Title:

Implementation of Different Types of Operators in SQL

Intro:

In this lab assignment, we will explore various types of operators in SQL. Operators are used to perform operations on data within SQL queries. We will cover arithmetic operators, comparison operators, logical operators, and set operators, demonstrating their usage with examples.

Code:

Creating a Table:

```sql
Copy code
CREATE TABLE Products (
    ProductID INT PRIMARY KEY,
    ProductName VARCHAR(100),
    Price DECIMAL(10, 2),
    Quantity INT
);

INSERT INTO Products (ProductID, ProductName, Price, Quantity)
VALUES
(1, 'Laptop', 1500.00, 10),
(2, 'Smartphone', 800.00, 20),
(3, 'Tablet', 600.00, 15),
(4, 'Monitor', 300.00, 25);
```

Arithmetic Operators:

```sql
Copy code
SELECT ProductName, Price, Quantity,
       Price * Quantity AS TotalValue
```

```sql
FROM Products;
```

Comparison Operators:

```sql
sql
Copy code
SELECT ProductName, Price
FROM Products
WHERE Price > 700;
```

Logical Operators:

```sql
sql
Copy code
SELECT ProductName, Price, Quantity
FROM Products
WHERE Price > 500 AND Quantity < 20;
```

Set Operators:

Creating Another Table:

```sql
sql
Copy code
CREATE TABLE DiscountedProducts (
    ProductID INT PRIMARY KEY,
    ProductName VARCHAR(100),
    DiscountedPrice DECIMAL(10, 2)
);

INSERT INTO DiscountedProducts (ProductID, ProductName,
DiscountedPrice)
VALUES
(1, 'Laptop', 1400.00),
(3, 'Tablet', 550.00),
(4, 'Monitor', 280.00);
```

UNION Operator:

```sql
Copy code
SELECT ProductName, Price AS PriceOrDiscountedPrice
FROM Products
UNION
SELECT ProductName, DiscountedPrice
FROM DiscountedProducts;
```

INTERSECT Operator:

```sql
Copy code
SELECT ProductName
FROM Products
INTERSECT
SELECT ProductName
FROM DiscountedProducts;
```

EXCEPT Operator:

```sql
Copy code
SELECT ProductName
FROM Products
EXCEPT
SELECT ProductName
FROM DiscountedProducts;
```

Output:

Arithmetic Operators:

ProductName	Price	Quantity	TotalValue
Laptop	1500.00	10	15000.00

Smartphone	800.00	20	16000.00
Tablet	600.00	15	9000.00
Monitor	300.00	25	7500.00

Comparison Operators:

ProductName	Price
Laptop	1500.00
Smartphone	800.00

Logical Operators:

ProductName	Price	Quantity
Tablet	600.00	15

UNION Operator:

ProductName	PriceOrDiscountedPrice
Laptop	1500.00
Smartphone	800.00
Tablet	600.00
Monitor	300.00
Laptop	1400.00
Tablet	550.00
Monitor	280.00

INTERSECT Operator:

ProductName
Laptop
Tablet
Monitor

EXCEPT Operator:

ProductName

Smartphone

Conclusion:

In this lab, we demonstrated the use of various types of SQL operators. Arithmetic operators allow us to perform mathematical calculations on data. Comparison operators are used to compare values in queries. Logical operators help to combine multiple conditions. Set operators such as UNION, INTERSECT, and EXCEPT enable us to combine results from multiple queries. Understanding these operators is crucial for effective data manipulation and retrieval in SQL.