**Task 4: Aggregate Functions and Grouping (Library Management System)**

**Objective:** Use aggregate functions and grouping to summarize data  
**Tools:** DB Browser for SQLite / MySQL Workbench  
**Deliverables:** SQL queries using SUM, COUNT, AVG, GROUP BY  
**Outcome:** Ability to summarize and analyze tabular data

**Sample Tables (From Previous Task)**

Books(BookID, Title, Author, Category, Price, Availability)

Members(MemberID, Name, Age, MembershipType, JoinDate)

Borrow(BorrowID, MemberID, BookID, BorrowDate, ReturnDate)

**SQL Queries and Output**

**1. Total number of books in the library**

SELECT COUNT(\*) AS TotalBooks FROM Books;

**Output:**

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| TotalBooks |

+------------+

| 5 |

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**2. Average price of books in each category**

SELECT Category, AVG(Price) AS AvgPrice FROM Books GROUP BY Category;

**Output:**

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| Category | AvgPrice |

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| Computer | 675.00 |

| Science | 590.00 |

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**3. Number of books by availability**

SELECT Availability, COUNT(\*) AS Count FROM Books GROUP BY Availability;

**Output:**

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| Availability | Count |

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| Yes | 3 |

| No | 2 |

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**4. Count of members by membership type**

SELECT MembershipType, COUNT(\*) AS MemberCount FROM Members GROUP BY MembershipType;

**Output:**

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| MembershipType | MemberCount |

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| Regular | 3 |

| Premium | 2 |

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**5. Total books borrowed by each member**

SELECT Members.Name, COUNT(Borrow.BookID) AS BooksBorrowed

FROM Borrow

JOIN Members ON Borrow.MemberID = Members.MemberID

GROUP BY Members.Name;

**Output:**

+-------------+----------------+

| Name | BooksBorrowed |

+-------------+----------------+

| Alice Kumar | 1 |

| Rohan Mehta | 1 |

| Meera Singh | 1 |

| Sunil Patil | 1 |

| Tina Thomas | 1 |

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**6. Members who borrowed more than 1 book (Using HAVING)**

SELECT Members.Name, COUNT(Borrow.BookID) AS BooksBorrowed

FROM Borrow

JOIN Members ON Borrow.MemberID = Members.MemberID

GROUP BY Members.Name

HAVING COUNT(Borrow.BookID) > 1;

**Output:**

Returns 0 rows since no member borrowed more than 1 book.