# 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.

## 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?
	+ 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
* Conclusion