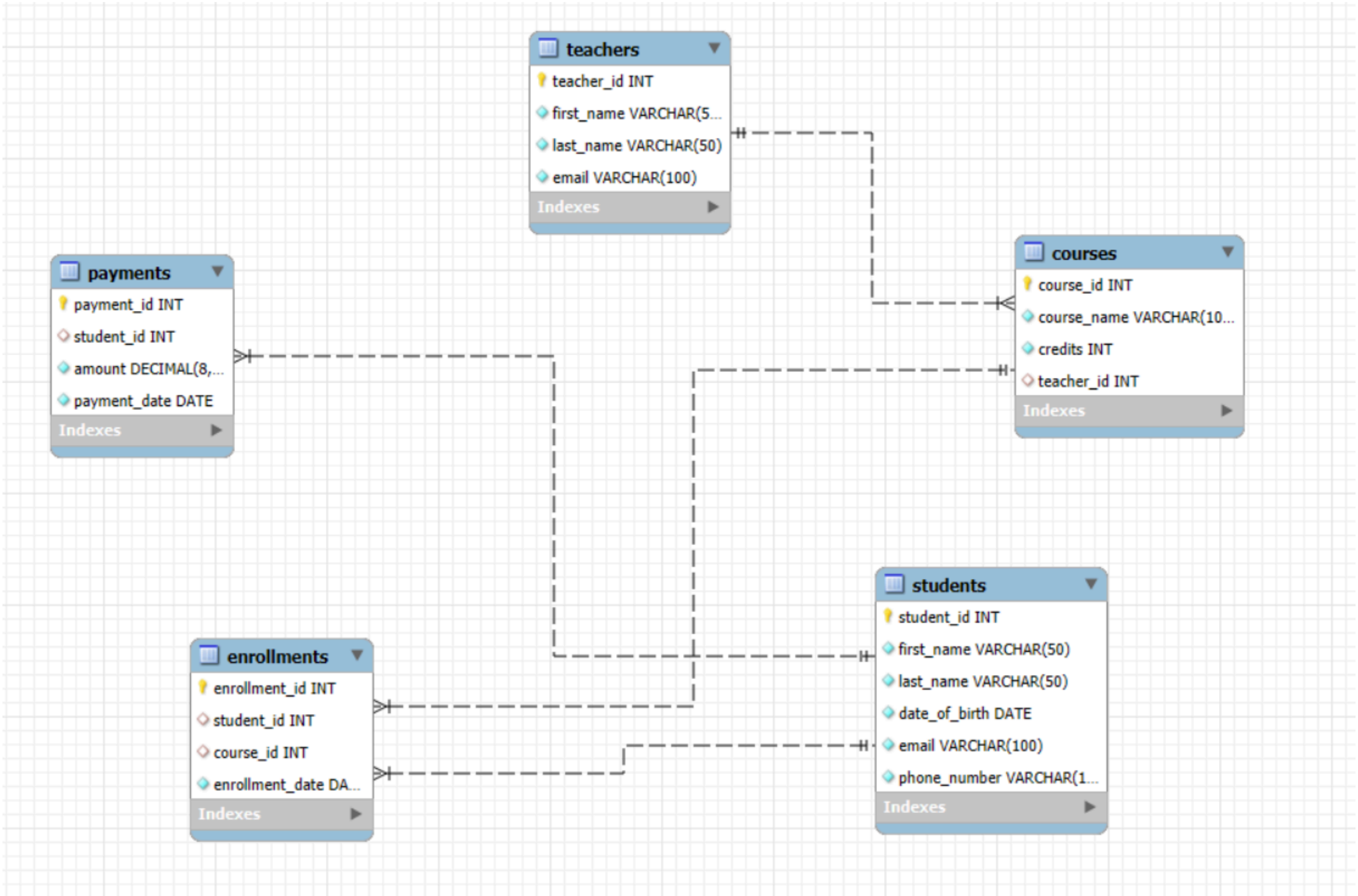
ASSIGNMENT-2

Student Information System (SIS):

ER Diagram:



SQL QUERY:

```
CREATE DATABASE KrishSchool;
USE KrishSchool;

CREATE TABLE Students (
    student_id INT PRIMARY KEY AUTO_INCREMENT,
    first_name VARCHAR(50) NOT NULL,
    last_name VARCHAR(50) NOT NULL,
    date_of_birth DATE NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
    phone_number VARCHAR(15) UNIQUE NOT NULL
);

CREATE TABLE Teachers (
    teacher_id INT PRIMARY KEY AUTO_INCREMENT,
    first_name VARCHAR(50) NOT NULL,
    last_name VARCHAR(50) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL
);

CREATE TABLE Courses (
    course_id INT PRIMARY KEY AUTO_INCREMENT,
    course_name VARCHAR(100) NOT NULL,
    credits INT NOT NULL,
    teacher_id INT,
    FOREIGN KEY (teacher_id) REFERENCES Teachers(teacher_id) ON
DELETE SET NULL
);

CREATE TABLE Enrollments (
    enrollment_id INT PRIMARY KEY AUTO_INCREMENT,
    student_id INT,
    course_id INT,
    enrollment_date DATE NOT NULL,
    FOREIGN KEY (student_id) REFERENCES Students(student_id) ON
DELETE CASCADE,
    FOREIGN KEY (course_id) REFERENCES Courses(course_id) ON DELETE
CASCADE
);

CREATE TABLE Payments (
    payment_id INT PRIMARY KEY AUTO_INCREMENT,
    student_id INT,
    amount DECIMAL(8,2) NOT NULL,
    payment_date DATE NOT NULL,
    FOREIGN KEY (student_id) REFERENCES Students(student_id) ON
DELETE CASCADE
);

INSERT INTO Students (first_name, last_name, date_of_birth, email,
phone_number) VALUES
('Karthik', 'Raja', '2000-05-15', 'karthik.raja@example.com', '9012345678'),
('Harini', 'Suresh', '2001-08-22', 'harini.suresh@example.com', '9023456789'),
('Harshini', 'Venkat', '1999-07-10', 'harshini.venkat@example.com',
'9034567890'),
('Gayathri', 'Mohan', '2002-11-30', 'gayathri.mohan@example.com',
'9045678901'),
('Malli', 'Natarajan', '2003-02-18', 'malli.natarajan@example.com', '9056789012');

INSERT INTO Teachers (first_name, last_name, email) VALUES
('Ravi', 'Sharma', 'ravi.sharma@example.com'),
('Anitha', 'Devi', 'anitha.devi@example.com'),
('Mohan', 'Krishnan', 'mohan.krishnan@example.com');

INSERT INTO Courses (course_name, credits, teacher_id) VALUES
('Mathematics', 3, 1),
('Physics', 4, 2),
('Chemistry', 3, 3),
('Computer Science', 5, 1),
('English Literature', 2, 2);

INSERT INTO Enrollments (student_id, course_id, enrollment_date) VALUES
(1, 1, '2025-01-10'),
(2, 2, '2025-02-15'),
(3, 3, '2025-03-20'),
(4, 4, '2025-04-25'),
(5, 5, '2025-05-30');

INSERT INTO Payments (student_id, amount, payment_date) VALUES
(1, 5000.00, '2025-01-15'),
(2, 4500.00, '2025-02-20'),
```

```sql
(3, 6000.00, '2025-03-25'),
(4, 5500.00, '2025-04-30'),
(5, 4000.00, '2025-05-05');

SELECT * FROM Students;
SELECT * FROM Enrollments WHERE student_id = 1;
SELECT * FROM Courses;
SELECT * FROM Enrollments WHERE course_id = 2;
SELECT * FROM Enrollments WHERE student_id = 3;
SELECT * FROM Enrollments WHERE enrollment_date = CURDATE();
SELECT * FROM Enrollments WHERE enrollment_date BETWEEN '2025-02-01'
AND '2025-04-01';
SELECT * FROM Courses WHERE course_name LIKE '%Math%';
SELECT * FROM Payments WHERE amount BETWEEN 4000 AND 6000;
SELECT * FROM Students WHERE phone_number LIKE '%6789';

SELECT student_id, SUM(amount) AS total_payment FROM Payments GROUP
BY student_id;

SELECT c.course_name, COUNT(e.student_id) AS total_students FROM
Courses c LEFT JOIN Enrollments e ON c.course_id = e.course_id GROUP BY
c.course_name;

SELECT s.first_name, s.last_name FROM Students s LEFT JOIN Enrollments e
ON s.student_id = e.student_id WHERE e.student_id IS NULL;

SELECT s.first_name, s.last_name, c.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;

SELECT t.first_name, t.last_name, c.course_name FROM Teachers t JOIN
Courses c ON t.teacher_id = c.teacher_id;

SELECT s.first_name, s.last_name, e.enrollment_date FROM Students s JOIN
Enrollments e ON s.student_id = e.student_id JOIN Courses c ON e.course_id =
c.course_id WHERE c.course_id = 1;
```

```
SELECT s.first_name, s.last_name FROM Students s LEFT JOIN Payments p
ON s.student_id = p.student_id WHERE p.student_id IS NULL;

SELECT course_name FROM Courses WHERE course_id = (SELECT
course_id FROM Enrollments GROUP BY course_id ORDER BY
COUNT(student_id) DESC LIMIT 1);

SELECT first_name, last_name FROM Students WHERE student_id = (SELECT
student_id FROM Payments ORDER BY amount DESC LIMIT 1);

SELECT course_name FROM Courses WHERE course_id IN (SELECT
course_id FROM Enrollments GROUP BY course_id HAVING
COUNT(student_id) = (SELECT MAX(count) FROM (SELECT
COUNT(student_id) AS count FROM Enrollments GROUP BY course_id) AS
subquery));

SELECT teacher_id, SUM(amount) FROM Payments JOIN Enrollments ON
Payments.student_id = Enrollments.student_id JOIN Courses ON
Enrollments.course_id = Courses.course_id GROUP BY teacher_id;
SELECT student_id FROM Students WHERE (SELECT COUNT(course_id)
FROM Enrollments WHERE Enrollments.student_id = Students.student_id) =
(SELECT COUNT(*) FROM Courses);

SELECT first_name, last_name FROM Teachers WHERE teacher_id NOT IN
(SELECT teacher_id FROM Courses);

SELECT AVG(DATEDIFF(CURDATE(), date_of_birth) / 365) AS average_age
FROM Students;

SELECT course_name FROM Courses WHERE course_id NOT IN (SELECT
DISTINCT course_id FROM Enrollments);

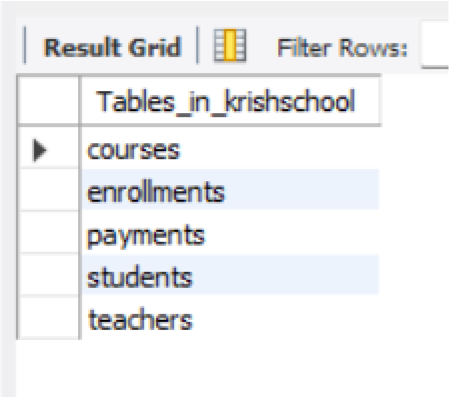
SELECT student_id, course_id, SUM(amount) FROM Payments JOIN
Enrollments ON Payments.student_id = Enrollments.student_id GROUP BY
student_id, course_id;
```

```
SELECT student_id FROM Payments GROUP BY student_id HAVING
COUNT(payment_id) > 1;

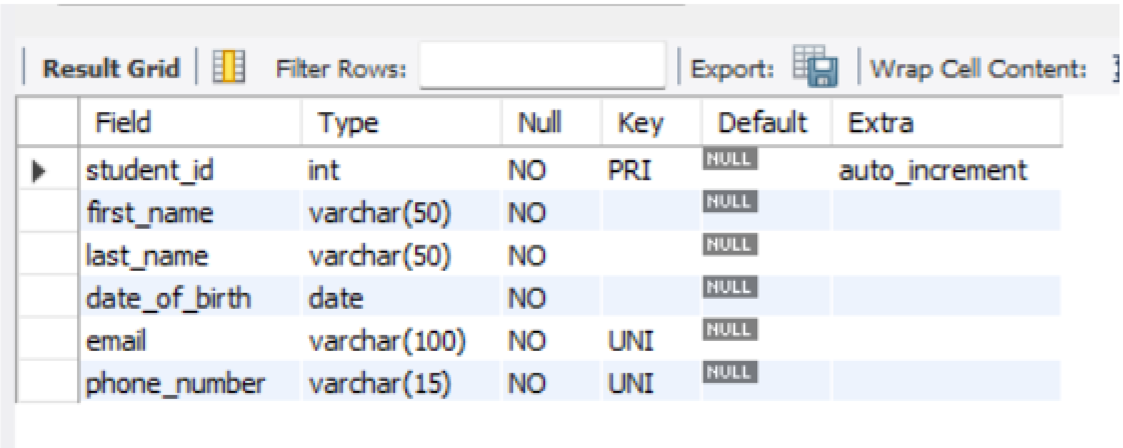
SELECT student_id, SUM(amount) FROM Payments GROUP BY student_id;

SELECT course_name, COUNT(student_id) FROM Enrollments JOIN Courses
ON Enrollments.course_id = Courses.course_id GROUP BY course_name;
SELECT AVG(amount) FROM Payments;
```

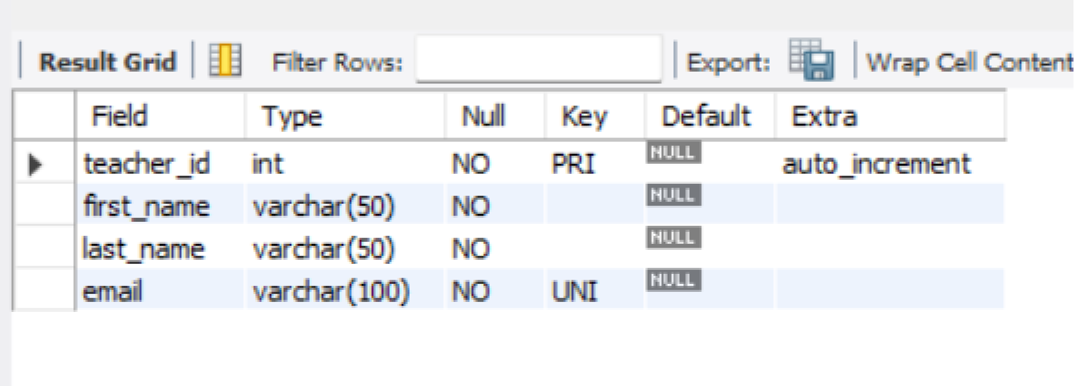
SAMPLE OUTPUT:



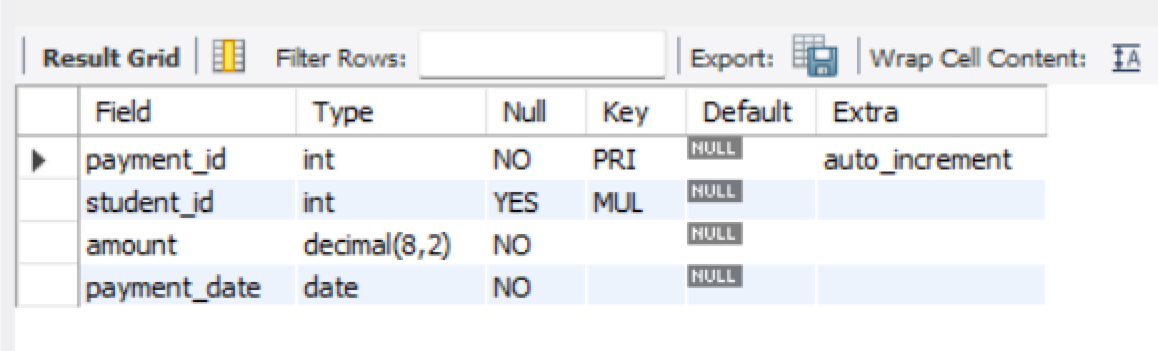
Tables_in_krishschool
courses
enrollments
payments
students
teachers



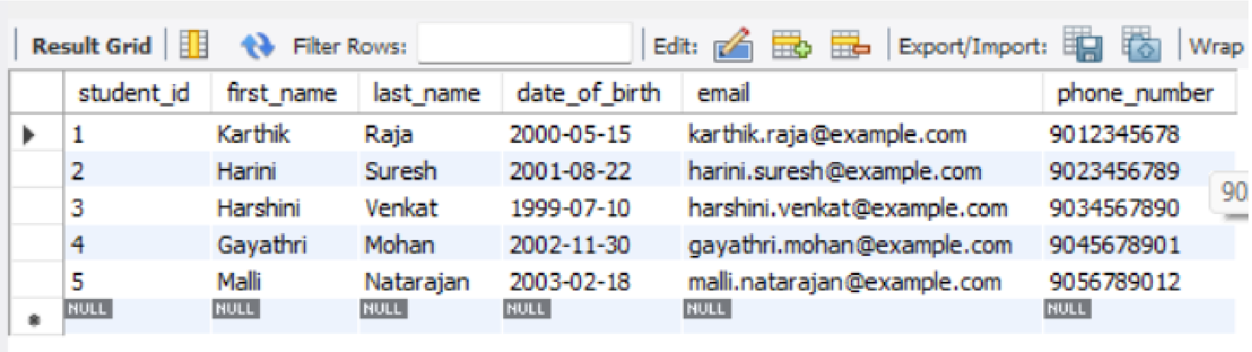
Field	Type	Null	Key	Default	Extra
student_id	int	NO	PRI	NULL	auto_increment
first_name	varchar(50)	NO		NULL	
last_name	varchar(50)	NO		NULL	
date_of_birth	date	NO		NULL	
email	varchar(100)	NO	UNI	NULL	
phone_number	varchar(15)	NO	UNI	NULL	



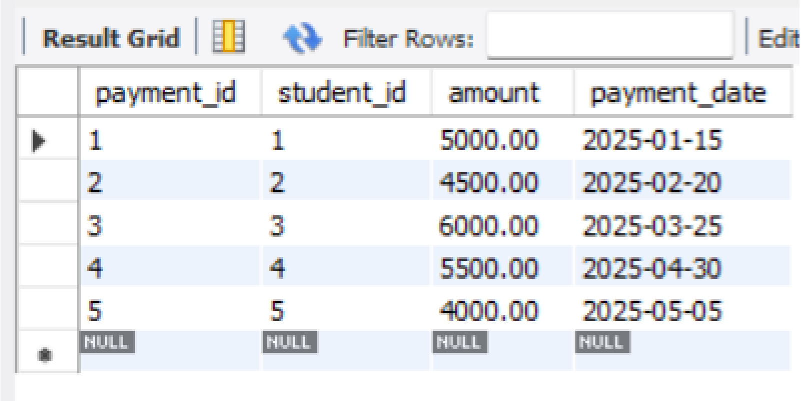
Field	Type	Null	Key	Default	Extra
teacher_id	int	NO	PRI	NULL	auto_increment
first_name	varchar(50)	NO		NULL	
last_name	varchar(50)	NO		NULL	
email	varchar(100)	NO	UNI	NULL	



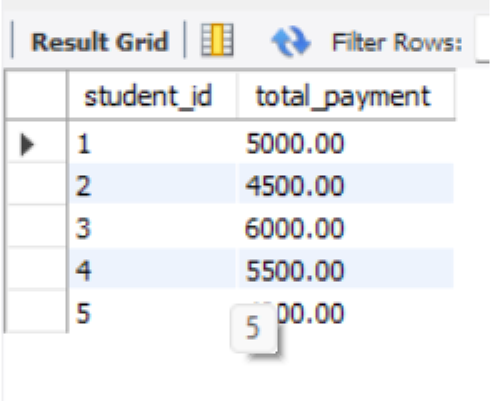
Field	Type	Null	Key	Default	Extra
payment_id	int	NO	PRI	NULL	auto_increment
student_id	int	YES	MUL	NULL	
amount	decimal(8,2)	NO		NULL	
payment_date	date	NO		NULL	



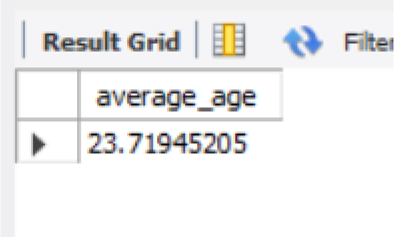
student_id	first_name	last_name	date_of_birth	email	phone_number
1	Karthik	Raja	2000-05-15	karthik.raja@example.com	9012345678
2	Harini	Suresh	2001-08-22	harini.suresh@example.com	9023456789
3	Harshini	Venkat	1999-07-10	harshini.venkat@example.com	9034567890
4	Gayathri	Mohan	2002-11-30	gayathri.mohan@example.com	9045678901
5	Malli	Natarajan	2003-02-18	malli.natarajan@example.com	9056789012
NULL	NULL	NULL	NULL	NULL	NULL



payment_id	student_id	amount	payment_date
1	1	5000.00	2025-01-15
2	2	4500.00	2025-02-20
3	3	6000.00	2025-03-25
4	4	5500.00	2025-04-30
5	5	4000.00	2025-05-05
NULL	NULL	NULL	NULL



```
student_id  total_payment
1           5000.00
2           4500.00
3           6000.00
4           5500.00
5           [illegible]00.00
```



```
average_age
23.71945205
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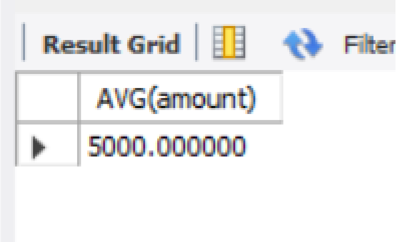

```
AVG(amount)
5000.000000
```