**.NET + AI + Database: Project Topics**

🕒 Each lecture is 1.5 hours.  
📅 Weekly 2 lectures (around 6.5 weeks total).

# Lecture 1: AI-Powered Chatbot in .NET

⏰ Duration: 1.5 hours | 📅 Week 1

Build a chatbot in ASP.NET Core/MVC with conversational memory stored in SQL.  
👉 Skills: LLM integration, DB persistence, Chat UI design.

# Lecture 2: Chatbot with FAQ + Profile Storage

⏰ Duration: 1.5 hours | 📅 Week 1

Extend the chatbot to save user profiles, preferences, and FAQs in SQL Server/Postgres.  
👉 Skills: Entity Framework, DB schema design, user personalization.

# Lecture 3: Natural Language → SQL Queries

⏰ Duration: 1.5 hours | 📅 Week 2

Convert plain English questions ('Show top 5 customers this month') into safe SQL using LLMs.  
👉 Skills: AI prompt engineering, SQL injection safety, ADO.NET.

# Lecture 4: Database Analytics via AI

⏰ Duration: 1.5 hours | 📅 Week 2

AI layer in .NET that explains database insights (sales growth, best sellers, top customers).  
👉 Skills: Query optimization, reporting dashboards, text summarization.

# Lecture 5: File Analyzer – Text Extraction

⏰ Duration: 1.5 hours | 📅 Week 3

Upload invoices, bills, or ID cards → .NET calls AI Vision APIs to extract text and validate.  
👉 Skills: File upload, OCR (Azure Cognitive / OpenAI), .NET APIs.

# Lecture 6: File Analyzer – Fraud Detection

⏰ Duration: 1.5 hours | 📅 Week 3

Detect tampered/duplicate documents using AI vision + metadata checks.  
👉 Skills: AI anomaly detection, logging, fraud prevention logic.

# Lecture 7: Image Classifier with .NET + AI

⏰ Duration: 1.5 hours | 📅 Week 4

Upload product images and classify them (e.g., 'Electronics / Furniture / Clothing').  
👉 Skills: Image ML models, Blob storage, AI inference in .NET.

# Lecture 8: Voice → Database Search

⏰ Duration: 1.5 hours | 📅 Week 4

Speak queries ('Show my last 5 orders') and retrieve from SQL using Speech-to-Text + LLM.  
👉 Skills: Speech recognition, AI → SQL pipeline, Web API.

# Lecture 9: Recommendation System in .NET

⏰ Duration: 1.5 hours | 📅 Week 5

Suggest products/courses for each user by combining AI + past purchase data.  
👉 Skills: ML recommendation models, SQL joins, caching in .NET.

# Lecture 10: AI-Based Sentiment Analyzer

⏰ Duration: 1.5 hours | 📅 Week 5

Analyze user feedback/reviews stored in DB → show positive/negative trend reports.  
👉 Skills: NLP sentiment models, DB integration, charting in .NET.

# Lecture 11: Smart Report Generator

⏰ Duration: 1.5 hours | 📅 Week 6

Upload CSV/Excel → AI in .NET generates summaries: 'Top revenue states this month'.  
👉 Skills: File parsing, AI text summarization, reporting dashboards.

# Lecture 12: Deployment & Hosting

⏰ Duration: 1.5 hours | 📅 Week 6

Learn how to deploy AI + .NET + Database projects to Azure, AWS, or on-prem servers.  
👉 Skills: Docker, Kubernetes, CI/CD pipelines, cloud hosting.

# Lecture 13: End-to-End AI + DB Project

⏰ Duration: 1.5 hours | 📅 Week 7

Capstone: Build a mini ERP/CRM where chatbot, analytics, and AI file analysis work together.  
👉 Skills: Integration of all modules, project deployment on Azure/AWS.