

ASSESSMENT SQL

Context: An ed-tech platform wants to analyze student progress, course popularity, and engagement patterns.

create database onlinelearningplatform;

use onlinelearningplatform;

```
CREATE TABLE students (  
    student_id INT PRIMARY KEY,  
    name VARCHAR(50),  
    country VARCHAR(30),  
    registration_date DATE  
);
```

```
CREATE TABLE courses (  
    course_id INT PRIMARY KEY,  
    title VARCHAR(100),  
    subject VARCHAR(50),  
    level VARCHAR(20)  
);
```

```
CREATE TABLE enrollments (  
    student_id INT,  
    course_id INT,  
    enrollment_date DATE,  
    PRIMARY KEY (student_id, course_id),  
    FOREIGN KEY (student_id) REFERENCES students(student_id),
```

```
FOREIGN KEY (course_id) REFERENCES courses(course_id)
);

CREATE TABLE progress (
    student_id INT,
    course_id INT,
    completed_percent INT,
    last_accessed DATE,
    PRIMARY KEY (student_id, course_id),
    FOREIGN KEY (student_id) REFERENCES students(student_id),
    FOREIGN KEY (course_id) REFERENCES courses(course_id)
);
```

INSERT INTO students VALUES

```
(1,'Amit Sharma','India','2024-01-10'),
(2,'Priya Patel','India','2024-02-15'),
(3,'John Miller','USA','2024-01-20'),
(4,'Sara Khan','UK','2024-03-05'),
(5,'Rahul Mehta','India','2024-02-01'),
(6,'Emily Davis','USA','2024-01-25'),
(7,'Arjun Singh','India','2024-04-10'),
(8,'Michael Brown','Canada','2024-03-12'),
(9,'Neha Verma','India','2024-05-01'),
(10,'David Wilson','UK','2024-02-28'),
(11,'Rohan Das','India','2024-04-15'),
```

```
(12,'Sophia Lee','USA','2024-03-20'),  
(13,'Karan Malhotra','India','2024-02-22'),  
(14,'Liam Smith','Canada','2024-01-30'),  
(15,'Anita Joshi','India','2024-03-18'),  
(16,'Noah Johnson','USA','2024-04-01'),  
(17,'Pooja Shah','India','2024-04-12'),  
(18,'Olivia Martin','UK','2024-02-10'),  
(19,'Vikram Rao','India','2024-03-25'),  
(20,'Emma Taylor','Canada','2024-01-05');
```

INSERT INTO courses VALUES

```
(101,'Python Programming','Programming','Beginner'),  
(102,'Data Science Basics','Data Science','Beginner'),  
(103,'Machine Learning','AI','Advanced'),  
(104,'Web Development','Programming','Intermediate'),  
(105,'Database Management','IT','Beginner'),  
(106,'Cloud Computing','IT','Advanced'),  
(107,'Digital Marketing','Marketing','Beginner'),  
(108,'Cyber Security','Security','Advanced'),  
(109,'Data Visualization','Data Science','Intermediate'),  
(110,'AI for Everyone','AI','Beginner');
```

INSERT INTO enrollments VALUES

```
(1,101,'2024-01-15'),
```

(1,102,'2024-01-20'),
(1,105,'2024-02-01'),

(2,101,'2024-02-16'),
(2,104,'2024-02-20'),
(2,109,'2024-03-01'),

(3,103,'2024-01-22'),
(3,105,'2024-01-30'),
(3,110,'2024-02-10'),

(4,107,'2024-03-10'),
(4,102,'2024-03-15'),

(5,101,'2024-02-05'),
(5,102,'2024-02-07'),
(5,109,'2024-03-12'),

(6,106,'2024-02-01'),
(6,108,'2024-02-10'),

(7,104,'2024-04-15'),
(7,105,'2024-04-18'),

(8,108,'2024-03-20'),
(8,103,'2024-03-25'),

(9,102,'2024-05-05'),
(9,105,'2024-05-06'),
(9,110,'2024-05-10'),

(10,107,'2024-03-01'),

(11,101,'2024-04-16'),
(11,104,'2024-04-20'),
(11,109,'2024-04-25'),

(12,102,'2024-03-22'),
(12,110,'2024-03-25'),

(13,105,'2024-02-23'),
(13,106,'2024-03-02'),

(14,101,'2024-02-02'),
(14,102,'2024-02-06'),

(15,103,'2024-03-19'),
(15,108,'2024-03-22'),

(16,104,'2024-04-05'),

(17,109,'2024-04-15'),

(18,107,'2024-02-12'),

(18,102,'2024-02-14'),

(19,101,'2024-03-26'),

(19,105,'2024-03-28'),

(20,106,'2024-01-10'),

(20,110,'2024-01-12');

INSERT INTO progress VALUES

(1,101,85,'2024-03-01'),

(1,102,70,'2024-03-05'),

(1,105,90,'2024-03-10'),

(2,101,45,'2024-03-02'),

(2,104,88,'2024-03-10'),

(2,109,92,'2024-03-15'),

(3,103,30,'2024-02-20'),

(3,105,95,'2024-03-01'),

(3,110,82,'2024-03-05'),

(4,107,50,'2024-03-20'),

(4,102,85,'2024-03-25'),

(5,101,95,'2024-03-15'),

(5,102,87,'2024-03-18'),

(5,109,91,'2024-03-22'),

(6,106,40,'2024-02-25'),

(6,108,60,'2024-03-01'),

(7,104,75,'2024-04-20'),

(7,105,55,'2024-04-22'),

(8,108,20,'2024-03-30'),

(8,103,35,'2024-04-02'),

(9,102,65,'2024-05-10'),

(9,105,55,'2024-05-12'),

(9,110,80,'2024-05-15'),

(10,107,90,'2024-03-15'),

(11,101,88,'2024-04-22'),
(11,104,78,'2024-04-25'),
(11,109,82,'2024-04-28'),

(12,102,93,'2024-03-30'),
(12,110,76,'2024-04-02'),

(13,105,68,'2024-03-15'),
(13,106,72,'2024-03-20'),

(14,101,81,'2024-02-20'),
(14,102,79,'2024-02-25'),

(15,103,84,'2024-03-28'),
(15,108,88,'2024-04-01'),

(16,104,40,'2024-01-10'),

(17,109,95,'2024-04-20'),

(18,107,77,'2024-02-20'),
(18,102,83,'2024-02-25'),

(19,101,89,'2024-04-01'),

(19,105,92,'2024-04-05'),

(20,106,60,'2024-01-25'),

(20,110,70,'2024-01-28');

Assessment Tasks:

1. Find the most popular course per subject (by enrollments).

ANS:

```
SELECT c.subject, c.title, COUNT(*) AS total_students
```

```
FROM courses c
```

```
JOIN enrollments e ON c.course_id = e.course_id
```

```
GROUP BY c.subject, c.title
```

```
ORDER BY c.subject, total_students DESC;
```

2. List students who completed more than 80% in at least 3 courses.

ANS:

```
SELECT student_id
```

```
FROM progress
```

```
WHERE completed_percent > 80
```

```
GROUP BY student_id
```

```
HAVING COUNT(course_id) >= 3;
```

3. Calculate average course completion by level (e.g., beginner, intermediate).

ANS:

```
SELECT c.level, AVG(p.completed_percent) AS avg_completion
FROM courses c
JOIN progress p
ON c.course_id = p.course_id
GROUP BY c.level;
```

4. Identify students inactive for more than 60 days.

ANS:

```
SELECT s.student_id, s.name
FROM students s
JOIN progress p ON s.student_id = p.student_id
GROUP BY s.student_id, s.name
HAVING MAX(p.last_accessed) < CURDATE() - INTERVAL 60 DAY;
```

5. Determine the subject with the highest average completion rate.

ANS:

```
SELECT c.subject,
AVG(p.completed_percent) AS avg_completion
FROM courses c
JOIN progress p
```

```
ON c.course_id = p.course_id  
GROUP BY c.subject  
ORDER BY avg_completion DESC  
LIMIT 1;
```