S1

Problem Statement:

Consider Relations: Account(acc_no, branch_name, balance), Branch(branch_name, branch_city, assets), Customer(cust_name, cust_street, cust_city), Depositor(cust_name, acc_no), Loan(loan_no, branch_name, amount), Borrower(cust_name, loan_no). Create tables with constraints and answer queries.

Code:

```sql
-- S1: Create tables (MySQL) and queries
CREATE TABLE Branch (
  branch_name VARCHAR(100) PRIMARY KEY,
  branch_city VARCHAR(100) NOT NULL,
  assets DECIMAL(18,2) DEFAULT 0
);

CREATE TABLE Account (
  acc_no INT PRIMARY KEY,
  branch_name VARCHAR(100) NOT NULL,
  balance DECIMAL(15,2) NOT NULL DEFAULT 0,
  FOREIGN KEY (branch_name) REFERENCES Branch(branch_name)
);

CREATE TABLE Customer (
  cust_name VARCHAR(100) PRIMARY KEY,
  cust_street VARCHAR(150),
  cust_city VARCHAR(100)
);

CREATE TABLE Depositor (
  cust_name VARCHAR(100),
  acc_no INT,
  PRIMARY KEY (cust_name, acc_no),
  FOREIGN KEY (cust_name) REFERENCES Customer(cust_name),
  FOREIGN KEY (acc_no) REFERENCES Account(acc_no)
);

CREATE TABLE Loan (
  loan_no INT PRIMARY KEY,
  branch_name VARCHAR(100) NOT NULL,
  amount DECIMAL(15,2) NOT NULL,
  FOREIGN KEY (branch_name) REFERENCES Branch(branch_name)
);

CREATE TABLE Borrower (
  cust_name VARCHAR(100),
  loan_no INT,
  PRIMARY KEY (cust_name, loan_no),
  FOREIGN KEY (cust_name) REFERENCES Customer(cust_name),
  FOREIGN KEY (loan_no) REFERENCES Loan(loan_no)
);

-- Queries:
-- 1. Names of all branches in loan relation
SELECT DISTINCT branch_name FROM Loan;

-- 2. Loan numbers for loans at 'Wadia College' with amount > 12000
```

```sql
SELECT loan_no FROM Loan
WHERE branch_name = 'Wadia College' AND amount > 12000;


-- 3. Customers who have a loan: name, loan_no, loan amount
SELECT b.cust_name, l.loan_no, l.amount
FROM Borrower b
JOIN Loan l ON b.loan_no = l.loan_no;


-- 4. Customers in alphabetical order who have loan from 'Wadia College'
SELECT DISTINCT b.cust_name
FROM Borrower b
JOIN Loan l ON b.loan_no = l.loan_no
WHERE l.branch_name = 'Wadia College'
ORDER BY b.cust_name ASC;


-- 5. Distinct cities of branch
SELECT DISTINCT branch_city FROM Branch;
```