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## Full Stack Azure Static Web Apps and Data API Builder

### Duration

3 days

### Description

The Full Stack Azure Static Web Apps and Data API Builder course is designed for students seeking to master the creation of full-stack web applications using Azure Static Web Apps and Data API Builder. Participants will explore the principles of REST APIs and GraphQL, and learn how to configure a Data API Builder project. The course also provides practical experience in incorporating authentication and authorization into a web application. The curriculum concludes with deploying a web application using a GitHub CI/CD pipeline, equipping learners with the skills to develop, secure, and deploy sophisticated web applications.

### Objectives

- Explore Azure Static Web Apps and Data API Builder
- Create a full stack web application with Azure Static Web Apps and Data API Builder
- Learn the principles of REST APIs and GraphQL
- Configure a Data API Builder project
- Incorporate authentication and authorization into a web application
- Deploy a web application using a GitHub CI/CD pipeline

### Prerequisites

Students should have web development experience, especially with HTML/CSS/JavaScript. Familiarity with SQL databases, REST APIs, and GraphQL is helpful but not required.

### Training Materials

All students receive comprehensive courseware covering all topics in the course. Students will access the courseware through GitHub. The courseware is a collection of documents and extensive code samples. Students practice the topics covered through challenging hands-on lab exercises.



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## Software Requirements

Students need a free, personal GitHub account to access the courseware and perform automated deployments. Students will need a computer with a modern web browser, Visual Studio Code, .NET SDK, and Node.js installed. Also, students will need an Azure Subscription.

## Outline

- Introduction
  - What is an Azure Static Web App?
  - What is Data API Builder?
  - What is a CI/CD pipeline?
  - GitHub Deployment with Azure Static Web Apps and Data APIs
- Azure Static Web Apps
  - Overview
  - Architecture
  - Features
  - Limitations
  - Pricing
  - Resources
- Create a Static Web App
  - Install the Static Web App CLI
  - Create a Static Web App
  - Configure a Static Web App
  - Run a Static Web App Locally
  - Program a Static Web App
  - Incorporate a JavaScript Framework (for fuller coverage of Blazor, React, Angular, Vue, Svelte, or SolidJS consider extending this course to 4 or 5 days)
- Data API Builder
  - Overview
  - Architecture
  - Features
  - Limitations
  - Pricing
  - Resources
- REST APIs
  - What is a REST API?



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- REST API Design
- HTTP Verbs and Paths
- Query String
- Status Codes
- HTTP Headers & Body
- REST API Client
- GraphQL
  - What is GraphQL?
  - GraphQL Design
  - GraphQL Schema
  - Queries and Mutations
  - Operation Name
  - Variables
  - Aliases
  - Fragments
  - GraphQL Client
- Azure SQL Database
  - What is Azure SQL Database?
  - Create an Azure SQL Database
  - Import Data
  - Query Data
  - Connect with a SQL Client
- Create a Data API Builder Project
  - Install the Data API Builder DotNet Tool
  - Configure a Connection String using an Environment Variable
  - Create a Data API Builder Project
  - Configure a Data API Builder Project
  - Run a Data API Builder Project Locally
  - Implement Authentication and Authorization
  - Consume the Data API from the Static Web App
  - Link a Database Connection to the State Web App in Azure
- GitHub CI/CD Pipeline
  - Connect GitHub to Azure Static Web Apps
  - Configure a GitHub CI/CD Pipeline
  - Deploy a Static Web App and Data API Builder Project



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- Conclusion