🌐 AI Integration in Web & Mobile Apps

Duration: 4 Weeks | **Level**: Intermediate
 Format: Lectures + Hands-on Labs + Mini Projects
 Tools: OpenAI API, TensorFlow.js, Firebase, React, Flutter, Node.js, Expo

📅 Week 1: Introduction to AI and Web/Mobile App Integration

- Understanding AI and Machine Learning fundamentals
- Overview of AI APIs: OpenAI, TensorFlow.js, Hugging Face
- Setting up and integrating OpenAI API in web apps
- Introduction to AI-powered features: Text generation, chatbots, summarization, and recommendation engines
- **Lab**: Build a simple AI-powered chatbot with OpenAI API on a React or Flutter app

📅 Week 2: AI-Powered Features for Web & Mobile

- Integrating text generation and language models (OpenAI GPT-3) into apps
- Speech-to-Text and Text-to-Speech with AI (Google Speech API, OpenAI Whisper)
- Image recognition and classification using AI (TensorFlow.js, Clarifai)
- Using Firebase and APIs for AI model storage and hosting
- **Lab**: Build an AI Text-to-Speech and Speech-to-Text app with React/Flutter

📅 Week 3: Building Interactive AI Web & Mobile Apps

- AI in real-time web apps: Chatbots, automated replies, and sentiment analysis
- Integrating AI models for image processing (using TensorFlow.js)
- AI-based personalization and recommendation systems
- Deploying AI models on mobile using TensorFlow Lite for mobile apps (Android/iOS)
- **Project**: Build an AI-powered e-commerce product recommendation system or a personalized news feed

📅 Week 4: Deployment, Security, and Optimization

- Optimizing AI performance for mobile and web (API rate limiting, latency handling)
- Deploying AI models to cloud platforms (AWS, Google Cloud, Firebase)
- Security concerns and user data privacy when using AI in apps
- Optimizing AI APIs for real-time applications and handling large volumes of data
- **Capstone Project**: Build and deploy a fully functional AI-powered app (e.g., an AI-driven fitness coach, language translator, or custom recommendation engine)

🏆 Capstone Project Ideas

- AI-powered Personal Assistant App (for mobile or web)
- Chatbot integration for customer service with NLP (using OpenAI GPT-3)
- Personalized recommendation engine for products, movies, etc.
- Real-time sentiment analysis app (feedback, reviews, social media posts)