

**RESTful API Design, Development, and Testing using Insomnia**

**Course Number:** PROG-104  
**Duration:** 2 days

**Overview**

This RESTful API Design, Development, and Testing using Insomnia training course teaches participants the fundamentals of developing and testing APIs. The class focuses on designing RESTful JSON APIs using OpenAPI 3 for documentation and code generation, and testing via [Insomnia](https://insomnia.rest/) GUI and CLI. **Note:** This course uses Insomnia’s app and CLI installed via npm. A GitHub account is optional but encouraged.

**Prerequisites**

Other than object-oriented development or architecture experience, no prior expertise is presumed.

**Materials**

All RESTful API using Insomnia training students receive comprehensive courseware including slides, design exercises, and sample solutions.

**Software Needed on Each Student PC**

* Google Chrome
* Other modern browsers as desired
* Other free software and lab files that Accelebrate would specify, including Node.js

**Objectives**

* Understand the REST architectural style and its motivations
* Implement OpenAPI specification design
* Utilize the Richardson Maturity Model to discuss design choices and induced properties
* Use Insomnia for API design, debugging, and testing
* Understand JSON representation of object data
* Incorporate API management approaches
* Implement automated CI/CD testing strategies
* Think about REST APIs vs. linked data, RPC models, and GraphQL

**Outline**

* Introduction
  + REST API overview
  + Previous API Concepts
* JSON
* Concepts of REST
  + HTTP
  + Nouns/Verbs
* Designing an API
  + Swagger
  + Sections of Specification
* OpenAPI Spec
  + Info
  + Servers
* API Concepts
* Richardson Maturity Model
  + Levels
  + Hypermedia
* Development and Testing
  + C# and other examples
  + Tools Available
* Development Standards
* OpenAPI Contract
  + Paths
  + Operations
* Automated Testing
  + Chai Assertion Library
  + Insomnia CLI
  + Test Suites
* Versioning
  + URL
  + Header
  + Both
* Security
  + Authentication
  + Authorization
  + JWT
* Parameters
  + Path
  + Query String
  + Header
  + Cookie
  + Serialization
* Request Bodies
* Responses
* Components
* CI/CD Testing
  + Principles
  + Best Practices
  + Integration & Security Testing
* Using Insomnia for CI/CD Testing
  + CLI
  + Github Actions