HOMEWORK

```sql
-- 1. Table for Tire Types
CREATE TABLE Tire_Types (
    type_id INT AUTO_INCREMENT PRIMARY KEY,
    type_name VARCHAR(255) NOT NULL
);

-- 2. Table for Tire Models
CREATE TABLE Tire_Models (
    model_id INT AUTO_INCREMENT PRIMARY KEY,
    manufacturer VARCHAR(255) NOT NULL,
    model_name VARCHAR(255) NOT NULL
);

-- 3. Table for DOI Numbers
CREATE TABLE DOI_Numbers (
    doi_id INT AUTO_INCREMENT PRIMARY KEY,
    doi_number VARCHAR(255) NOT NULL,
    type_id INT,
    model_id INT,
    FOREIGN KEY (type_id) REFERENCES Tire_Types(type_id),
    FOREIGN KEY (model_id) REFERENCES Tire_Models(model_id)
);

-- 4. Table for Tire Sizes
CREATE TABLE Tire_Sizes (
    size_id INT AUTO_INCREMENT PRIMARY KEY,
    size_description VARCHAR(255) NOT NULL,
    doi_id INT,
    FOREIGN KEY (doi_id) REFERENCES DOI_Numbers(doi_id)
);

-- 5. Table for Scope
CREATE TABLE Scope (
    scope_id INT AUTO_INCREMENT PRIMARY KEY,
    doi_id INT,
    scope_status ENUM('in-scope', 'out-of-scope') NOT NULL,
    FOREIGN KEY (doi_id) REFERENCES DOI_Numbers(doi_id)
);


INSERT INTO Tire_Types (type_name) VALUES
('Summer Tires'),
('Winter Tires'),
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('Highway Tires'),
('4x4 / Off-Road Tires'),
('Touring Tires'),
('High Performance Tires'),

INSERT INTO Tire_Models (manufacturer, model_name) VALUES
('Michelin', 'Primacy 4'),
('Bridgestone', 'Blizzak LM005'),
('Nankang', 'CR-S Semi-Slick'),
('BF Goodrich', 'LRC Mud Terrain'),
('Goodyear', 'Ultra Grip 8'),
('Lassa', 'Greenways'),
('Petlas', 'Snowmaster');
('All Season Tires');

INSERT INTO DOI_Numbers (doi_number, type_id, model_id) VALUES
('24.10/tire-summer', 1, 1),
('24.54/tire-winter', 2, 2),
('24.10/tire-highway', 3, NULL),
('24.176/tire-off-road', 4, NULL),
('24.48/tire-touring', 5, NULL),
('24.10/tire-highp', 6, NULL),
('24.178/tire-allseason', 7, NULL),
('24.10/tire-michelin', 1, 1),
('24.54/tire-brdgstn', 2, 2),
('24.458/tire-nank', 6, 3),
('24.176/tire-bfg', 4, 4),
('24.36/tire-goodyear', 2, 5),
('24.106/tire-lassa', 7, 6),
('24.178/tire-ptlas', 7, 7);

INSERT INTO Tire_Sizes (size_description, doi_id) VALUES
('225/50/17', 1),
('205/55/16', 2),
('285/35/20', 3),
('39x15x17', 4),
('225/65/17', 5),
('225/40/18', 6),
('205/55/16', 7);




INSERT INTO Scope (doi_id, scope_status) VALUES
(1, 'in-scope'),
(2, 'in-scope'),
(3, 'in-scope'),
(4, 'in-scope'),
(5, 'in-scope'),
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(6, 'in-scope'),
(7, 'in-scope'),
(8, 'out-of-scope'),
(9, 'out-of-scope'),
(10, 'out-of-scope'),
(11, 'out-of-scope'),
(12, 'out-of-scope'),
(13, 'out-of-scope'),
(14, 'out-of-scope');


SELECT
    d.doi_number,
    t.type_name,
    m.manufacturer,
    m.model_name
FROM
    DOI_Numbers d
JOIN
    Tire_Types t ON d.type_id = t.type_id
LEFT JOIN
    Tire_Models m ON d.model_id = m.model_id
JOIN
    Scope s ON d.doi_id = s.doi_id
WHERE
    s.scope_status = 'in-scope';


SELECT
    d.doi_number,
    ts.size_description
FROM
    DOI_Numbers d
JOIN
    Tire_Sizes ts ON d.doi_id = ts.doi_id
JOIN
    Scope s ON d.doi_id = s.doi_id
WHERE
    s.scope_status = 'out-of-scope';
```