



INSTITUTO TECNOLÓGICO DE MEXICALI

Base De Datos

Tarea BD



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CARRERA: INGENIERIA EN SISTEMAS COMPUTACIONALES

SEMESTRE: 4

```
CREATE TABLE estudiantes (  
    student_id SERIAL PRIMARY KEY,  
    first_name VARCHAR(50) NOT NULL,  
    last_name VARCHAR(50) NOT NULL,  
    email VARCHAR(100) NOT NULL UNIQUE  
);
```

```
CREATE TABLE cursos (  
    course_id SERIAL PRIMARY KEY,  
    title VARCHAR(100) NOT NULL,  
    credits SMALLINT NOT NULL CHECK (credits > 0)  
);
```

```
CREATE TABLE inscripcion (  
    enrollment_id SERIAL PRIMARY KEY,  
    student_id INTEGER NOT NULL REFERENCES estudiantes(student_id),  
    course_id INTEGER NOT NULL REFERENCES cursos(course_id),  
    enrolled_on DATE DEFAULT CURRENT_DATE,  
    UNIQUE (student_id, course_id)  
);
```

Datos Tablas

```
INSERT INTO estudiantes (first_name, last_name, email)
VALUES
( first_name 'Ana', last_name 'García', email 'ana.garcia@example.com'),
( first_name 'Luis', last_name 'Martínez', email 'luis.martinez@example.com'),
( first_name 'Sofía', last_name 'López', email 'sofia.lopez@example.com'),
( first_name 'Carlos', last_name 'Ruiz', email 'carlos.ruiz@example.com'),
( first_name 'Elena', last_name 'Torres', email 'elena.torres@example.com');

INSERT INTO cursos (title, credits)
VALUES
( title 'Matemáticas I', credits 5),
( title 'Historia Universal', credits 4),
( title 'Programación Básica', credits 3),
( title 'Física General', credits 4),
( title 'Inglés Intermedio', credits 2);

INSERT INTO inscripción (student_id, course_id, enrolled_on)
VALUES
( student_id 1, course_id 1, enrolled_on '2025-01-10'),
( student_id 1, course_id 2, enrolled_on '2025-01-11'),
( student_id 2, course_id 3, enrolled_on '2025-01-12'),
( student_id 3, course_id 1, enrolled_on '2025-01-15'),
( student_id 4, course_id 4, enrolled_on '2025-01-18');
```

Tabla Estudiantes

	student_id	first_name	last_name	email
1	1	Ana	García	ana.garcia@example.com
2	2	Luis	Martínez	luis.martinez@example.com
3	3	Sofía	López	sofia.lopez@example.com
4	4	Carlos	Ruiz	carlos.ruiz@example.com
5	5	Elena	Torres	elena.torres@example.com

Tabla Inscripciones

	enrollment_id	student_id	course_id	enrolled_on
1	1	1	1	2025-01-10
2	2	2	1	2025-01-11
3	3	3	2	2025-01-12
4	4	4	3	2025-01-15
5	5	5	4	2025-01-18

Tablas Cursos

	course_id	title	credits
1	1	Matemáticas I	5
2	2	Historia Universal	4
3	3	Programación Básica	3
4	4	Física General	4
5	5	Inglés Intermedio	2

Agregar columna birth_date a Students

```
ALTER TABLE estudiantes
ADD COLUMN birth_date DATE;
```

student_id	first_name	last_name	email	birth_date
1	Ana	García	ana.garcia@example.com	<null>
2	Luis	Martínez	luis.martinez@example.com	<null>
3	Sofía	López	sofia.lopez@example.com	<null>
4	Carlos	Ruiz	carlos.ruiz@example.com	<null>
5	Elena	Torres	elena.torres@example.com	<null>

Ya solo quedaría añadirle los datos a fecha de nacimiento.

Renombrar tabla Enrollments a Registrations

```
ALTER TABLE inscripción
RENAME TO Registrations;
```

enrollment_id	student_id	course_id	enrolled_on
1	1	1	2025-01-10
2	2	1	2025-01-11
3	3	2	2025-01-12
4	4	3	2025-01-15
5	5	4	2025-01-18

Eliminar columna birth_date de Students

```
ALTER TABLE estudiantes
DROP COLUMN birth_date;
```

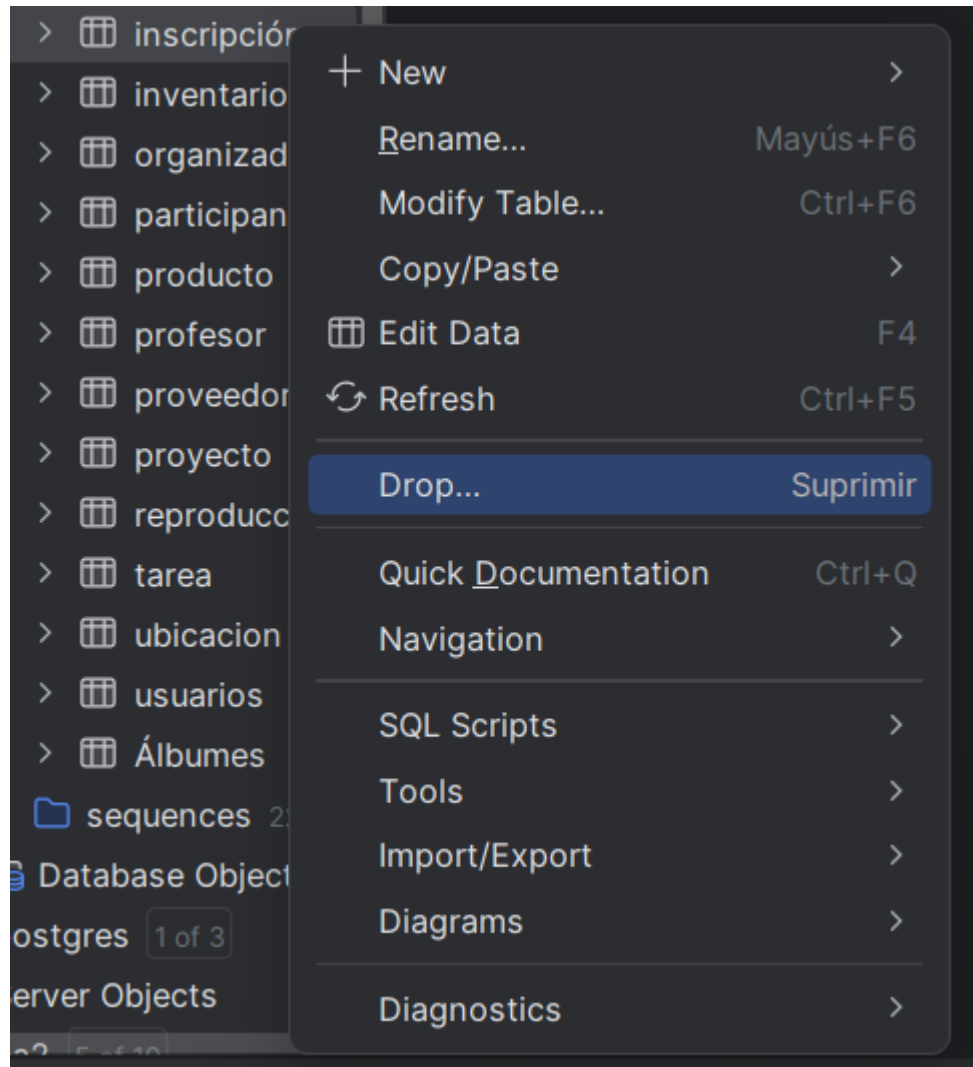
Se elimina la tabla fecha de nacimiento

student_id	first_name	last_name	email
1	Ana	García	ana.garcia@example.com
2	Luis	Martínez	luis.martinez@example.com
3	Sofía	López	sofia.lopez@example.com
4	Carlos	Ruiz	carlos.ruiz@example.com
5	Elena	Torres	elena.torres@example.com

Eliminar tabla Registrations

```
DROP TABLE Registrations;
```

También se puede haciendo click derecho a la tabla



Consultas complejas a resolver (sin mostrar la sintaxis completa)

```
SELECT s.first_name || ' ' || s.last_name AS full_name, c.title AS course_title, e.enrolled_on
FROM estudiantes s
INNER JOIN inscripción e 1<->1..n: ON s.student_id = e.student_id
INNER JOIN cursos c 1..n<->1: ON e.course_id = c.course_id
WHERE c.credits >= 4;
```

	full_name ▼	course_title ▼	enrolled_on ▼
1	Ana García	Matemáticas I	2025-01-10
2	Ana García	Historia Universal	2025-01-11
3	Sofía López	Matemáticas I	2025-01-15
4	Carlos Ruiz	Física General	2025-01-18

selecciona el nombre completo de aquellos estudiantes cuya cantidad de inscripciones sea mayor a uno, ordenándolos de mayor a menor por su total. Debes definir y usar la sintaxis de WITH ... AS (...) para el CTE

```
WITH enrollment_counts AS (
  SELECT s.student_id, s.first_name || ' ' || s.last_name AS full_name, COUNT(*) AS total_enrollments
  FROM estudiantes s
  JOIN inscripción e 1<->1..n: ON s.student_id = e.student_id
  GROUP BY s.student_id, full_name
)
SELECT full_name, total_enrollments
FROM enrollment_counts
WHERE total_enrollments > 1
ORDER BY total_enrollments DESC;
```

	full_name ▼	total_enrollments ▼
1	Ana García	2