

ECE 467 Assignment 2: SQL Schema

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1. CREATE TABLE Statements

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CREATE TABLE PUBLISHER (  
    Name          VARCHAR(50) PRIMARY KEY,  
    Address       VARCHAR(100),  
    Phone         VARCHAR(15)  
);  
  
CREATE TABLE BOOK (  
    Book_id       INTEGER      PRIMARY KEY,  
    Title         VARCHAR(100) NOT NULL,  
    Publisher_name VARCHAR(50),  
    CONSTRAINT fk_book_publisher  
        FOREIGN KEY (Publisher_name)  
        REFERENCES PUBLISHER(Name)  
        ON DELETE SET NULL  
        ON UPDATE CASCADE  
);  
  
CREATE TABLE BOOK_AUTHORS (  
    Book_id       INTEGER,  
    Author_name   VARCHAR(50) NOT NULL,  
    PRIMARY KEY (Book_id, Author_name),  
    CONSTRAINT fk_bookauthors_book  
        FOREIGN KEY (Book_id)  
        REFERENCES BOOK(Book_id)  
        ON DELETE CASCADE  
        ON UPDATE CASCADE  
);  
  
CREATE TABLE LIBRARY_BRANCH (  
    Branch_id     INTEGER      PRIMARY KEY,  
    Branch_name   VARCHAR(50) NOT NULL,  
    Address       VARCHAR(100)  
);  
  
CREATE TABLE BORROWER (  
    Card_no       INTEGER      PRIMARY KEY,  
    Name          VARCHAR(50) NOT NULL,  
    Address       VARCHAR(100),  
    Phone         VARCHAR(15)  
);  
  
CREATE TABLE BOOK_COPIES (  
    Book_id       INTEGER,  
    Branch_id     INTEGER,
```

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    No_of_copies    INTEGER,
    PRIMARY KEY (Book_id, Branch_id),
    CONSTRAINT fk_bookcopies_book
        FOREIGN KEY (Book_id)
        REFERENCES BOOK(Book_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_bookcopies_branch
        FOREIGN KEY (Branch_id)
        REFERENCES LIBRARY_BRANCH(Branch_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

CREATE TABLE BOOK_LOANS (
    Book_id    INTEGER,
    Branch_id  INTEGER,
    Card_no    INTEGER,
    Date_out   DATE,
    Due_date   DATE,
    PRIMARY KEY (Book_id, Branch_id, Card_no, Date_out),
    CONSTRAINT fk_bookloans_book
        FOREIGN KEY (Book_id)
        REFERENCES BOOK(Book_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_bookloans_branch
        FOREIGN KEY (Branch_id)
        REFERENCES LIBRARY_BRANCH(Branch_id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    CONSTRAINT fk_bookloans_borrower
        FOREIGN KEY (Card_no)
        REFERENCES BORROWER(Card_no)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

```

2. INSERT Statements

INSERT INTO PUBLISHER VALUES

```

('Miami_Sports_Publishing', '123_Biscayne_Bldv,_Miami,_FL', '305-555-1234'),
('Heat_Books_Inc', '456_Ocean_Drive,_Miami,_FL', '305-555-5678');

```

INSERT INTO BOOK VALUES

```

(101, 'Heat_on_Fire:_The_Rise_of_Miami', 'Miami_Sports_Publishing'),
(102, 'Defense_and_Offense:_Miami's_Winning_Formula', 'Miami_Sports_Publishing'),
(103, 'Coaching_Genius:_The_Miami_Playbook', 'Heat_Books_Inc');

```

INSERT INTO BOOK_AUTHORS VALUES

```

(101, 'Pat_Riley'),
(102, 'Erik_Spoelstra'),
(102, 'Jimmy_Butler'),
(103, 'Pat_Riley');

```

INSERT INTO LIBRARY_BRANCH VALUES

```

(1, 'Miami_Heat_Central', '600_Biscayne_Bldv,_Miami,_FL'),

```

```

(2, 'South_Beach_Branch', '789_Ocean_Drive,_Miami,_FL');

INSERT INTO BORROWER VALUES
(1001, 'Dwyane_Wade', '1000_Basketball_Ln,_Miami,_FL', '305-555-0001'),
(1002, 'Goran_Dragic', '2000_Hoops_Ave,_Miami,_FL', '305-555-0002');

INSERT INTO BOOK_COPIES VALUES
(101, 1, 3),
(102, 1, 2),
(103, 2, 4);

INSERT INTO BOOK_LOANS VALUES
(101, 1, 1001, '2025-02-15', '2025-03-15'),
(102, 1, 1002, '2025-02-16', '2025-03-16');

```

3. UPDATE (MODIFY) Statements

```

UPDATE BOOK
SET Title = 'Heat_on_Fire:_The_Rise_of_Miami_(Revised_Edition)'
WHERE Book_id = 101;

UPDATE BOOK_AUTHORS
SET Author_name = 'Jimmy_B._Butler'
WHERE Book_id = 102 AND Author_name = 'Jimmy_Butler';

UPDATE PUBLISHER
SET Phone = '305-555-9999'
WHERE Name = 'Heat_Books_Inc';

```

4. DELETE Statements

```

DELETE FROM BOOK_COPIES
WHERE Book_id = 102 AND Branch_id = 1;

DELETE FROM BOOK_LOANS
WHERE Book_id = 102 AND Branch_id = 1 AND Card_no = 1002;

DELETE FROM LIBRARY_BRANCH
WHERE Branch_id = 2;

DELETE FROM BORROWER
WHERE Card_no = 1002;

```