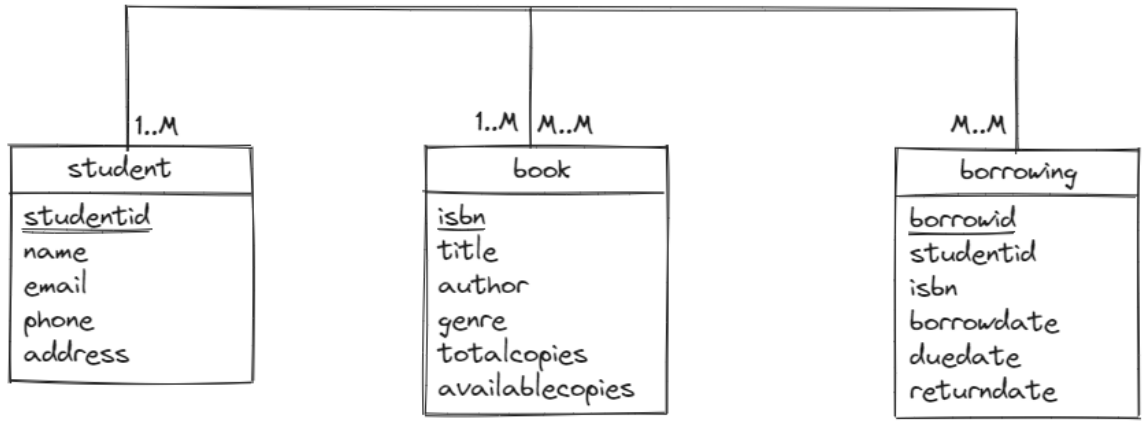
Answer Script

Question No. 1
Make an ER Diagram of this Schema
Answer No. 1


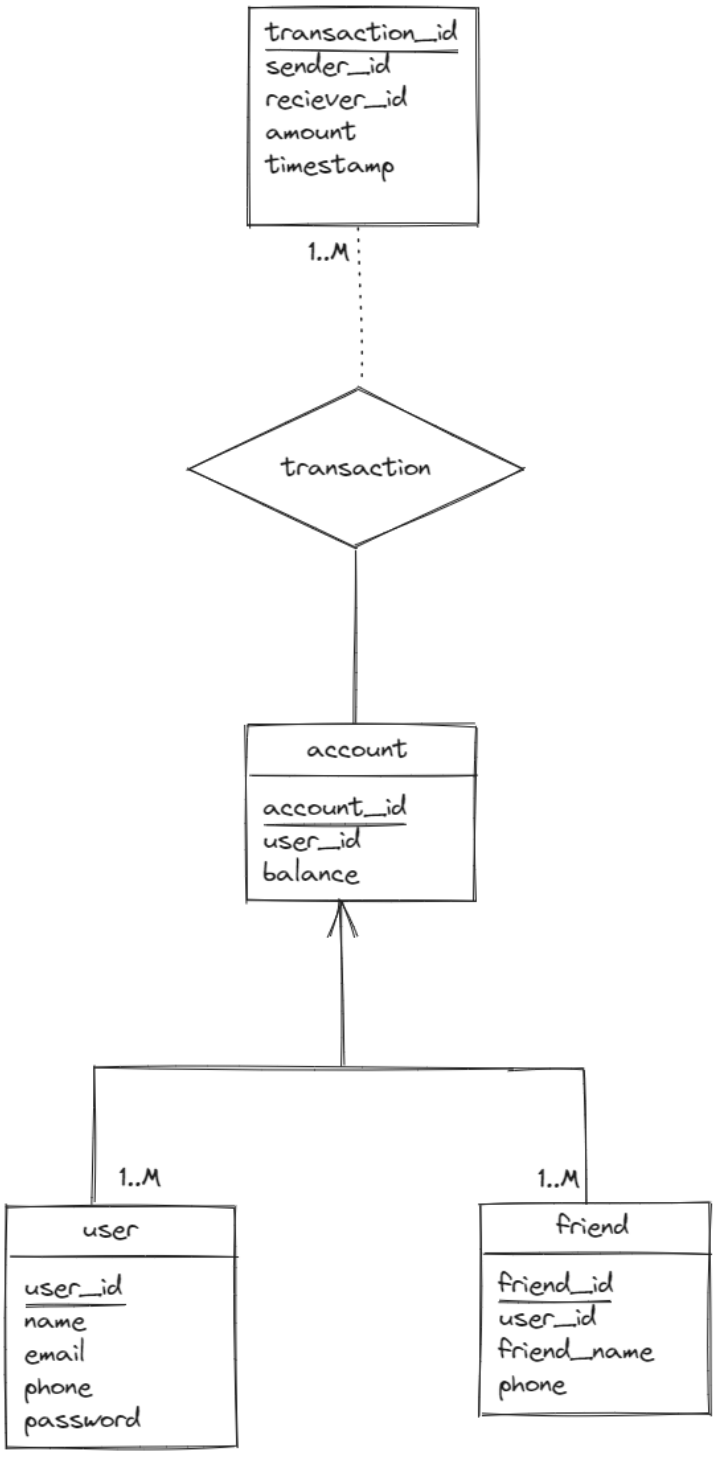
Question No. 2
Insert a new borrowing record for a student (e.g., StudentID 3) for a book with the most available copies.
Answer No. 2
INSERT INTO borrowing (studentid, isbn, borrowdate, duedate) SELECT 3, isbn, '2023-11-11', '2023-11-25' FROM book ORDER BY availablecopies DESC LIMIT 1;

Question No. 3
Using Update Query, decrease the available copies of a book (e.g., ISBN '9781234567890') by 1 when a student borrows it.
Answer No. 3
UPDATE book SET availablecopies = availablecopies - 1 WHERE isbn = '9781234567890';

Question No. 4
Retrieve the names of students who have borrowed the most books.
Answer No. 4
SELECT s.name FROM student AS s JOIN borrowing AS b ON s.studentid = b.studentid GROUP BY s.studentid ORDER BY COUNT(*) DESC LIMIT 1;

Question No. 5
Retrieve the books that are overdue (i.e., the return date is before the current date).
Answer No. 5
SELECT * FROM borrowing WHERE returndate IS NULL AND duedate < CURDATE();

Question No. 6
You want to make a mobile banking platform for sending and receiving money from your friends. Make an ERD of this system. (Keep it simple)
Answer No. 6



Relationship:
User - Friend (Many-to-Many)
Account - Transaction (One-to-Many)
User - Friend (Many-to-Many)

Question No. 7
Explain UNION and UNION ALL set operations in MySQL
Answer No. 7
In MySQL, the UNION and UNION ALL set operations are used to combine the result sets of two or more SELECT statements into a single result set. The UNION set operator removes duplicate rows from the combined result set and automatically performs a sorting operation in ascending order. The UNION ALL set operator does not remove duplicate rows from the combined result set and also it does not perform any sorting.

Question No. 8
There is a table named Employee. In that table there is a field named Salary. Determine the second lowest salary.
Answer No. 8

SELECT MIN(salary)
FROM employees
WHERE salary > (
  SELECT MIN(salary)
  FROM employees
);

Question No. 9
There are tables named Employee, Job History, Department. a. Use ON DELETE CASCADE on Job History for deleting Employee b. Use ON DELETE SET NULL on Employee for deleting Department
Answer No. 9

```
CREATE TABLE employee (
        employee_id VARCHAR(4) PRIMARY KEY,
        department_id VARCHAR(4) NOT NULL,
        FOREIGN KEY (department_id) REFERENCES department (department_id)
        ON DELETE SET NULL
);

CREATE TABLE JobHistory (
        employee_id VARCHAR(4) NOT NULL,
        start_date DATE,
        end_date DATE,
        job_id VARCHAR(4) NOT NULL,
        department_id VARCHAR(4),
        FOREIGN KEY (employee_id) REFERENCES employee (employee_id)
        ON DELETE CASCADE
);

CREATE TABLE department (
        department_id VARCHAR(4) PRIMARY KEY,
        department_name VARCHAR(50) NOT NULL
);
```

Question No. 10
In this course, which topic you found most interesting. Explain the topic in short and why you found it most interesting?
Answer No. 10
In this course, The most interesting topic for me was ER Diagram. ERD basically lets me think logically and visualize a model, then based on that model I would easily design a database schema. ERD uses symbols to represent entities, relations, attributes and relationships between entities. It ensures my database is organized efficiently, it also solves redundancy problems.