# **Task Management API (.NET 8)**

A simple RESTful API for managing users and tasks, with role-based access using ASP.NET Core 8, EF Core (InMemory), JWT authentication, and Swagger documentation.

## How to Run the Project

### Requirements

* .NET 8 SDK
* Visual Studio 2022+ or Visual Studio Code
* Git

### Setup Instructions

1. **Build the Project**

**dotnet build**

* Make sure you ran migrations: SQL local database to save data and in memory refresh and lost data so I converted it to local TaskDb

Type code in package manager console to be sure data is updated

dotnet ef migrations add InitialCreate

dotnet ef database update

1. **Run the Project**

**dotnet run**

The API will launch and open [Swagger UI](https://localhost:5001/swagger) for testing.

## How to Test the API (via Swagger)

Swagger UI provides a visual interface to test all endpoints:

### 1. Authenticate to Get a Token

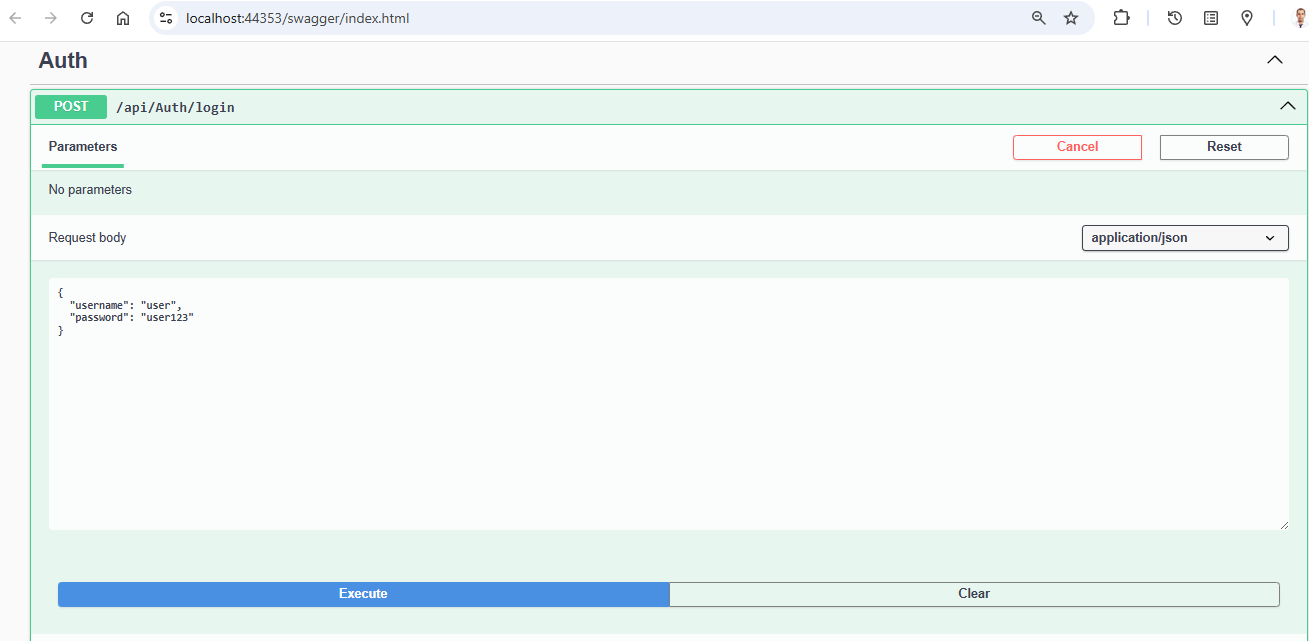
* Go to POST /api/auth/login
* Click **Try it out**
* Input credentials:

{

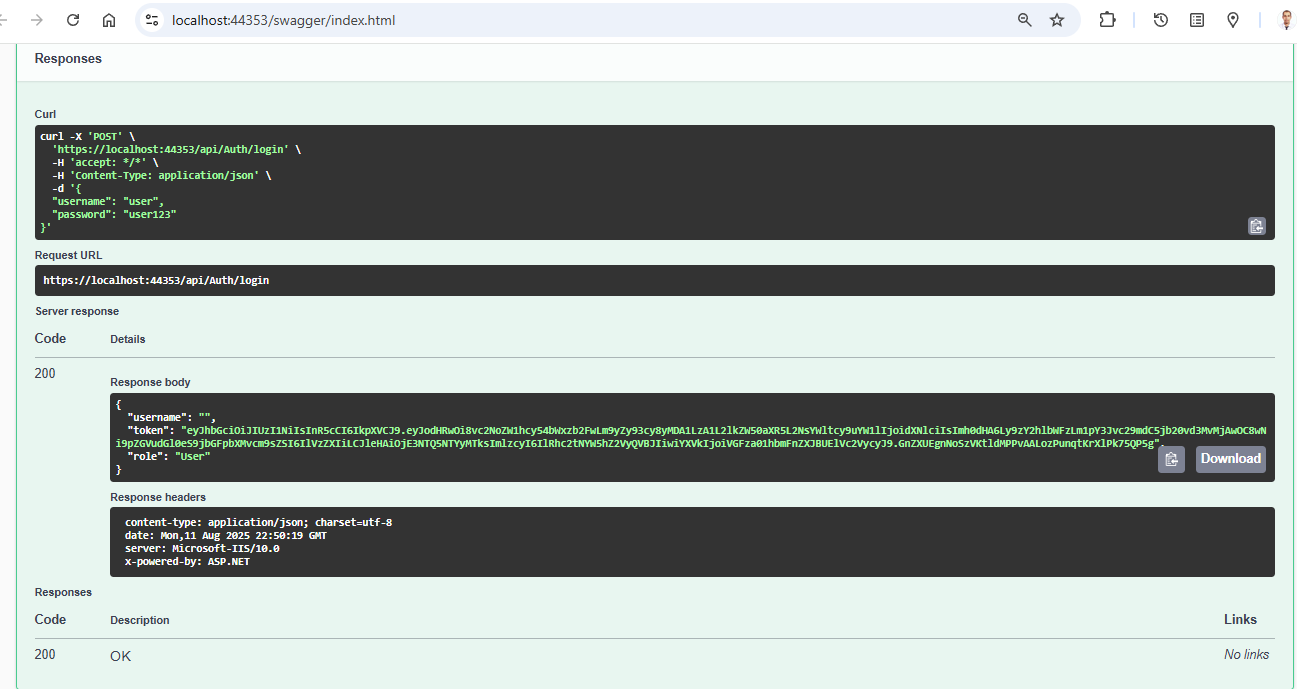
"username": "admin",

"password": "admin123"

}



* Click **Execute**, then copy the token from the response
* Click **Authorize** (top right) and enter:



**Bearer your-jwt-token-here**

### 2. User Endpoints

| **Method** | **Endpoint** | **Description** | **Access** |
| --- | --- | --- | --- |
| POST | /api/users | Create a new user | Public |
| GET | /api/users | List all users | Admin |
| GET | /api/users/{id} | Get a user by ID | Admin |
| PUT | /api/users/{id} | Update user details | Admin |
| DELETE | /api/users/{id} | Delete a user | Admin |

### 3. Task Endpoints

| **Method** | **Endpoint** | **Description** | **Access** |
| --- | --- | --- | --- |
| POST | /api/tasks | Create a task | Admin |
| GET | /api/tasks | List all tasks | Admin |
| GET | /api/tasks/{id} | Get a task (assigned to you) | Admin/User |
| PUT | /api/tasks/{id} | Update task | Admin / (User → status only) |
| DELETE | /api/tasks/{id} | Delete a task | Admin |

## Seeded Users

These test users are auto-loaded into the in-memory database when the app starts:

| **Username** | **Password** | **Role** |
| --- | --- | --- |
| admin | admin123 | Admin |
| user | user123 | User |

## Running Unit Tests

To run the unit tests:

dotnet test

At least one service and one controller action have been unit tested as part of the assignment.

## API Documentation

The full Swagger/OpenAPI documentation is available at:

https://localhost:5001/swagger