DoConnect — Ankit Dwivedi

Full-Stack Web Application (Angular + ASP.NET Core)

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Date: September 06, 2025

Batch: Batch 1 Asp .Net Cohort

Instructor: Parth Shukla

Frontend: Angular • Backend: ASP.NET Core Web API • Database: SQL Server • Tests: xUnit + Jasmine/Karma

Table of Contents

Right-click the TOC in Word and choose “Update Field” → “Update entire table.”

1. Project Overview

DoConnect.Api is a full-stack platform built with Angular and ASP.NET Core Web API. It implements secure authentication, domain-specific CRUD flows, and media handling where applicable. The UI is responsive, with guards and interceptors, and the backend follows REST standards with validation and proper error responses.

1.1 Objectives

- User authentication and role-based authorization (JWT).
- Clean, responsive Angular UI with route guards and interceptors.
- RESTful API with proper validation, pagination and error handling.
- Relational database modeled with EF Core (indexes, foreign keys).
- Automated tests across risky services/controllers; Postman collection for E2E flows.

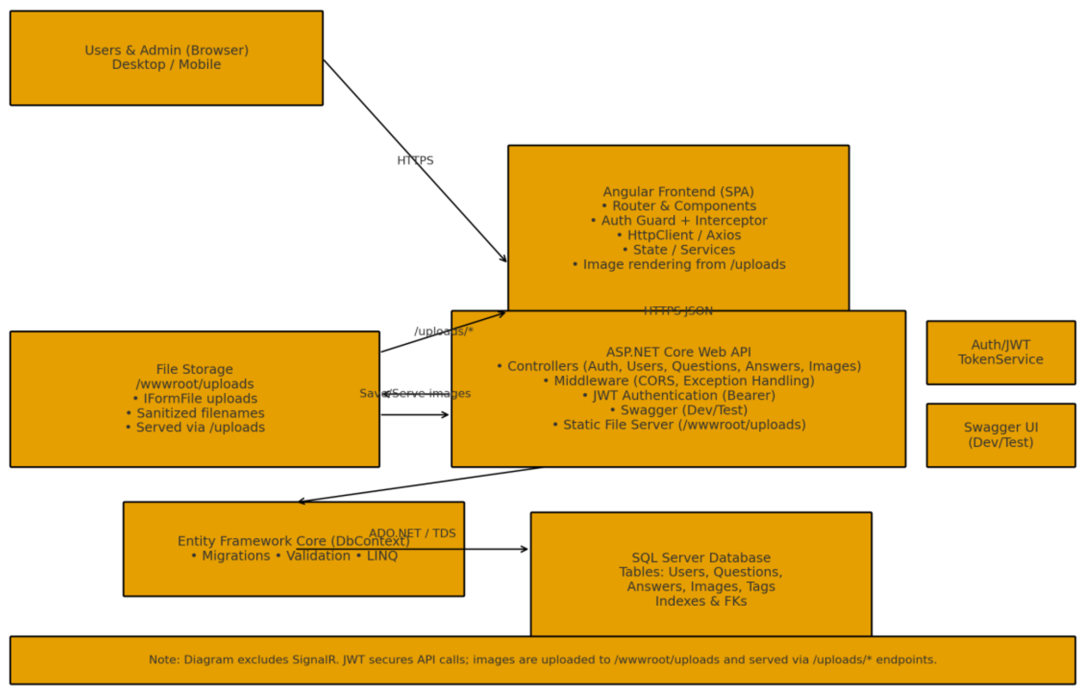
2. Architecture

2.1 Technology Stack

- Frontend: Angular (Router, Components, Forms, HttpClient/Interceptor).
- Backend: ASP.NET Core Web API (.NET 9), Entity Framework Core (Code-First).
- Database: SQL Server (dev SQLite optional).
- Auth: JWT (Bearer).
- Static file server: /wwwroot/uploads (if image uploads used).
- Testing: xUnit + Moq (backend); Jasmine/Karma (frontend).

2.2 System Diagram (Placeholder)

System Architecture Diagram


Users & Admin (Browser)
Desktop / Mobile
HTTPS
Angular Frontend (SPA)
• Router & Components
• Auth Guard + Interceptor
• HttpClient / Axios
• State / Services
• Image rendering from /uploads
HTTPS JSON
/uploads/*
File Storage
/wwwroot/uploads
• IFormFile uploads
• Sanitized filenames
• Served via /uploads
Save/Serve images
ASP.NET Core Web API
• Controllers (Auth, Users, Questions, Answers, Images)
• Middleware (CORS, Exception Handling)
• JWT Authentication (Bearer)
• Swagger (Dev/Test)
• Static File Server (/wwwroot/uploads)
Auth/JWT
TokenService
Swagger UI
(Dev/Test)
Entity Framework Core (DbContext)
• Migrations • Validation • LINQ
ADO.NET / TDS
SQL Server Database
Tables: Users, Questions,
Answers, Images, Tags
Indexes & FKs
Note: Diagram excludes SignalR. JWT secures API calls; images are uploaded to /wwwroot/uploads and served via /uploads/* endpoints.

3. REST API (Generated from Controllers)

HTTP	Endpoint	Action	Notes
HTTPGET	api/admin/answers/pending	GetPendingAnswers	admin
HTTPPOST	api/admin/answers/{id:guid}/approve	ApproveAnswer	admin
HTTPPOST	api/admin/answers/{id:guid}/reject	RejectAnswer	admin
HTTPPOST	api/admin/questions	CreateQuestionAsAdmin	admin
HTTPGET	api/admin/questions/pending	GetPendingQuestions	admin
HTTPDELETE	api/admin/questions/{id:guid}	DeleteQuestion	admin
HTTPPOST	api/admin/questions/{id:guid}/approve	ApproveQuestion	admin
HTTPPOST	api/admin/questions/{id:guid}/reject	RejectQuestion	admin
HTTPPOST	api/admin/questions/{questionId:guid}/answers	PostAnswerAsAdmin	admin
HTTPGET	api/admin/users	List	adminusers
HTTPPOST	api/admin/users	Create	adminusers
HTTPDELETE	api/admin/users/{id:guid}	Delete	adminusers
HTTPGET	api/admin/users/{id:guid}	Get	adminusers
HTTPPUT	api/admin/users/{id:guid}	Update	adminusers
HTTPPOST	api/ai/ask	Ask	ai
HTTPPOST	api/auth/login	Login	auth
HTTPGET	api/auth/me	Me	auth
HTTPPOST	api/auth/register	Register	auth
HTTPGET	api/questions	List	questions
HTTPPOST	api/questions	Create	questions
HTTPGET	api/questions/{id:guid}	GetById	questions
HTTPGET	api/questions/{questionId:guid}/answers	List	answers
HTTPPOST	api/questions/{questionId:guid}/answers	Create	answers
HTTPPUT	api/users/me	UpdateMe	usersme

3.1 Auth & Security

- JWT issued on successful login; include in Authorization header as Bearer token.
- Protect admin-only routes with policies or role checks.
- Global exception handler and CORS configured for the Angular origin.

4. Data Model

4.1 Entities

Answer

Property	Type
Id	Guid
Text	string
Status	ApproveStatus
QuestionId	Guid
Question	Question
UserId	Guid
User	User
CreatedAt	DateTime
Images	ICollection<ImageFile>

ImageFile

Property	Type
Id	Guid
Path	string
UploadedAt	DateTime
QuestionId	Guid?
Question	Question?
AnswerId	Guid?
Answer	Answer?

Question

Property	Type
Id	Guid
Title	string
Text	string
Status	ApproveStatus
UserId	Guid
User	User
CreatedAt	DateTime
Answers	ICollection<Answer>
Images	ICollection<ImageFile>

User

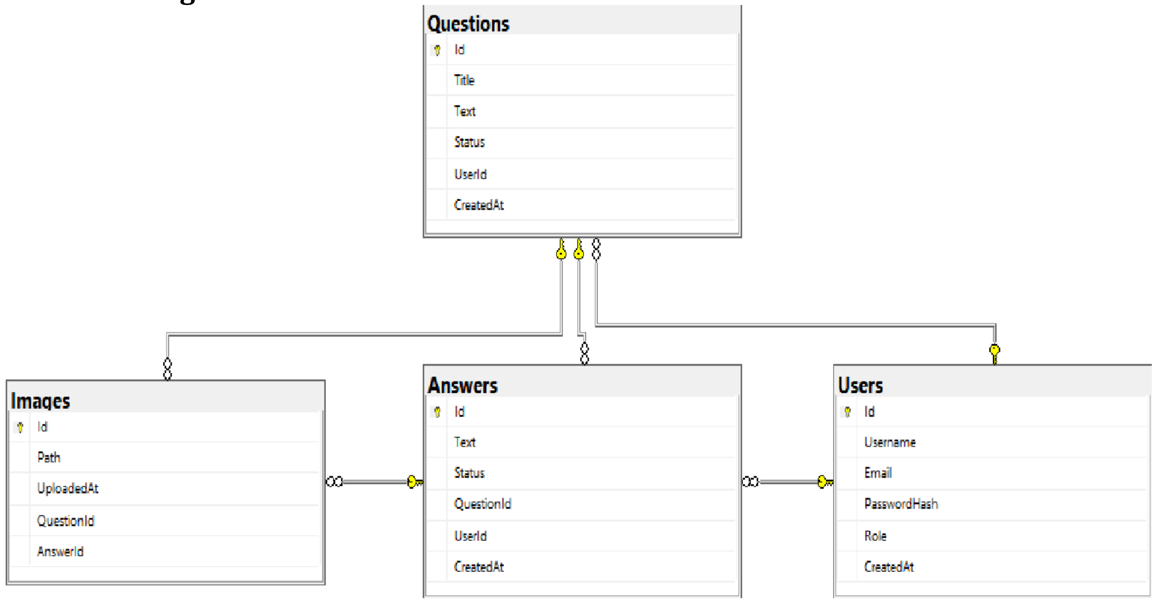
Property	Type
Id	Guid
Username	string
Email	string
PasswordHash	string
Role	RoleType
CreatedAt	DateTime
Questions	ICollection<Question>
Answers	ICollection<Answer>

4.2 Relationships & Indexes

- e.HasIndex(u => u.Username).IsUnique();
- e.HasIndex(u => u.Email).IsUnique();
- e.HasOne(q => q.User)
- .WithMany(u => u.Questions)
- .HasForeignKey(q => q.UserId)
- e.HasIndex(x => x.UserId);
- e.HasIndex(x => x.CreatedAt);
- e.HasOne(a => a.User)
- .WithMany(u => u.Answers)
- .HasForeignKey(a => a.UserId)
- e.HasOne(a => a.Question)
- .WithMany(q => q.Answers)
- .HasForeignKey(a => a.QuestionId)
- e.HasIndex(x => new { x.QuestionId, x.UserId });
- e.HasIndex(x => x.CreatedAt);
- e.HasOne(i => i.Question)

4.3 ER Diagram (Placeholder)

Insert ER Diagram



5. Frontend

- Auth: LoginComponent, RegisterComponent, Guards (AuthGuard, AdminGuard).
- Questions: AskComponent, QuestionListComponent, QuestionDetailComponent (with image gallery).
- Answers: AnswerFormComponent, AnswerListComponent (approve/reject badges).
- Tags & Search: TagChipComponent, SearchBarComponent, FiltersSidebar.
- Profile: ProfileViewComponent, ProfileEditComponent (optional avatar upload).
- Admin: AdminDashboard, UsersAdminComponent, PostsModerationComponent, ReportsComponent.
- Shared: Navbar (responsive with user dropdown), Snackbar/Toast, FileUploadComponent.

6. Validation & Error Handling

- DTO validation (Required/MaxLength/Range) for all inputs.
- Consistent 400/401/403/404 responses with ProblemDetails payloads.
- File upload limits and MIME checks where applicable.
- Global exception handler with structured logs.

7. Testing

- xUnit + Moq for service/controller units (auth, critical CRUD flows).
- Angular component tests for forms, guards, and service integration.
- Postman collection for end-to-end scenarios.

8. Deployment & DevOps

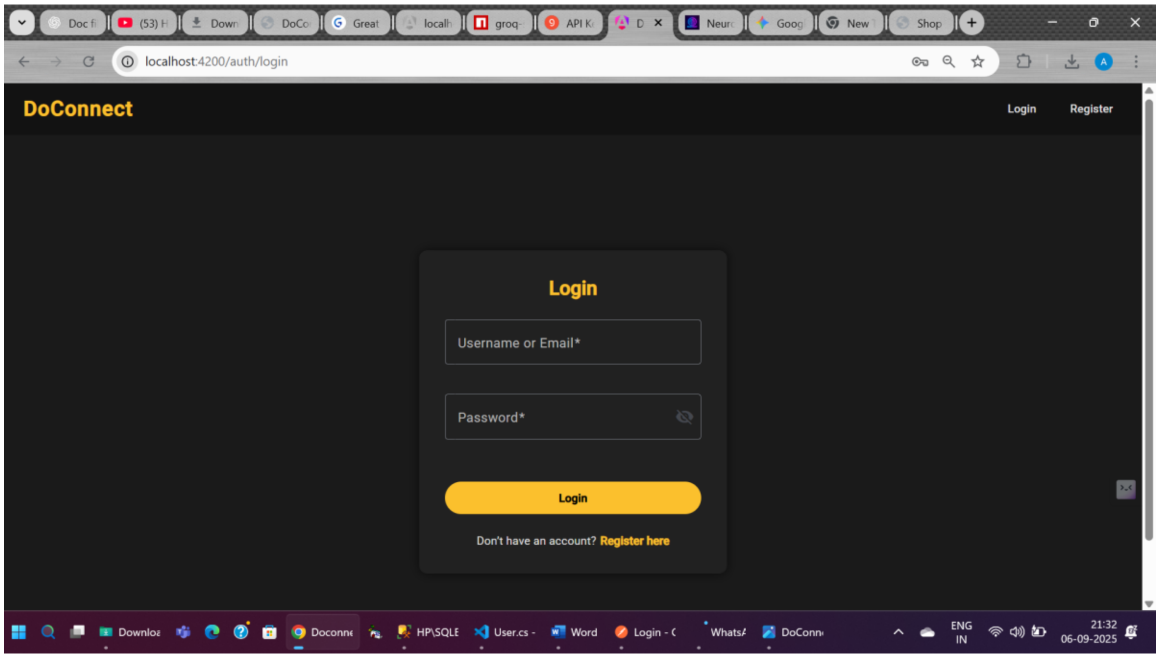
- Configuration via appsettings.* and environment.ts files.
- CI: restore → build → run tests → publish artifacts.
- Reverse proxy or static host for Angular; API on IIS/Azure/Docker.
- Log aggregation and monitoring (Serilog, Application Insights).

9. Accessibility & UX

- Keyboard navigation, ARIA labels, color contrast compliance.
- Responsive navbar with user dropdown (profile/logout).
- Meaningful validation and error messages.

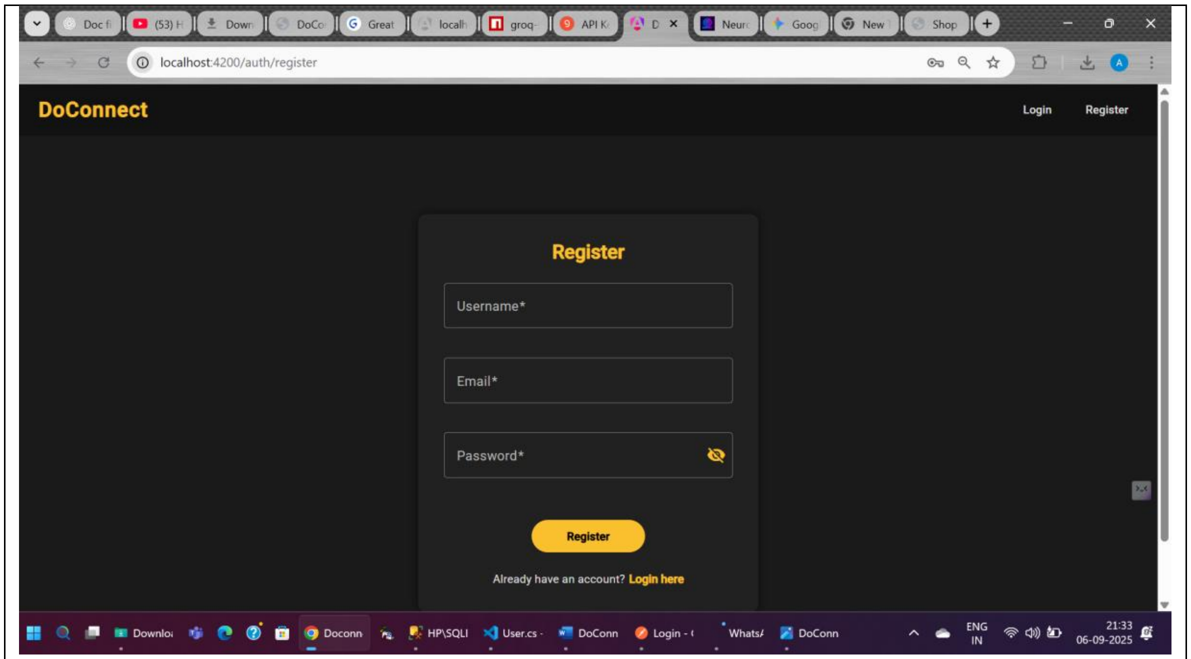
10. Implementation Screenshots

10.1 Login

Login


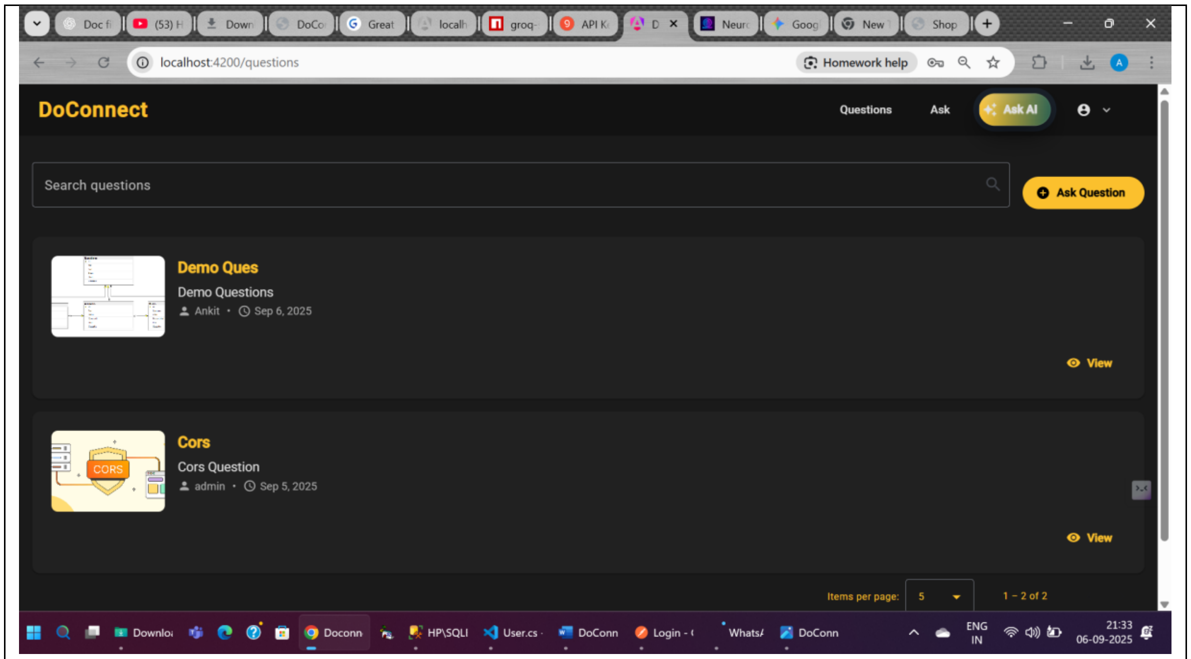
10.2 Register

Register


localhost:4200/auth/register
DoConnect
Login
Register
Register
Username*
Email*
Password*
Register
Already have an account? Login here

10.3 Landing / Dashboard

Landing / Dashboard



DoConnect

Questions Ask Ask AI

Search questions

Ask Question

Demo Ques

Demo Questions

Ankit • Sep 6, 2025

View

Cors

Cors Question

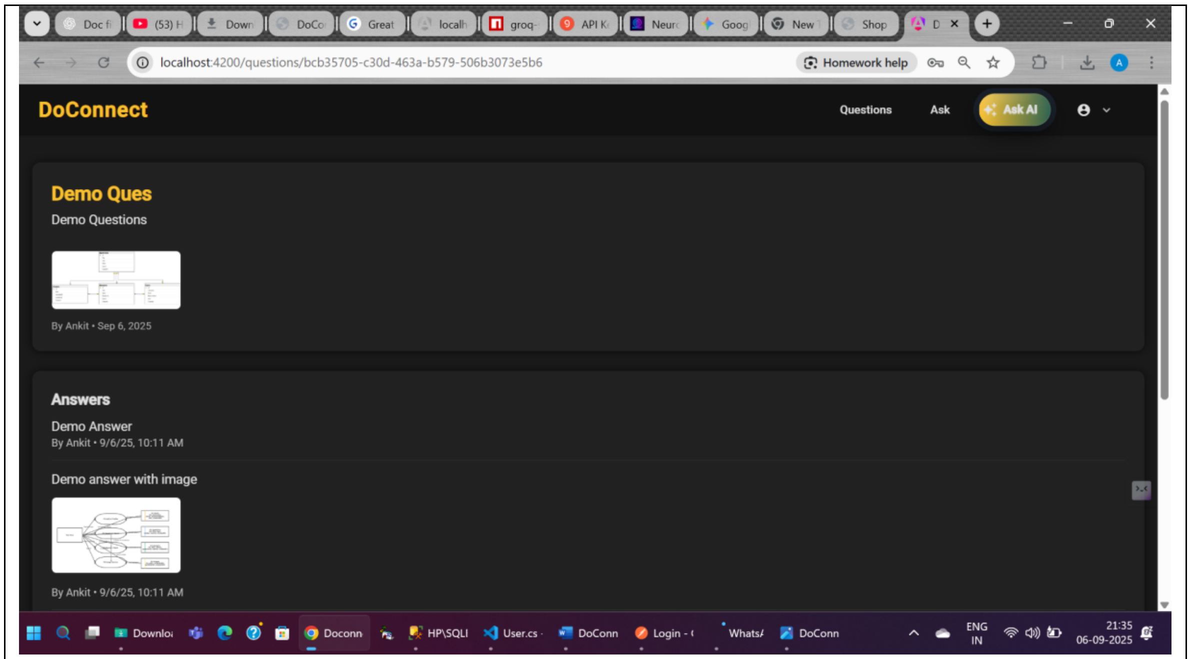
admin • Sep 5, 2025

View

Items per page: 5 1 – 2 of 2

10.4 Primary CRUD Screen

Primary CRUD Screen


localhost:4200/questions/bcb35705-c30d-463a-b579-506b3073e5b6
DoConnect
Questions
Ask
Ask AI

Demo Ques

Demo Questions

By Ankit • Sep 6, 2025

Answers

Demo Answer

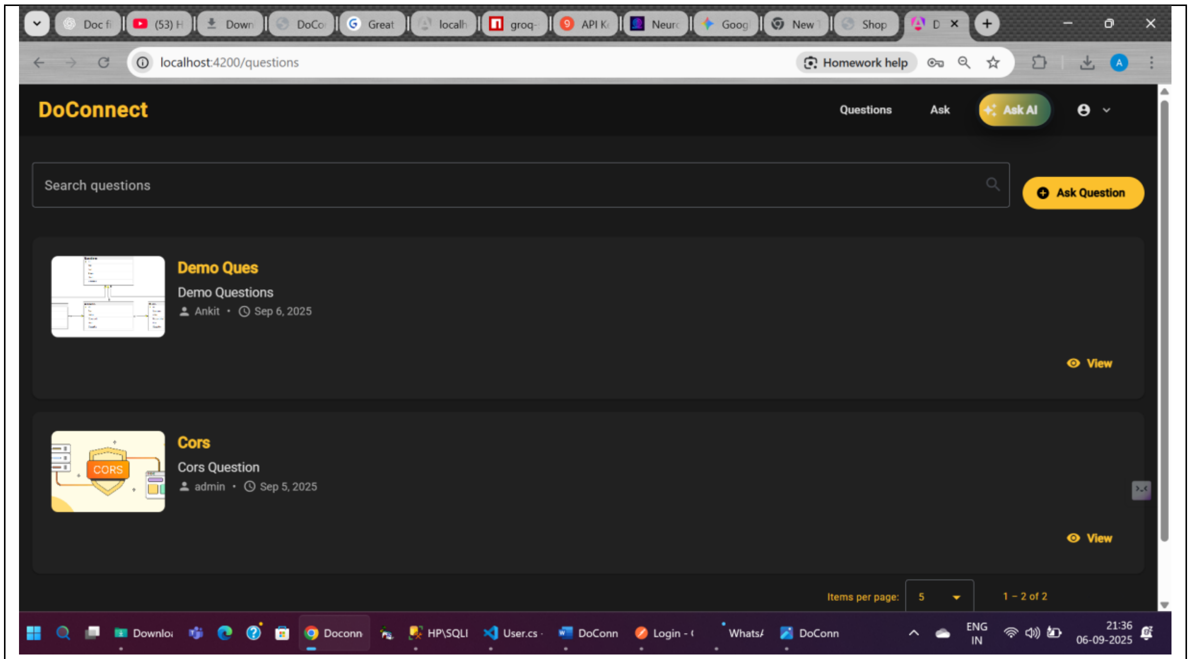
By Ankit • 9/6/25, 10:11 AM

Demo answer with image

By Ankit • 9/6/25, 10:11 AM

10.5 List + Pagination/Filters

List + Pagination/Filters


localhost:4200/questions

DoConnect

Questions Ask Ask AI

Search questions

Ask Question

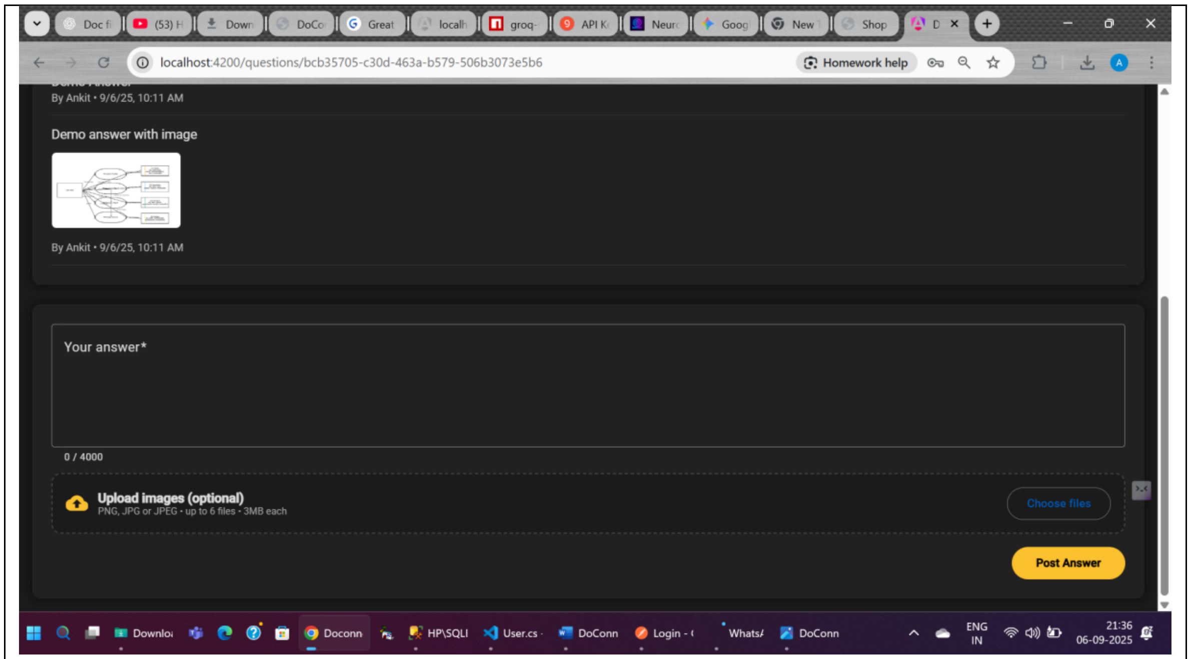
Demo Ques
Demo Questions
Ankit • Sep 6, 2025
View

Cors
Cors Question
admin • Sep 5, 2025
View

Items per page: 5 1 – 2 of 2

10.6 Detail View

Detail View



localhost:4200/questions/bcb35705-c30d-463a-b579-506b3073e5b6

By Ankit • 9/6/25, 10:11 AM

Demo answer with image

By Ankit • 9/6/25, 10:11 AM

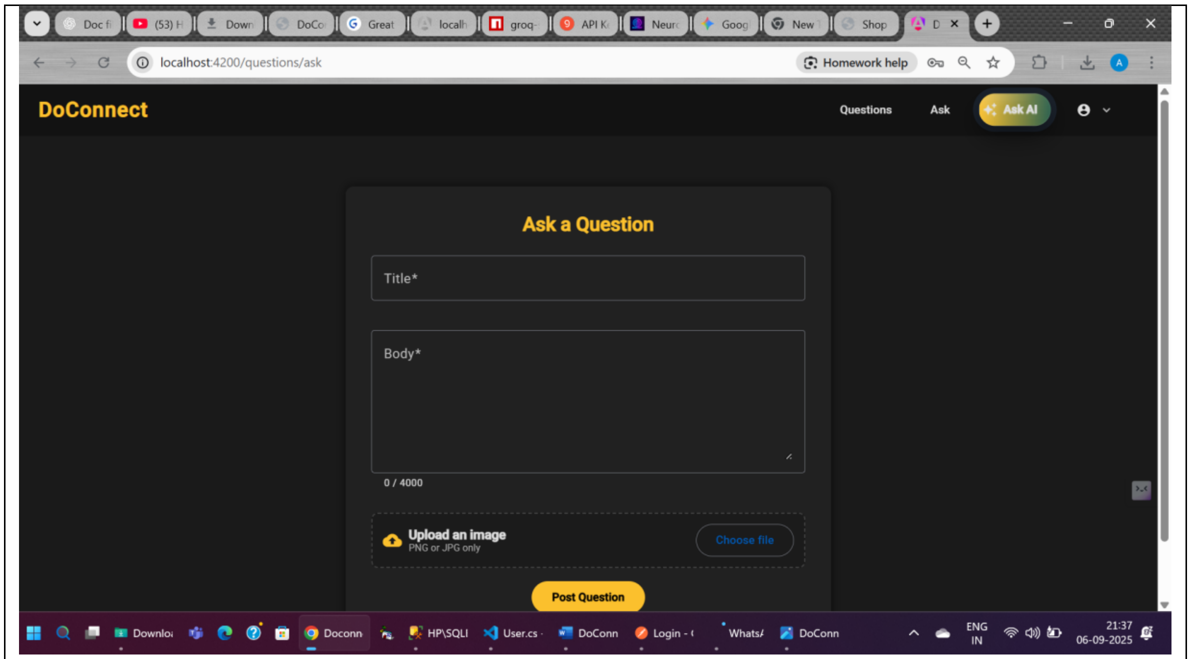
Your answer*

0 / 4000

Upload images (optional)
PNG, JPG or JPEG • up to 6 files • 3MB each

10.7 Create/Edit Form

Create/Edit Form



Ask a Question

Title*

Body*

0 / 4000

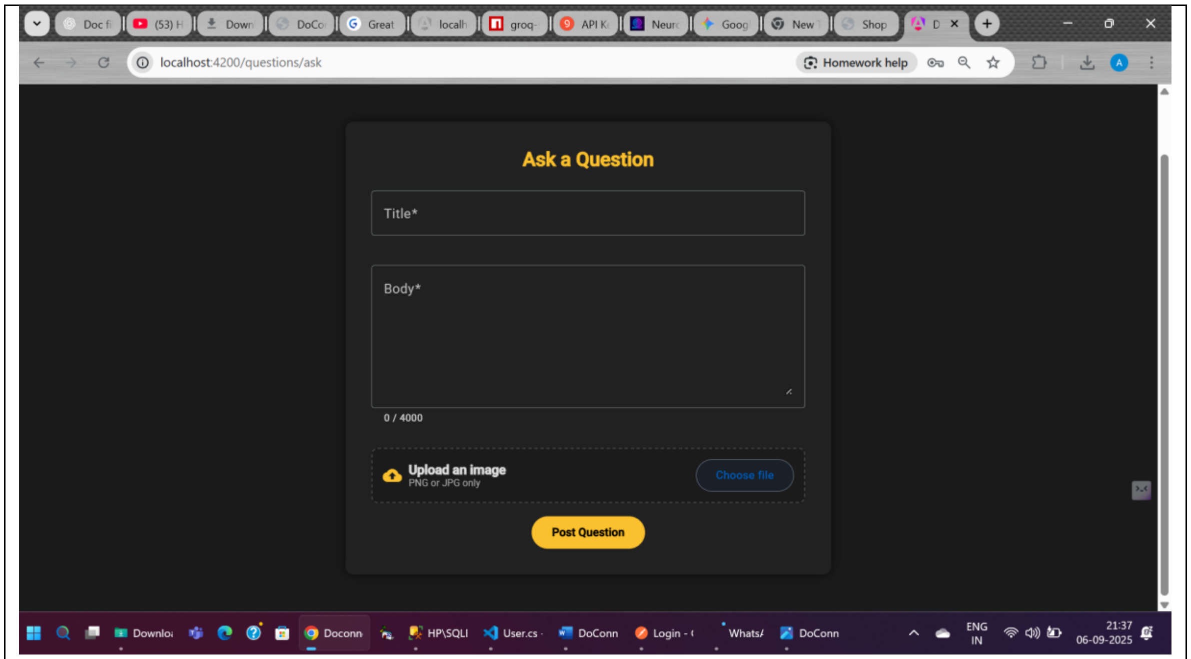
Upload an image
PNG or JPG only

Choose file

Post Question

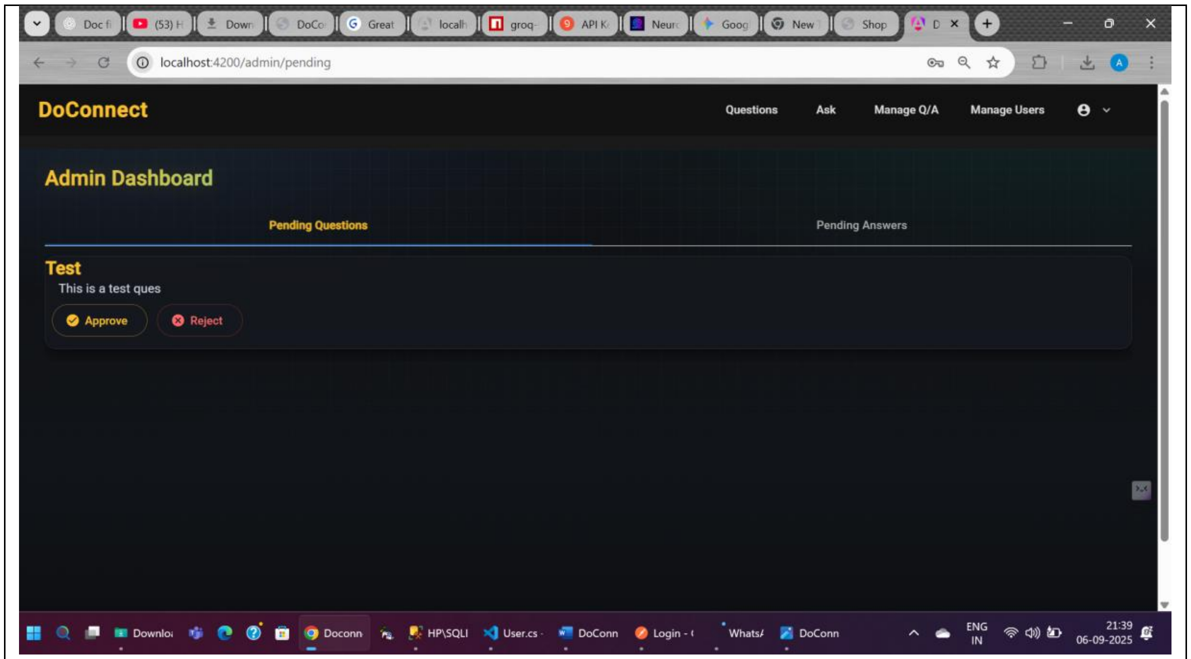
10.8 File Upload

File Upload



10.9 Admin/Reports

Admin/Reports



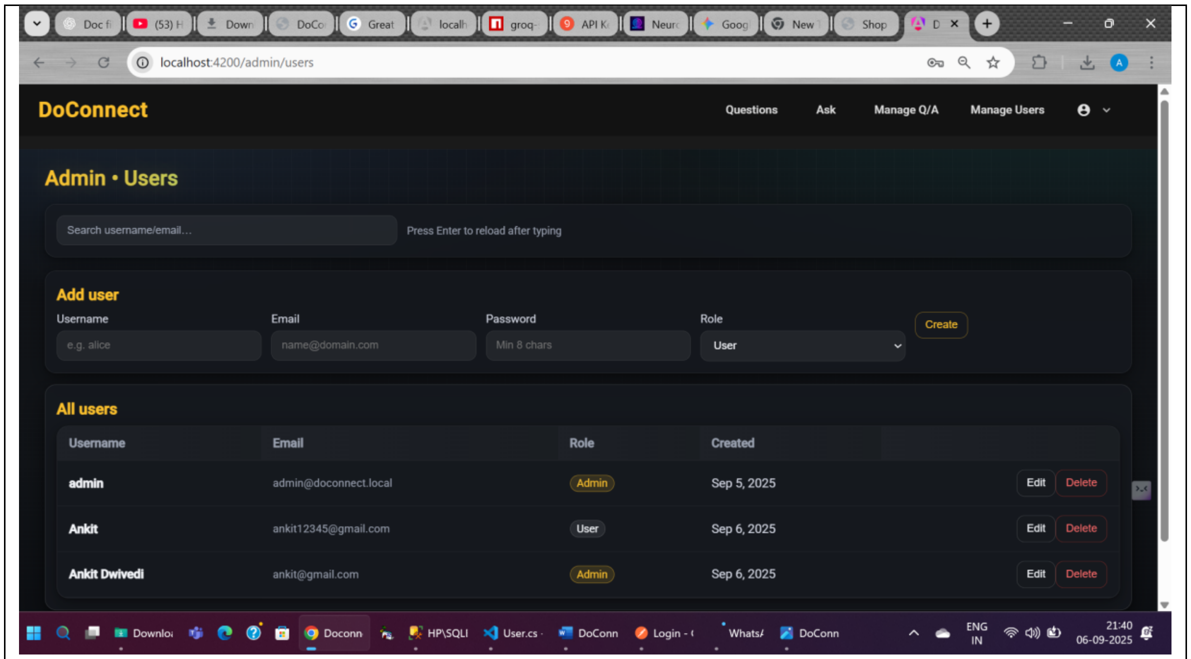
Admin Dashboard

Test

This is a test ques

10.10 Manage Users (Admin)

Manage Users (Admin)



Admin • Users

Search username/email...

Press Enter to reload after typing

Add user

Username	Email	Password	Role	
e.g. alice	name@domain.com	Min 8 chars	User	Create

All users

Username	Email	Role	Created	
admin	admin@doconnect.local	Admin	Sep 5, 2025	Edit Delete
Ankit	ankit12345@gmail.com	User	Sep 6, 2025	Edit Delete
Ankit Dwivedi	ankit@gmail.com	Admin	Sep 6, 2025	Edit Delete

11. Submission Checklist

- DoConnect.Api_Final_Report_Ankit_Dwivedi.docx/pdf (this file).
- Backend source ZIP; Frontend source ZIP.
- Database schema SQL; seed data (if any).
- Postman collection + environment JSON.
- Screenshots embedded in Section 10.
- Private Git repository link (archived).

12. Conclusion

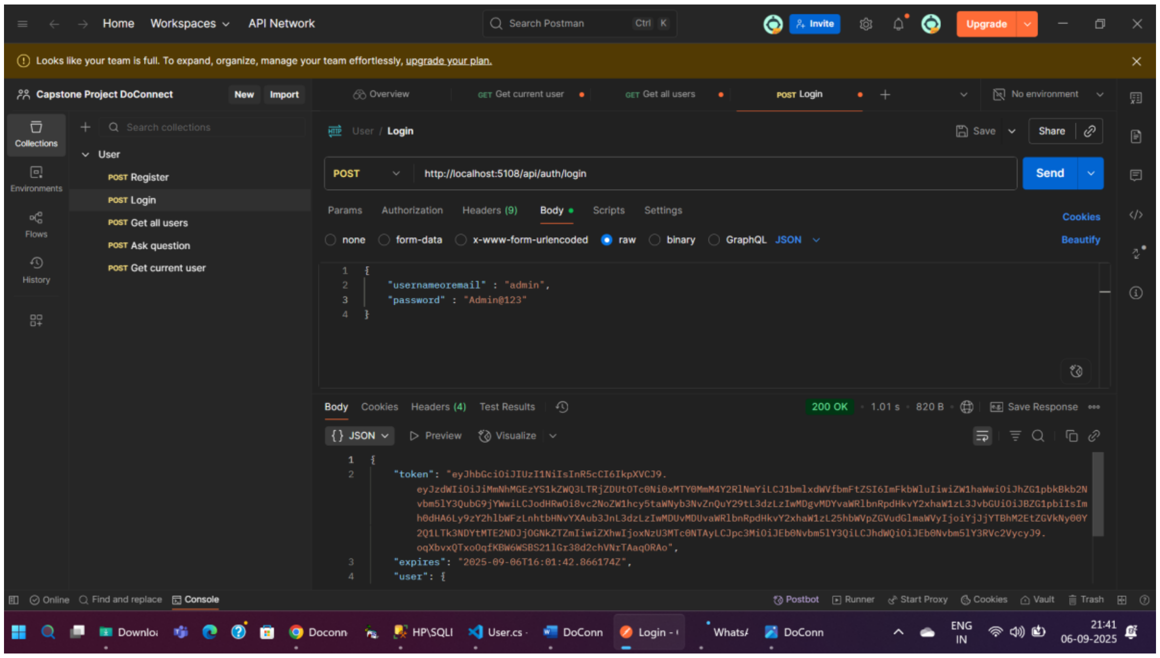
DoConnect.Api integrates a secure ASP.NET Core backend with an Angular frontend to deliver a robust, testable, and maintainable solution. With proper validation, relational data modeling, and CI-ready structure, it meets the academic evaluation standards and is ready for further extension.

13. References

- Microsoft Docs — ASP.NET Core, EF Core
- Angular Docs — angular.io
- OWASP — Authentication & Input Validation

Appendix A — Extended Evidence

A.1 Postman Screenshot

Postman screenshot


POST http://localhost:5108/api/auth/login

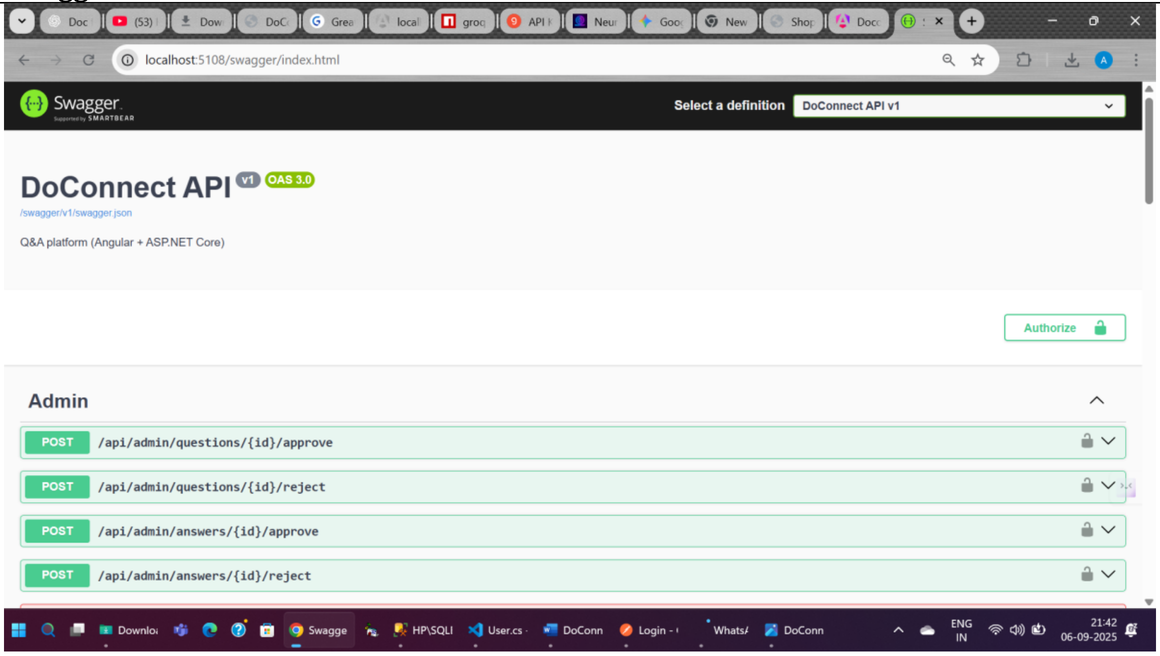
```
{
    "usernameoremail" : "admin",
    "password" : "Admin@123"
}
```

200 OK · 1.01 s · 820 B

```
{
    "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
        eyJzdWIiOiJiMmNhMGEzYS1kZWQ3LTRjZDUtOTc0Ni0xMTY0MmM4Y2RlNmYiLCJ1bmlxdWVfbmFtZSI6ImFkbWluIiwiZW1haWwiOiJhZG1pbkBkb2N
        vbm5lY3QubG9jYWwiLCJodHRwOi8vc2NoZW1hcy5taWNyb3NvZnQuY29tL3dzLzIwMDgvMDYvaWRlbnRpdHkvY2xhaW1zL3JvbGUiOiJBZG1pbiIsIm
        h0dHA6Ly9zY2hlbWFzLnhtbHNvYXAub3JnL3dzLzIwMDUvMDUvaWRlbnRpdHkvY2xhaW1zL25hbWVpZGVudGlmaWVyIjoiYjJjYTBhM2EtZGVkNy00Y
        2Q1LTk3NDYtMTE2NDJjOGNkZTZmIiwiZXhwIjoxNzU3MTc0NTAyLCJpc3MiOiJEb0Nvbm5lY3QiLCJhdWQiOiJEb0Nvbm5lY3RVc2VycyJ9.
        oqXbvxQTxoOqfKBW6WSBS21lGr38d2chVNrTAaqORAo",
    "expires": "2025-09-06T16:01:42.866174Z",
    "user": {
```

A.2 Swagger

Swagger screenshot



localhost:5108/swagger/index.html

DoConnect API v1 OAS 3.0

/swagger/v1/swagger.json

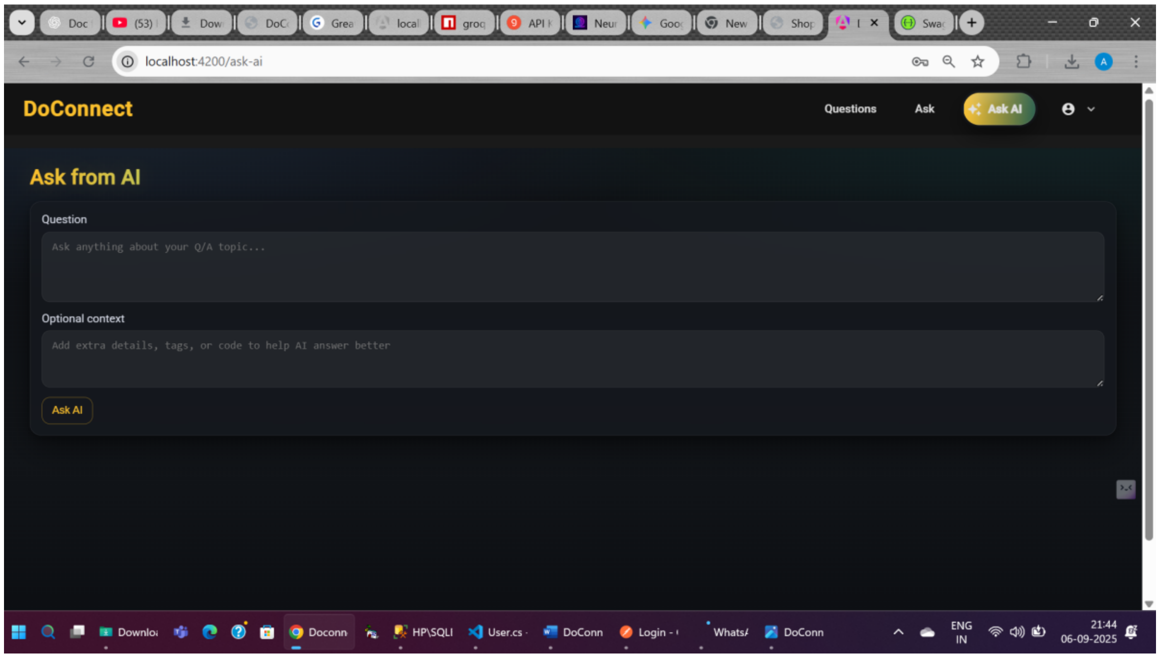
Q&A platform (Angular + ASP.NET Core)

Admin

```
POST /api/admin/questions/{id}/approve
POST /api/admin/questions/{id}/reject
POST /api/admin/answers/{id}/approve
POST /api/admin/answers/{id}/reject
```

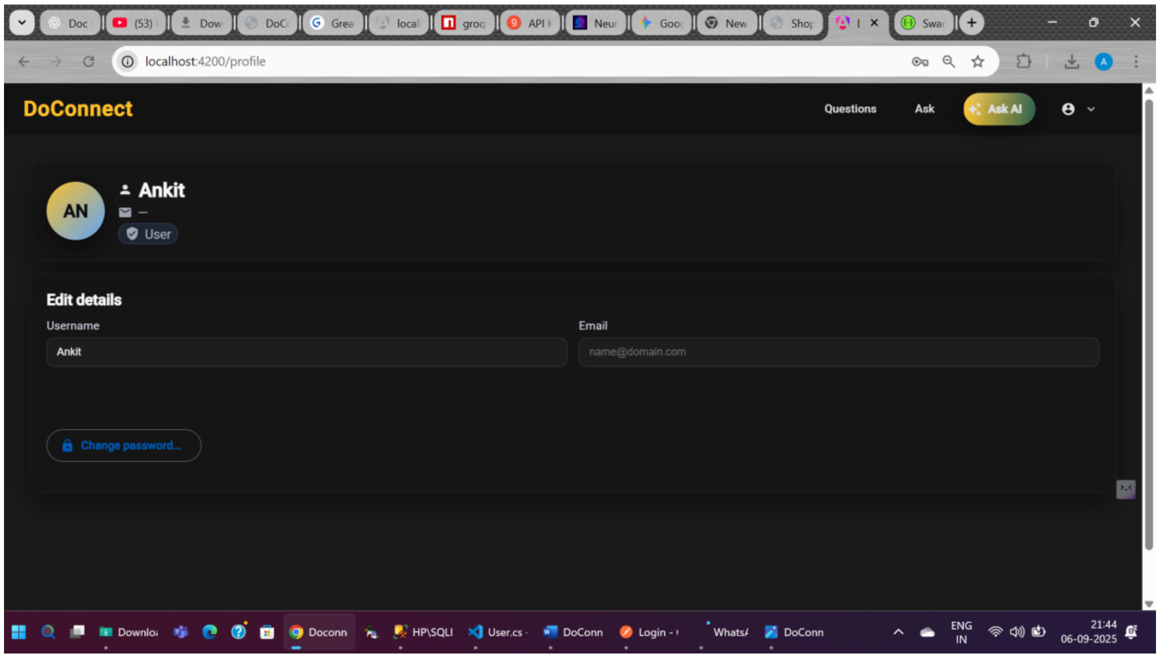
A.3 Ask with AI

Ask with AI



A.4 Profile Page

Profile Page



localhost:4200/profile

DoConnect

AN Ankit

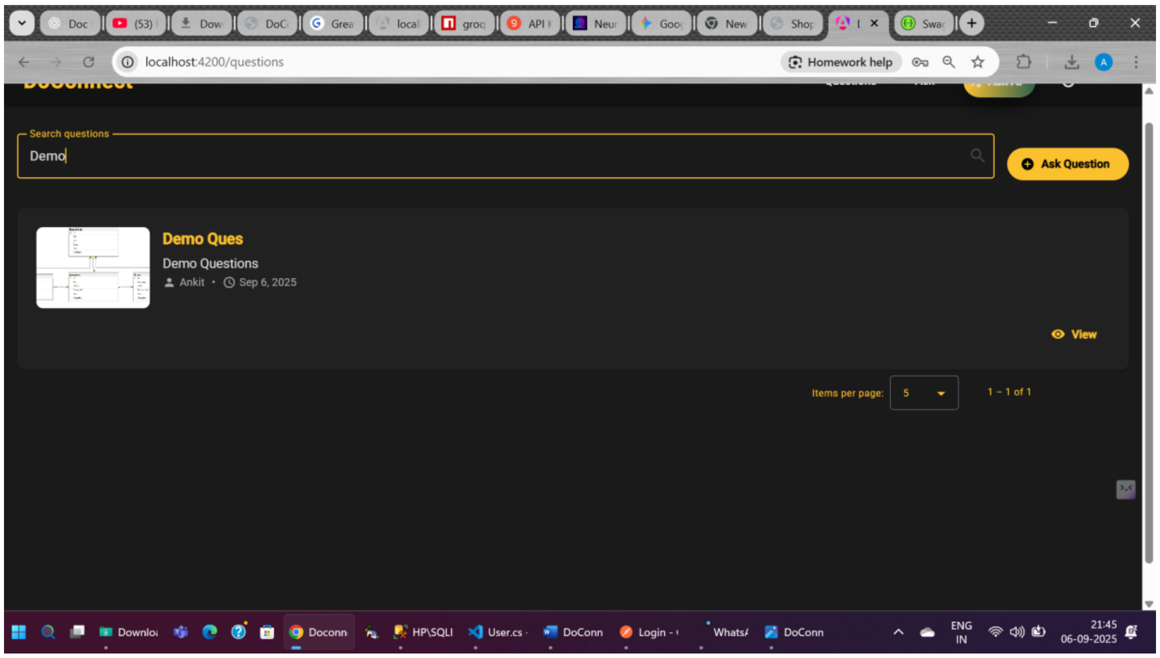
User

Edit details

Username: Ankit

Email: name@domain.com

A.5 Search functionalities

Search funtionalities


localhost:4200/questions

Search questions

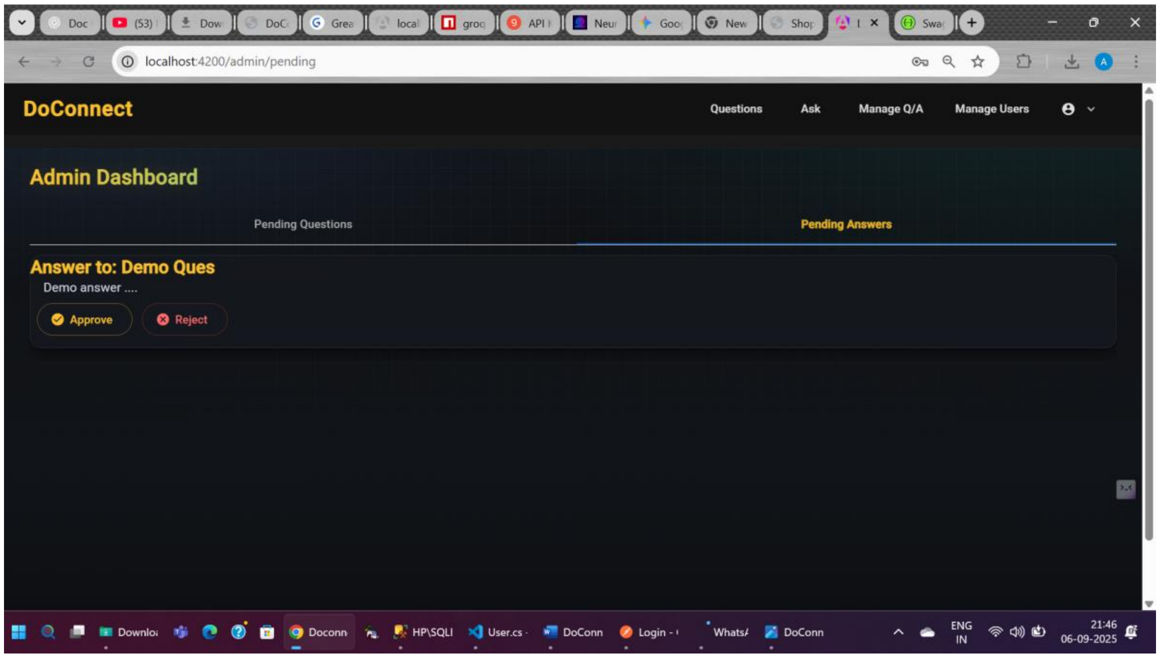
Demo

Demo Ques

Demo Questions

Ankit • Sep 6, 2025

A.6 Manage pending answer by admin

Pending Answer


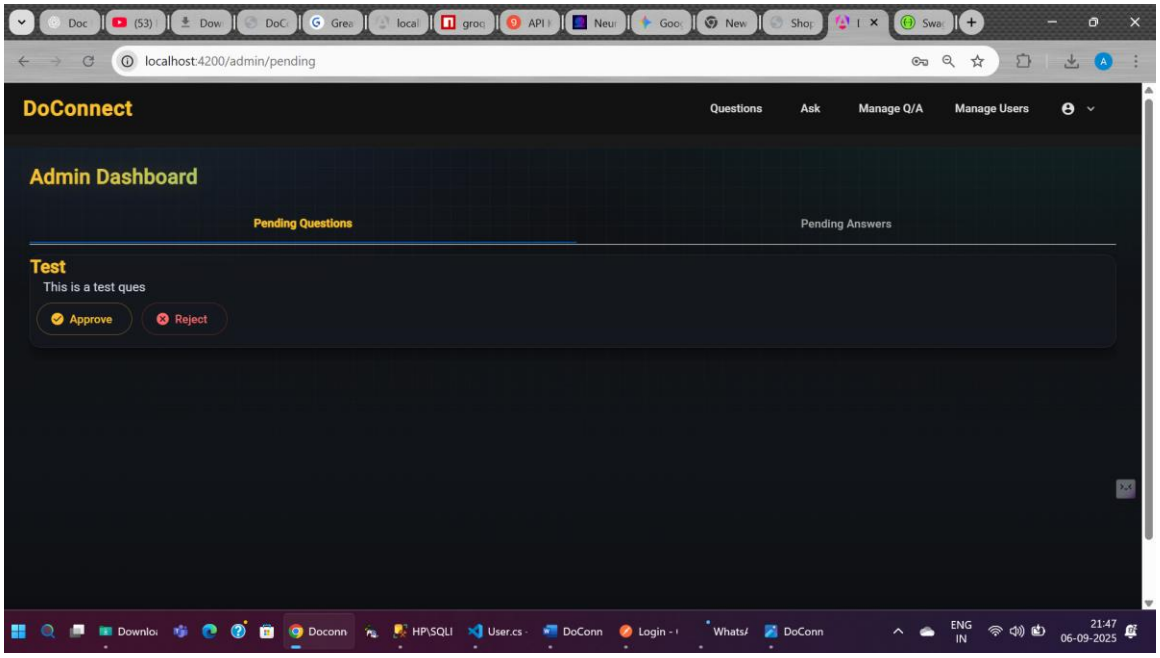
Admin Dashboard

Answer to: Demo Ques

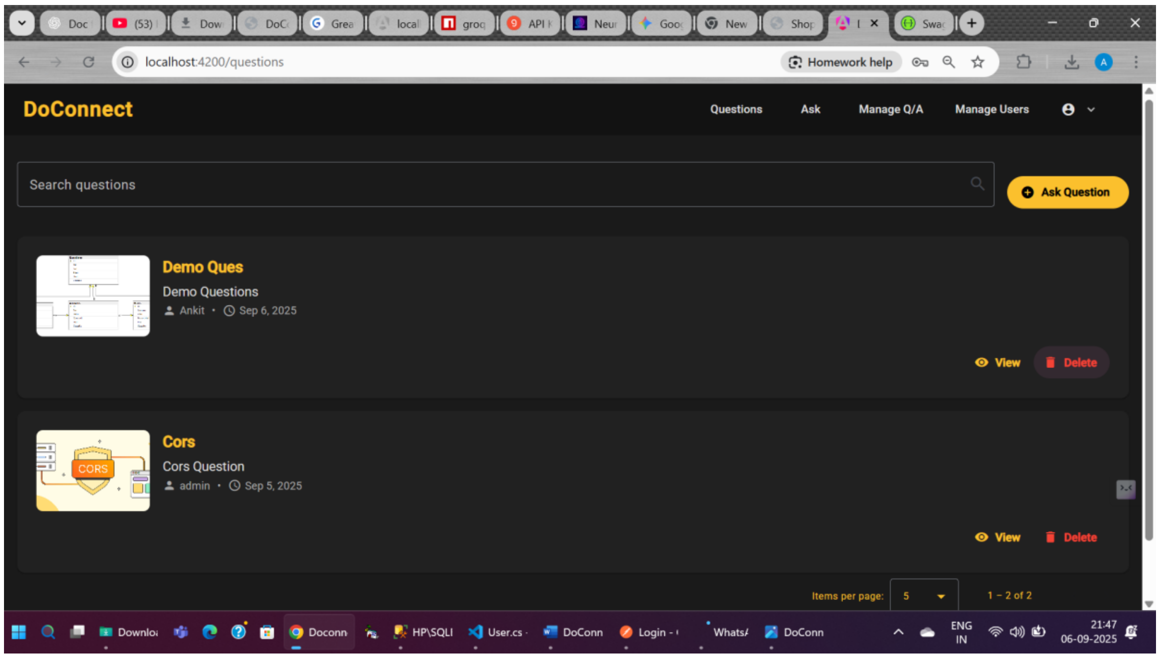
Demo answer ....

A.7 Manage Pending question by Admin

Pending Question



A.8 Delete Question functionality only for admin

Delete button


localhost:4200/questions

DoConnect

Questions Ask Manage Q/A Manage Users

Search questions

Ask Question

Demo Ques

Demo Questions

Ankit • Sep 6, 2025

View Delete

Cors

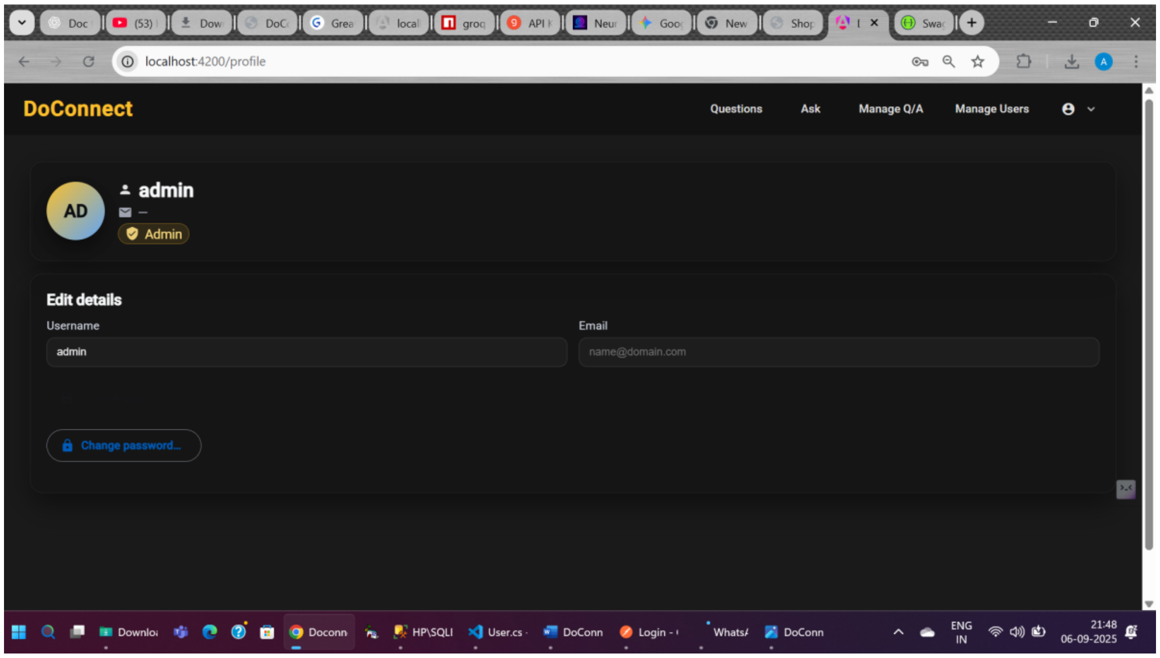
Cors Question

admin • Sep 5, 2025

View Delete

Items per page: 5 1 – 2 of 2

A.9 Admin Profile

Admin Profile


admin

–

Admin

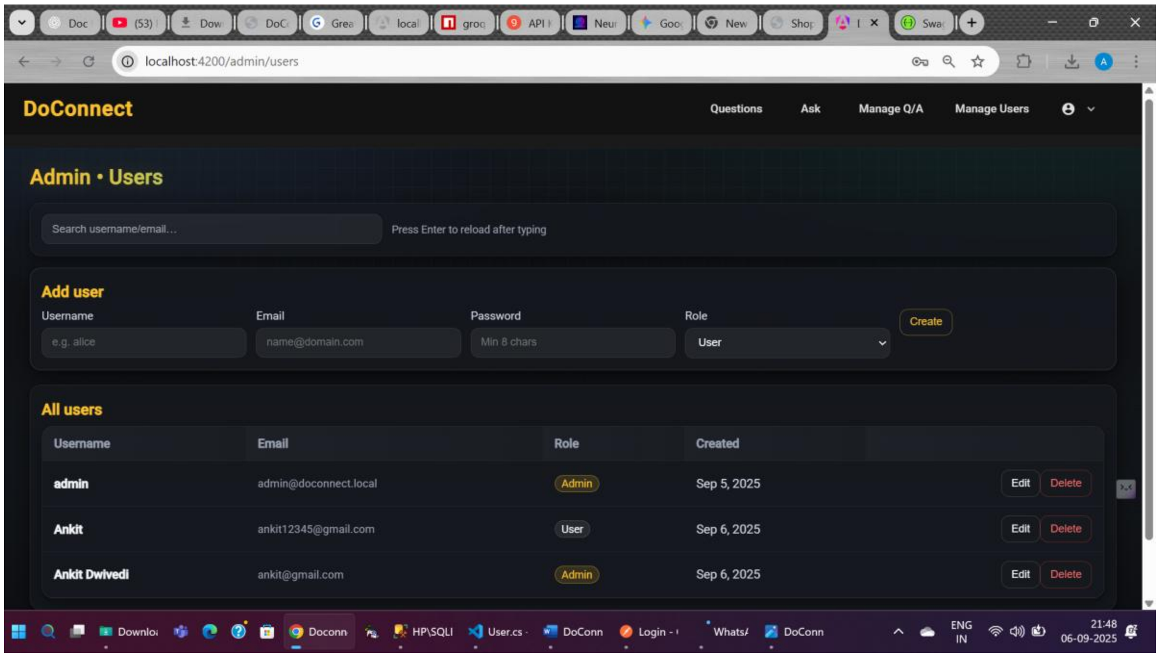
Edit details

Username: admin

Email: name@domain.com

A.10 Manage User Page By Admin

Insert Evidence 15

Manage User


localhost:4200/admin/users

DoConnect

Questions Ask Manage Q/A Manage Users

Admin • Users

Search username/email... Press Enter to reload after typing

Add user

Username	Email	Password	Role
e.g. alice	name@domain.com	Min 8 chars	User

Create

All users

Username	Email	Role	Created	
admin	admin@doconnect.local	Admin	Sep 5, 2025	Edit Delete
Ankit	ankit12345@gmail.com	User	Sep 6, 2025	Edit Delete
Ankit Dwivedi	ankit@gmail.com	Admin	Sep 6, 2025	Edit Delete

21:48 06-09-2025