# 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