SQL Sub-queries Questions

1. Find the names of students who are enrolled in the 'Mathematics' course.

```
SELECT name
FROM student
WHERE course_id = (SELECT course_id FROM courses
WHERE course_name = 'Mathematics');
```

2. Retrieve the names and percentages of students who are enrolled in the 'Mathematics' course and are older than 20.

```
SELECT name, percentage
FROM student
WHERE course_id IN (SELECT course_id FROM courses
WHERE course_name = 'Mathematics')
AND age > 20;
```

3. Retrieve the city names where students with a percentage greater than 90%.

```
SELECT city_name, city_id
FROM city
WHERE city_id IN (SELECT city_id FROM student WHERE
percentage > 90);
```

4. Find the average age of students in the 'Computer Science' course.

```sql
SELECT AVG(age)
FROM student
WHERE course_id = (SELECT course_id FROM courses
WHERE course_name = 'Computer Science');
```

5. List the names of students who live in cities with names starting with the letter 'N'.

```sql
SELECT name,city_id, gender
FROM student
WHERE city_id IN (SELECT city_id FROM city WHERE
city_name LIKE 'N%');
```

6. Find the highest percentage among students who are enrolled in the 'Physics' course.

```sql
SELECT MAX(percentage)
FROM student
WHERE course_id = (SELECT course_id FROM courses
WHERE course_name = 'Physics');
```

7. List the names and percentages of students who live in the same city.

```sql
SELECT name, percentage
FROM student
WHERE city_id IN (SELECT city_id FROM student GROUP
BY city_id HAVING COUNT(*) > 1);
```

8. Provide the names and ages of students who are older than the average age of all students.

```sql
SELECT name, age
FROM student
WHERE age > (SELECT AVG(age) FROM student);
```

9. List the names of cities that do not have any students residing in them.

```sql
SELECT city_name
FROM city
WHERE city_id NOT IN (SELECT city_id FROM student);
```

10. Provide the names of courses that have at least one student enrolled in them.

```sql
SELECT course_name
FROM courses
WHERE course_id IN (SELECT DISTINCT course_id FROM student);
```

11. Select the names of students who study Physics or Computer Science:

```sql
SELECT name FROM student WHERE course_id IN (SELECT course_id FROM courses WHERE course_name IN ('Physics', 'Computer Science'));
```

12. Update the city of Mike Jones to Los Angeles:

```sql
UPDATE student SET city_id = (SELECT city_id FROM city WHERE city_name = 'Los Angeles') WHERE name = 'Mike Jones';
```

13. Increase the percentage of students who study Mathematics by 2.5:

```sql
UPDATE student
SET percentage = percentage + 2.5
WHERE course_id = (SELECT course_id FROM courses
WHERE course_name = 'Mathematics');
```

14. Delete male students who study Physics:

```sql
DELETE FROM student
WHERE gender = 'Male'
AND course_id = (SELECT course_id FROM courses
WHERE course_name = 'Physics');
```

15. Delete students older than 25 who live in Chicago:

```sql
DELETE FROM student
WHERE age > 25
AND city_id = (SELECT city_id FROM city WHERE
city_name = 'Chicago');
```