11.1 Cross Join - NikhilSharma X Kirkyagami

A **CROSS JOIN** in SQL is a type of join that returns the Cartesian product of two tables. In other words, it combines each row from the first table with every row from the second table. If the first table has `m` rows and the second table has `n` rows, the result of the `CROSS JOIN` will have `m * n` rows.

Key Characteristics:

1. **No ON Clause**: Unlike other joins (like INNER JOIN or LEFT JOIN), a CROSS JOIN does not require an `ON` clause to specify how the tables should be joined.

```sql
-- Drop the existing tables if they exist
DROP TABLE IF EXISTS products;
DROP TABLE IF EXISTS colors;
DROP TABLE IF EXISTS sizes;

-- Create the 'test' database if it doesn't exist
CREATE DATABASE IF NOT EXISTS test;

-- Switch to the 'test' database
USE test;

-- Create the 'products' table
CREATE TABLE products (
    product_id INT PRIMARY KEY,
    product_name VARCHAR(100)
);

-- Create the 'colors' table
CREATE TABLE colors (
    color_id INT PRIMARY KEY,
    color_name VARCHAR(50)
);

-- Create the 'sizes' table
CREATE TABLE sizes (
    size_id INT PRIMARY KEY,
    size_name VARCHAR(50)
);

-- Insert data into the 'products' table
INSERT INTO products (product_id, product_name) VALUES
(1, 'T-Shirt'),
(2, 'Jeans'),
(3, 'Sneakers'),
(4, 'Dress'),
(5, 'Jacket');

-- Insert data into the 'colors' table
INSERT INTO colors (color_id, color_name) VALUES
(1, 'Red'),
(2, 'Blue'),
(3, 'Green'),
(4, 'Black'),
(5, 'White');

-- Insert data into the 'sizes' table
INSERT INTO sizes (size_id, size_name) VALUES
(1, 'Small'),
(2, 'Medium'),
(3, 'Large'),
(4, 'Extra Large');

-- Query with CROSS JOIN to retrieve all combinations of products, colors, and sizes
SELECT p.product_name, c.color_name, s.size_name
FROM products p
CROSS JOIN colors c
CROSS JOIN sizes s;
```