookstore ON bookissue_student.bookid = bookstore.bookid
WHERE bookissue_student.bookid IN (SELECT bookid FROM bookstore WHERE name LIKE
'%Database%')
UNION
SELECT bookissue_employee.empid, employee.name, bookstore.name, bookstore.publisher
FROM bookissue_employee
INNER JOIN employee ON bookissue_employee.empid = employee.empid
INNER JOIN bookstore ON bookissue_employee.bookid = bookstore.bookid
WHERE bookissue_employee.bookid IN (SELECT bookid FROM bookstore WHERE name LIKE
'%Database%')
```