Post Graduate Diploma in Advanced Computing (PG-DAC)

August 2025 Batch

Lab Assessment

Module: Database Technologies

Date & Time: 29 Sep 2025, 1600 hrs - -1800 hrs

Duration: 2 hrs

MySQL Table Creation and Data

```
CREATE TABLE Customers (
    customer_id INT PRIMARY KEY,
    name VARCHAR(50),
    age INT,
    join_date DATE
);
```

```
CREATE TABLE Orders (
    order_id INT PRIMARY KEY,
    customer_id INT,
    product VARCHAR(50),
    quantity INT,
    price DECIMAL(10,2),
    order_date DATE,
    FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)
);
```

INSERT INTO Customers VALUES

(301, 'Arun', 28, '2021-02-10'),

(302, 'Meena', 25, '2020-11-05'),

(303, 'Ravi', 30, '2022-01-15'),

(304, 'Divya', 26, '2021-07-20'),

(305, 'Kiran', 27, '2023-03-05'),

(306, 'Sonia', 29, '2022-09-10');

INSERT INTO Orders VALUES

(401, 301, 'Laptop', 2, 60000, '2023-01-10'),

(402, 302, 'Mobile', 1, 25000, '2023-02-15'),

(403, 303, 'Tablet', 3, 18000, '2023-03-20'),

(404, 304, 'Headphones', 1, 2000, '2023-04-05'),

(405, 305, 'Laptop', 2, 60000, '2023-05-12'),

(406, 301, 'Tablet', 1, 18000, '2023-06-01'),

(407, 302, 'Headphones', 2, 2000, '2023-06-15');

SQL Problem Statements

Q1. List all books published after 2020. -- 2 Marks

Q2. Display all borrowers who borrowed books in March 2023. -- 2 Marks

Q3. Show all books priced more than 600. -- 2 Marks

Q4. Display all borrowers whose return_date is NULL (not yet returned). -- 2 Marks

Q5. Find the average price of books by each author. -- 4 Marks

Q6. Display the total number of books borrowed by each borrower. -- 4 Marks

Q7. Show the most expensive book borrowed by each borrower. -- 4 Marks

Q8. Write a stored procedure GetBorrowerCountByBook that takes a book ID as IN parameter and returns the number of borrowers for that book as OUT parameter. -- 5 Marks

Q9. Write a function LateFee that takes number of delayed days as input and returns the fine amount (assume Rs.10 per day). -- 5 Marks

MongoDB Sample Data (**orders** collection)

MongoDB Sample Data (borrowers collection)

[

 { "borrower_id": 601, "name": "Arun", "book": "Data Science Essentials", "borrow_date": "2023-01-15", "return_date": "2023-02-15" },

 { "borrower_id": 602, "name": "Meena", "book": "AI Revolution", "borrow_date": "2023-03-01", "return_date": "2023-03-20" },

 { "borrower_id": 603, "name": "Ravi", "book": "Cloud Computing Basics", "borrow_date": "2023-02-10", "return_date": "2023-02-28" },

 { "borrower_id": 604, "name": "Divya", "book": "Database Systems", "borrow_date": "2023-04-05", "return_date": "2023-04-25" },

 { "borrower_id": 605, "name": "Kiran", "book": "Java Programming", "borrow_date": "2023-05-12", "return_date": null },

 { "borrower_id": 606, "name": "Sonia", "book": "Machine Learning Guide", "borrow_date": "2023-06-01", "return_date": "2023-06-30" }

]

MongoDB Problem Statements

Q10. Display all borrow records of borrower "Arun". -- 2 Marks

Q11. Find all books borrowed after "2023-03-01". -- 2 Marks

Q12. Display all borrowers who borrowed either "AI Revolution" or "Database Systems". -- 2 Marks

Q13. Show only the borrower name and book title. -- 2 Marks

Q14. Use an aggregate function to count how many total books have been borrowed. -- 2 Marks