

# CASO DE ESTUDIO N°2: EDUTECH INNOVATORS SPA

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# PROBLEMA IDENTIFICADO

Sistema monolítico con deficiencias de rendimiento.

Aumento de usuarios provoca lentitud, fallos y caídas.

Dificultad para escalar el sistema actual.

# ANÁLISIS DE REQUERIMIENTOS

Necesidades: gestión de usuarios, cursos, monitoreo, soporte, filtros, descuentos.

Clasificación: funcionales y no funcionales.

# SISTEMA ACTUAL

Sistema monolítico centralizado.

Incluye gestión de usuarios, cursos, contenido y evaluación.

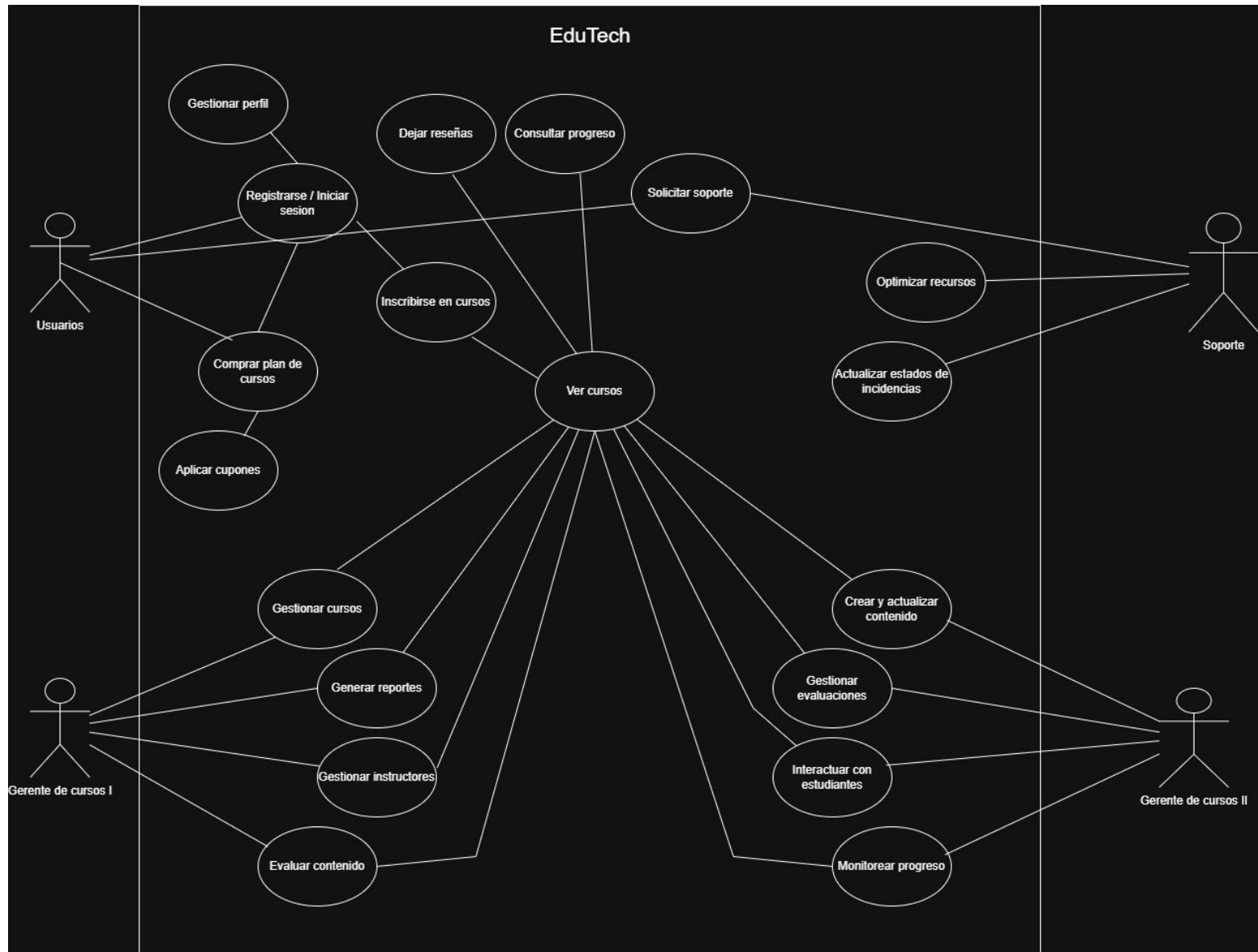
Base de datos única e interfaz de usuario.

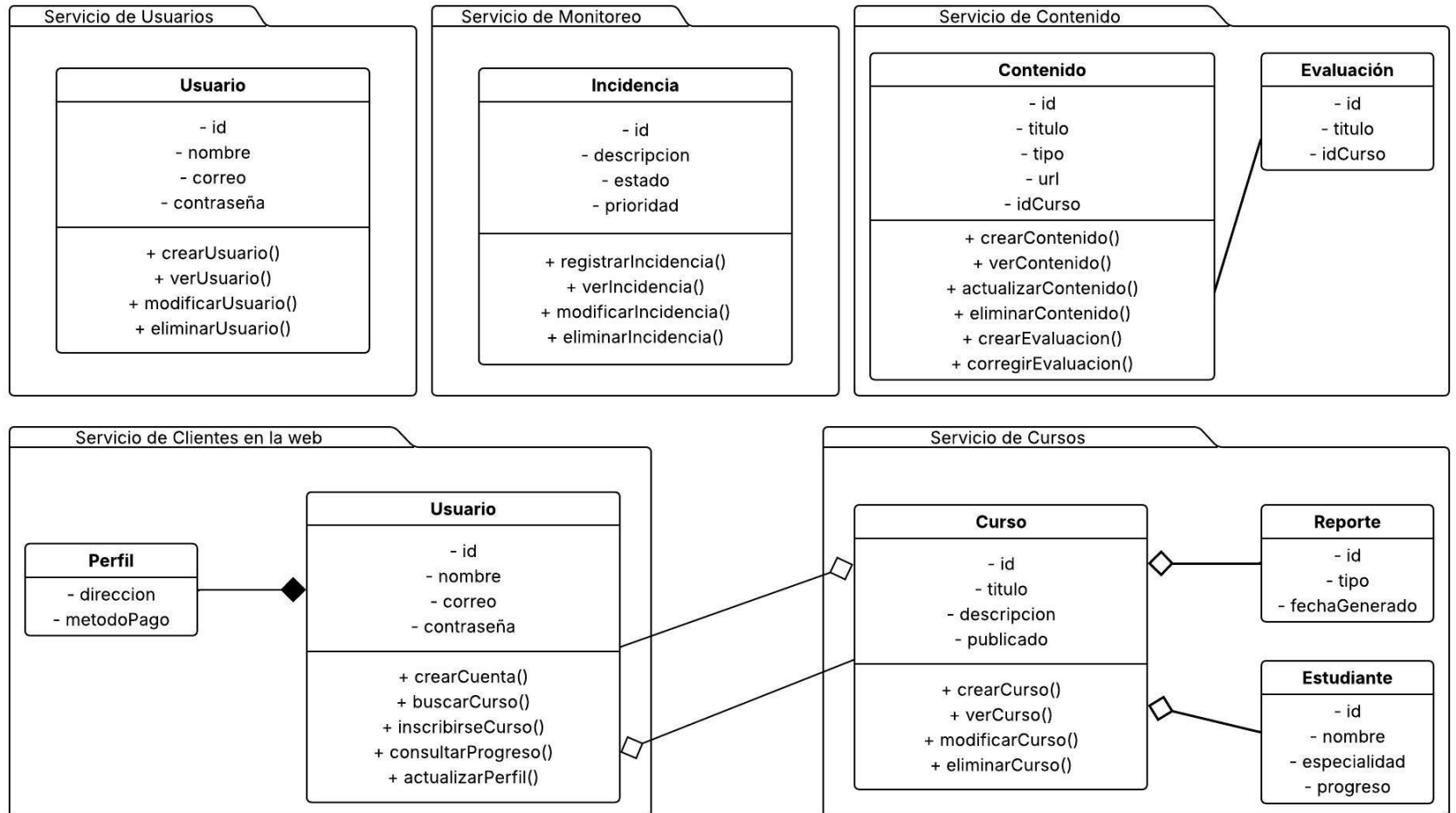
# NUEVA ARQUITECTURA: MICROSERVICIOS

Servicios independientes que se comunican vía API.

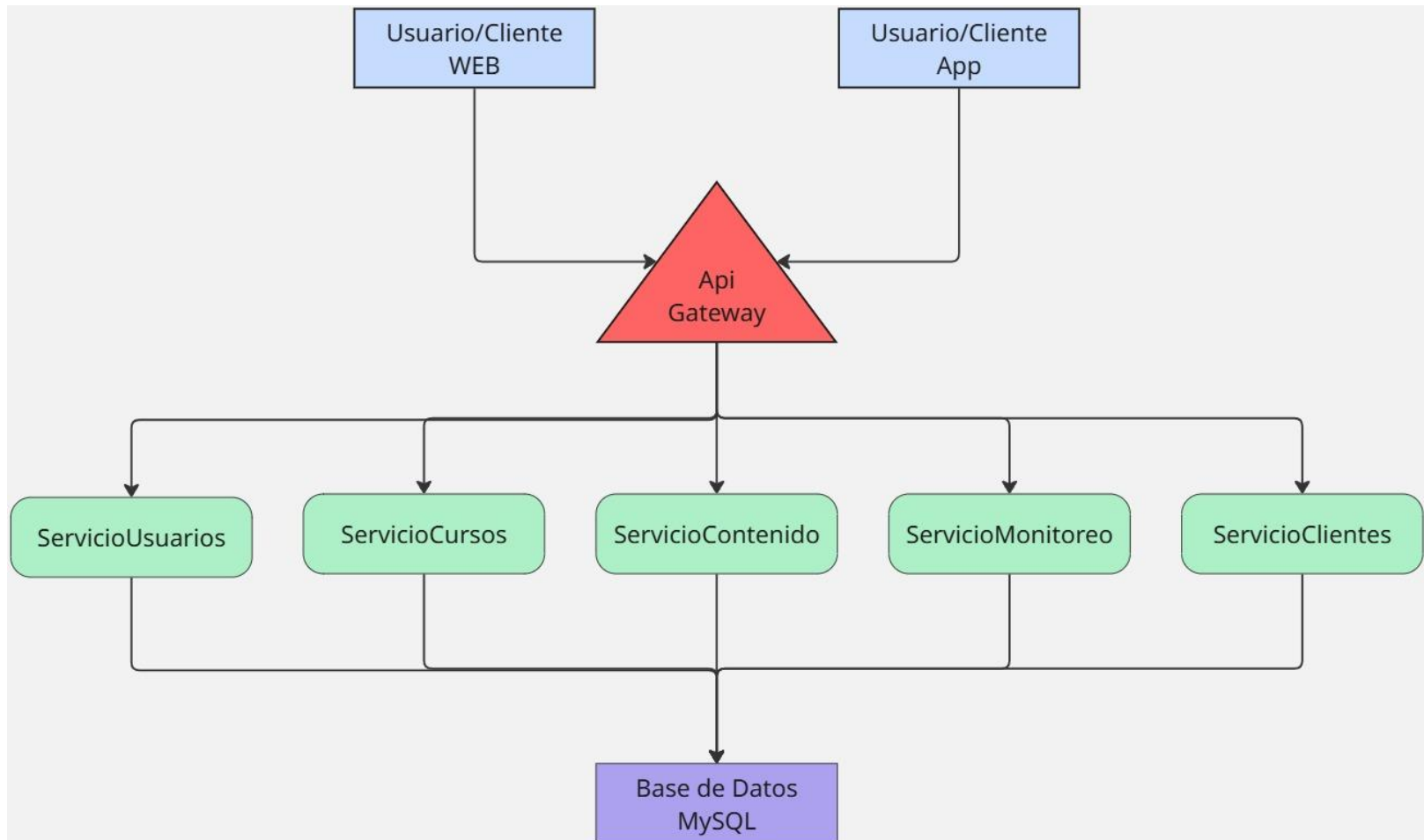
Escalabilidad, resiliencia y mantenimiento mejorado.

Flexibilidad tecnológica (diferentes lenguajes y tecnologías).





# Diagrama de Despliegue





# PLAN DE MIGRACIÓN

Migración gradual, servicio por servicio.

Uso de APIs y bases de datos independientes.

Evita acoplamientos y facilita pruebas.

# IMPLEMENTACIÓN TÉCNICA

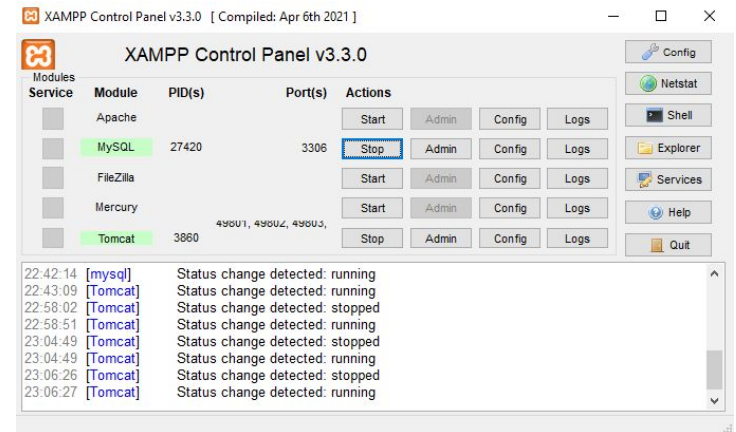
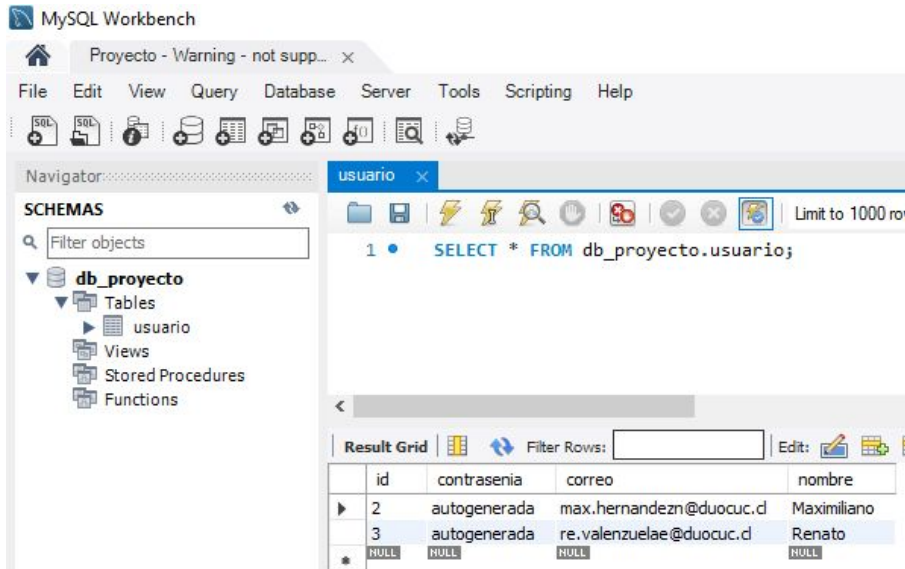
Framework: SpringBoot + Maven.

Dependencias: Spring Web, DevTools, JPA, MySQL Driver.

Base de datos: MySQL Workbench + XAMPP.

# IMPLEMENTACIÓN TÉCNICA

Se utilizó el software MySQL Workbench Y XAMPP para levantar la conexión



# SERVICIOS CRUD IMPLEMENTADOS

Usuarios: Nombre, Email, Contraseña.

Cursos: Título, Descripción, Publicado.

Monitoreo: Descripción, Estado, Prioridad.

## Crear

POST localhost:8080/api/usuarios

Params Authorization Headers (8) Body Scripts Settings

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL ☒ JSON

```
1 {
2   "nombre": "Renato",
3   "correo": "re.valenzuelae@duocuc.cl",
4   "contrasenia": "autogenerada"
5 }
```

Body Cookies Headers (5) Test Results 201 Create

{ } JSON Preview Visualize

```
1 {
2   "id": 3,
3   "nombre": "Renato",
4   "correo": "re.valenzuelae@duocuc.cl",
5   "contrasenia": "autogenerada"
6 }
```

## Ver

GET localhost:8080/api/usuarios/3

Params Authorization Headers (6) Body Scripts Settings

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL ☒ JSON

1 Ctrl+Alt+P for Postbot

Body Cookies Headers (5) Test Results 200

{ } JSON Preview Visualize

```
1 {
2   "id": 3,
3   "nombre": "Renato",
4   "correo": "re.valenzuelae@duocuc.cl",
5   "contrasenia": "autogenerada"
6 }
```

	id	contrasenia	correo	nombre
▶	1	NULL	max.hernandezn@duocuc.d	Maximiliano
	2	H20466593-1	max.hernandezn@duocuc.d	Maximiliano
	3	autogenerada	re.valenzuelae@duocuc.d	Renato
*	NULL	NULL	NULL	NULL

## Modificar

PUT localhost:8080/api/usuarios/2

Params Authorization Headers (8) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
1 {
2   "nombre": "Maximiliano",
3   "correo": "max.hernandezn@duocuc.cl",
4   "contrasenia": "autogenerada"
5 }
```

Body Cookies Headers (5) Test Results 200

{ } JSON Preview Visualize

```
1 {
2   "id": 2,
3   "nombre": "Maximiliano",
4   "correo": "max.hernandezn@duocuc.cl",
5   "contrasenia": "autogenerada"
6 }
```

	id	contrasenia	correo	nombre
▶	2	autogenerada	max.hernandezn@duocuc.cl	Maximiliano
	3	autogenerada	re.valenzuelae@duocuc.cl	Renato
✱	NULL	NULL	NULL	NULL

## Eliminar

DELETE localhost:8080/api/usuarios/1

Params Authorization Headers (6) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

1 Ctrl+Alt+P for Postbot

Body Cookies Headers (5) Test Results 200

{ } JSON Preview Visualize

```
1 {
2   "id": 1,
3   "nombre": null,
4   "correo": null,
5   "contrasenia": null
6 }
```

	id	contrasenia	correo	nombre
▶	2	H20466593-1	max.hernandezn@duocuc.cl	Maximiliano
	3	autogenerada	re.valenzuelae@duocuc.cl	Renato
✱	NULL	NULL	NULL	NULL

# CONTROL DE VERSIONES: GIT/GITHUB

Conexión local de repositorio GitHub con Git y usando token.

Branches individuales para cada CRUD.

Fusión final en la rama principal.

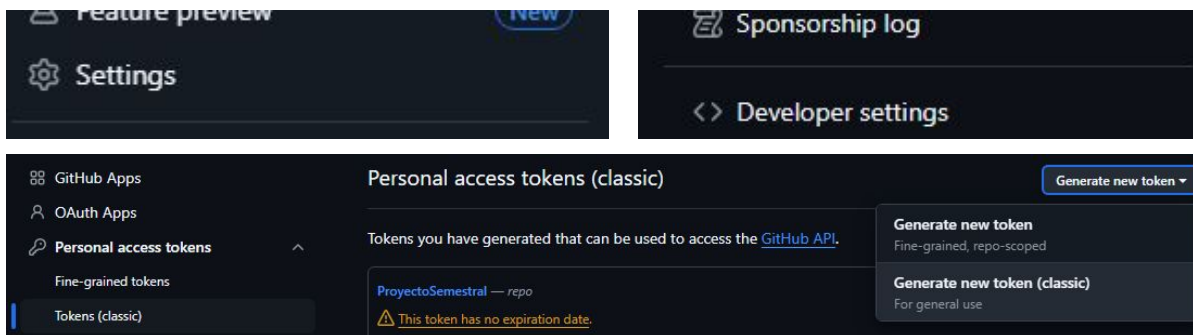
# Conexion del git a la carpeta

```
MINGW64:/c:/Users/renato/OneDrive/Documentos/ProyectoSemestral
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$ git init
Initialized empty Git repository in C:/Users/renato/OneDrive/Documentos/ProyectoSemestral/.git/
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$
```

## Credenciales

```
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$ git config user.name RenatoV
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$ git config user.email renato.v@duocuc.cl
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$ git config user.password ghp_0000000000000000000000000000000000000000
```

## Creación del token en GitHub





## Se añadió la carpeta

```
renax@DESKTOP-37U5U06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$ git add .
warning: in the working copy of '.vscode/launch.json', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'springboot-backend/.gitattributes', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'springboot-backend/.gitignore', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'springboot-backend/.mvn/wrapper/maven-wrapper.properties', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'springboot-backend/mvnw.cmd', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'springboot-backend/pom.xml', LF will be replaced by CRLF the next time Git touches it
```







## Commit de los archivos

```
renax@DESKTOP-37U5U06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (master)
$ git commit -m "Subida de los archivos del proyecto"
[master (root-commit) 070e5d7] Subida de los archivos del proyecto
17 files changed, 796 insertions(+)
create mode 100644 .vscode/launch.json
create mode 100644 "Caso de estudio N\302\2602 EduTech Innovators SPA.pdf"
create mode 100644 Informe 1, Full Stack 1.pdf
create mode 100644 springboot-backend/.gitattributes
create mode 100644 springboot-backend/.gitignore
create mode 100644 springboot-backend/.mvn/wrapper/maven-wrapper.properties
create mode 100644 springboot-backend/mvnw
create mode 100644 springboot-backend/mvnw.cmd
create mode 100644 springboot-backend/pom.xml
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/SpringbootBackendApplication.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/controllers/UsuarioController.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/entities/Usuario.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/repository/UsuarioRepository.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/UsuarioService.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/UsuarioServiceImpl.java
create mode 100644 springboot-backend/src/main/resources/application.properties
create mode 100644 springboot-backend/src/test/java/com/proyecto/springboot/backend/springboot_backend/SpringbootBackendApplicationTests.java
```

## Push de los archivos

```
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (main)
$ git push origin main
Enumerating objects: 44, done.
Counting objects: 100% (44/44), done.
Delta compression using up to 12 threads
Compressing objects: 100% (26/26), done.
Writing objects: 100% (43/43), 11.96 KiB | 3.99 MiB/s, done.
Total 43 (delta 2), reused 34 (delta 2), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), done.
To https://github.com/RenatoValenzuela262/Proyecto-Semestral.git
 2717ec0..4d77520  main -> main
```

# Vision del GitHub

 RenatoValenzuela262		 5 Commits
 .vscode	Prueba commit	2 days ago
 springboot-backend	Prueba commit	2 days ago
 Caso de estudio N°2 EduTech Innovators SPA.p...	Entrega 1. Caso EduTech Innovators	last month
 Informe 1, Full Stack 1.pdf	Entrega 1. Caso EduTech Innovators	last month

## Invitación para los colaboradores

General

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

Rules

Actions

Models

Webhooks

Environments

Codespaces

Pages

Security

Advanced Security

Deploy keys

Collaborators and teams

Public repository

This repository is public and visible to anyone

Manage visibility

Direct access

2 users have access to this repository. [2 collaborators](#).

Manage access

Select all

Find a collaborator...

MaxHern

Collaborator

Diego Zamora

Collaborator

## Commit de Cursos al Branch

```
maxim@DESKTOP-8IGLTE2 MINGW64 ~/OneDrive/Documentos/proyectoSemestral/Proyecto-Semestral (mac)
$ git add .

maxim@DESKTOP-8IGLTE2 MINGW64 ~/OneDrive/Documentos/proyectoSemestral/Proyecto-Semestral (mac)
$ git commit -m "Creacion Crud Cursos"
[mac 1a4246a] Creacion Crud Cursos
5 files changed, 216 insertions(+)
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/controllers/CursoController.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/entities/Curso.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/repositories/CursoRepository.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/CursoService.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/CursoServiceImpl.java

maxim@DESKTOP-8IGLTE2 MINGW64 ~/OneDrive/Documentos/proyectoSemestral/Proyecto-Semestral (mac)
$ git push -u origin mac
Enumerating objects: 34, done.
Counting objects: 100% (34/34), done.
Delta compression using up to 6 threads
Compressing objects: 100% (15/15), done.
Writing objects: 100% (20/20), 2.98 KiB | 610.00 KiB/s, done.
Total 20 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 2 local objects.
To https://github.com/RenatoValenzuela262/Proyecto-Semestral.git
   54d31c8..1a4246a  mac -> mac
branch 'mac' set up to track 'origin/mac'.
```

## Commit de Incidencia a su Branch

```
MINGW64/c/Users/Diego/Desktop/Proyecto semestral/Proyecto-Semestral
Diego@Papudiego MINGW64 ~/Desktop/Proyecto semestral/Proyecto-Semestral (diego)
$ git init
Reinitialized existing Git repository in C:/Users/Diego/Desktop/Proyecto semestral/Proyecto-Semestral/.git/

Diego@Papudiego MINGW64 ~/Desktop/Proyecto semestral/Proyecto-Semestral (diego)
$ git add .

Diego@Papudiego MINGW64 ~/Desktop/Proyecto semestral/Proyecto-Semestral (diego)
$ git commit -m "Creacion Crud Incidente"
[diego 7d05fd4] Creacion Crud Incidente
8 files changed, 220 insertions(+), 3 deletions(-)
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/controllers/IncidenciaController.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/entities/Incidencia.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/repositories/IncidenciaRepository.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/IncidenciaService.java
 create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/IncidenciaServiceImpl.java
```



# Fusion de los Branch a la rama principal

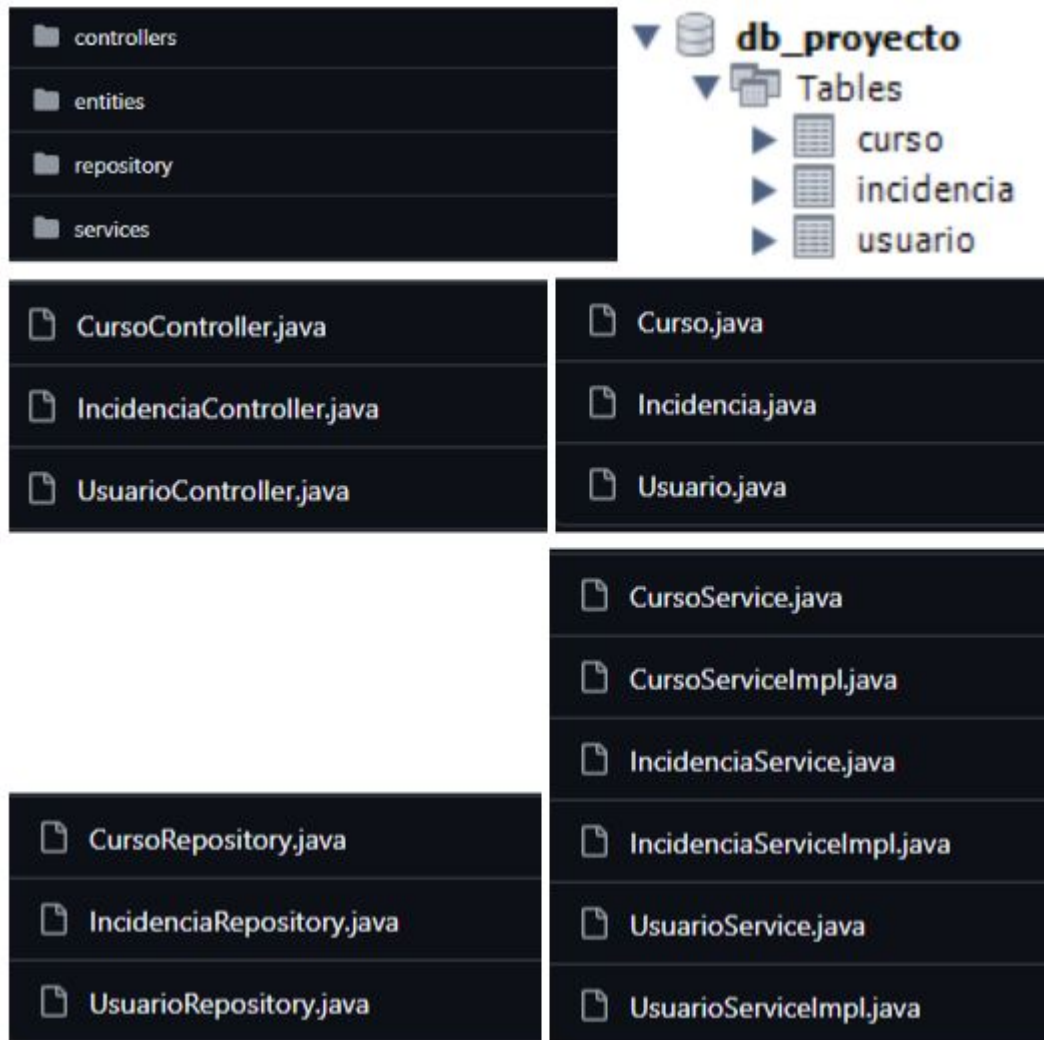
```
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (main)
$ git merge origin/mac main
Merge made by the 'ort' strategy.
 mac.txt | 1 +
.../controllers/CursoController.java | 74 ++++++
.../backend/springboot_backend/entities/Curso.java | 63 ++++++
.../repository/CursoRepository.java | 11 +++
.../springboot_backend/services/CursoService.java | 18 +++++
.../services/CursoServiceImpl.java | 50 ++++++
6 files changed, 217 insertions(+)
create mode 100644 mac.txt
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/controllers/CursoController.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/entities/Curso.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/repository/CursoRepository.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/CursoService.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/CursoServiceImpl.java
```

```
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (main)
$ git push -u origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 274 bytes | 274.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/RenatoValenzuela262/Proyecto-Semestral.git
 4d77520..98c513c main -> main
branch 'main' set up to track 'origin/main'.
```

```
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (main)
$ git merge origin/diego main
Merge made by the 'ort' strategy.
 papuDiego.txt | 1 +
springboot-backend/pom.xml | 2 +-
.../controllers/IncidenciaController.java | 76 ++++++
.../springboot_backend/entities/Incidencia.java | 65 ++++++
.../repository/IncidenciaRepository.java | 9 +++
.../services/IncidenciaService.java | 21 +++++
.../services/IncidenciaServiceImpl.java | 46 ++++++
.../services/UsuarioServiceImpl.java | 2 +-
.../src/main/resources/application.properties | 2 +-
9 files changed, 221 insertions(+), 3 deletions(-)
create mode 100644 papuDiego.txt
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/controllers/IncidenciaController.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/entities/Incidencia.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/repository/IncidenciaRepository.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/IncidenciaService.java
create mode 100644 springboot-backend/src/main/java/com/proyecto/springboot/backend/springboot_backend/services/IncidenciaServiceImpl.java
```

```
renax@DESKTOP-37USU06 MINGW64 ~/OneDrive/Documentos/ProyectoSemestral (main)
$ git push -u origin main
Enumerating objects: 43, done.
Counting objects: 100% (43/43), done.
Delta compression using up to 12 threads
Compressing objects: 100% (10/10), done.
Writing objects: 100% (15/15), 1.41 KiB | 481.00 KiB/s, done.
Total 15 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To https://github.com/RenatoValenzuela262/Proyecto-Semestral.git
 98c513c..a9b398e main -> main
branch 'main' set up to track 'origin/main'.
```

# Vision Final



# CONCLUSIÓN

La nueva arquitectura responde a necesidades reales.

Microservicios mejoran escalabilidad y mantenimiento.

Plan de migración reduce riesgos operativos.

EduTech queda preparada para futuros desafíos.