-- Create the Students table

CREATE TABLE Students (

student\_id INT PRIMARY KEY,

name VARCHAR(50),

age INT,

grade\_level INT

);

-- Create the Courses table

CREATE TABLE Courses (

course\_id INT PRIMARY KEY,

course\_name VARCHAR(50),

credits INT

);

-- Create the Enrollments table

CREATE TABLE Enrollments (

enrollment\_id INT PRIMARY KEY,

student\_id INT,

course\_id INT,

grade DECIMAL(3, 2),

FOREIGN KEY (student\_id) REFERENCES Students(student\_id),

FOREIGN KEY (course\_id) REFERENCES Courses(course\_id)

);

INSERT INTO Students (student\_id, name, age, grade\_level) VALUES

(1, 'Alice', 20, 3),

(2, 'Bob', 21, 4),

(3, 'Charlie', 19, 3),

(4, 'Diana', 22, 4),

(5, 'Ethan', 20, 3);

INSERT INTO Courses (course\_id, course\_name, credits) VALUES

(1, 'Math', 3),

(2, 'Science', 4),

(3, 'History', 3),

(4, 'Art', 2);

INSERT INTO Enrollments (enrollment\_id, student\_id, course\_id, grade) VALUES

(1, 1, 1, 3.5),

(2, 1, 2, 4.0),

(3, 2, 1, 2.5),

(4, 2, 3, 3.0),

(5, 3, 2, 3.0),

(6, 3, 4, 2.0),

(7, 4, 1, 3.5),

(8, 4, 3, 4.0),

(9, 5, 2, 3.0),

(10, 5, 4, 3.5);

SELECT \* FROM Students;

--1 AVG

SELECT AVG(grade) as average\_grade

from enrollments;

--2

SELECT

s.name AS student\_name,

c.course\_name AS course\_name

FROM

Students s

JOIN

Enrollments e ON s.student\_id = e.student\_id

JOIN

Courses c ON e.course\_id = c.course\_id;

--3

SELECT

grade\_level,

COUNT(student\_id) AS student\_count

FROM

Students

GROUP BY

grade\_level;

--4

SELECT

e.course\_id,

c.course\_name,

MAX(e.grade) AS max\_grade

FROM

Enrollments e

JOIN

Courses c ON e.course\_id = c.course\_id

GROUP BY

e.course\_id, c.course\_name;

--5

SELECT

AVG(e.grade) AS average\_grade

FROM

Enrollments e

JOIN

Students s ON e.student\_id = s.student\_id

WHERE

s.grade\_level = 3;

--6

SELECT

s.name AS student\_name,

c.course\_name AS course\_name,

c.credits AS credit\_hours

FROM

Students s

JOIN

Enrollments e ON s.student\_id = e.student\_id

JOIN

Courses c ON e.course\_id = c.course\_id;

--7

SELECT

c.course\_id,

c.course\_name,

AVG(e.grade) AS average\_grade

FROM

Courses c

JOIN

Enrollments e ON c.course\_id = e.course\_id

GROUP BY

c.course\_id, c.course\_name

HAVING

AVG(e.grade) > 3.0;

--8

SELECT

s.student\_id,

s.name

FROM

Students s

WHERE

NOT EXISTS (

SELECT 1

FROM Enrollments e

WHERE e.student\_id = s.student\_id AND e.grade = 4.0

);

--9

SELECT

s.name AS student\_name

FROM

Students s

JOIN

Enrollments e ON s.student\_id = e.student\_id

GROUP BY

s.student\_id, s.name

HAVING

AVG(e.grade) > (

SELECT AVG(grade) FROM Enrollments

);

--10

SELECT

s.name AS student\_name,

COUNT(e.course\_id) AS total\_courses,

AVG(e.grade) AS average\_grade

FROM

Students s

LEFT JOIN

Enrollments e ON s.student\_id = e.student\_id

GROUP BY

s.student\_id, s.name;

