Assignment-1

# Question #1

## Screenshots:

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## Schema:

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| CREATE DATABASE LibraryManagementSystem;  USE LibraryManagementSystem;  CREATE TABLE Book(  Book\_Id INT PRIMARY KEY NOT NULL AUTO\_INCREMENT UNIQUE,  Title VARCHAR(50) NOT NULL,  Publisher\_Name VARCHAR(50) NOT NULL  );  CREATE TABLE Publisher(  Publisher\_Name VARCHAR(50) PRIMARY KEY NOT NULL,  Address VARCHAR(50) DEFAULT 'NA',  Phone VARCHAR(20) NULL  );  ALTER TABLE Book ADD FOREIGN KEY(Publisher\_Name) REFERENCES Publisher(Publisher\_Name) ON DELETE RESTRICT;    CREATE TABLE Book\_Authors(  Author\_Name VARCHAR(50) PRIMARY KEY NOT NULL,  Book\_Id INT NOT NULL,  FOREIGN KEY (Book\_Id) REFERENCES Book(Book\_Id) ON DELETE CASCADE  );  CREATE TABLE Borrower(  Card\_Number VARCHAR(50) PRIMARY KEY NOT NULL,  Borrower\_Name VARCHAR(50) NOT NULL,  Address VARCHAR(50) DEFAULT 'NA',  Phone VARCHAR(20) NOT NULL  );  CREATE TABLE Library\_Branch(  Branch\_Id INT PRIMARY KEY AUTO\_INCREMENT UNIQUE,  Branch\_Name VARCHAR(50) NOT NULL,  Address VARCHAR(50) DEFAULT 'NA'  );  CREATE TABLE Book\_Copies(  Book\_Id INT NOT NULL,  FOREIGN KEY(Book\_Id) REFERENCES Book(Book\_Id) ON DELETE CASCADE,  Branch\_Id INT NOT NULL,  FOREIGN KEY(Branch\_Id) REFERENCES Library\_Branch(Branch\_Id) ON DELETE CASCADE,  No\_of\_Copies INT NOT NULL  );  CREATE TABLE Book\_Loans(  Branch\_Id INT NOT NULL, FOREIGN KEY(Branch\_Id) REFERENCES Library\_Branch(Branch\_Id) ON DELETE CASCADE,  Book\_Id INT NOT NULL, FOREIGN KEY(Book\_Id) REFERENCES Book(Book\_Id) ON DELETE CASCADE,  Card\_Number VARCHAR(50) NOT NULL, FOREIGN KEY(Card\_Number) REFERENCES Borrower(Card\_Number),  Date\_Out DATE, Due\_Date DATE  ); |

# Question #2

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## Question #3

## 1.

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| SELECT \* FROM Borrower  WHERE Address LIKE '%lahore%' AND Phone IS NOT NULL; |
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## 2.

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| SELECT B.Title  FROM Book B  JOIN Book\_Copies C on B.Book\_Id = C.Book\_Id  WHERE C.No\_of\_Copies < 10; |
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## 3.

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| SELECT LB.Branch\_Name, B.Title, C.No\_of\_Copies  FROM (Book B JOIN Book\_Copies C on B.Book\_Id = C.Book\_Id)  JOIN Library\_Branch LB on LB.Branch\_Id = C.Branch\_Id; |
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## 4.

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| SELECT BR.Borrower\_Name  FROM Book\_Loans BL  JOIN Book B ON B.Book\_Id = BL.Book\_Id  JOIN Borrower BR ON BR.Card\_Number = BL.Card\_Number  WHERE B.Title = 'The Kite Runner'; |
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## 5.

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| SELECT BR.Borrower\_Name  FROM (Library\_Branch LB JOIN Book\_Loans BL on LB.Branch\_Id = BL.Branch\_Id)  JOIN Borrower BR ON BR.Card\_Number = BL.Card\_Number where LB.Address LIKE '%karachi%'; |
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## 6.

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| SELECT B.Title, A.Author\_Name FROM Publisher P  Join Book B On B.Publisher\_Name = P.Publisher\_Name  Join Book\_Authors A On A.Book\_Id = B.Book\_Id  Where P.Publisher\_Name = 'Rehman Publishers'; |
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## 7.

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| SELECT P.Publisher\_Name  FROM BOOK B  JOIN Publisher P ON B.Publisher\_Name = P.Publisher\_Name  WHERE B.Title = 'Alchemist' AND P.Phone IS NOT NULL; |
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## 8.

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| SELECT BR.Borrower\_Name, BR.Address, B.Title  FROM Book\_Loans BL  JOIN Book B ON B.Book\_Id = BL.Book\_Id  JOIN Borrower BR ON BR.Card\_Number = BL.Card\_Number  JOIN Library\_Branch LB ON LB.Branch\_Id = BL.Branch\_Id  WHERE BL.Due\_Date = current\_date() and LB.Branch\_Name = 'Iqbal Town branch'; |
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## 9.

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| SELECT B.Title  FROM Book\_Loans BL  JOIN Book B ON B.Book\_Id = BL.Book\_Id  WHERE monthname(BL.Due\_Date) = 'September'; |
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## 10.

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| SELECT LB.Branch\_Name  FROM Book\_Loans BL  JOIN Borrower BR ON BR.Card\_Number = BL.Card\_Number  JOIN Library\_Branch LB ON LB.Branch\_Id = BL.Branch\_Id  WHERE BR.Borrower\_Name = 'Ali Ahsan Khan'; |
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