LFS141x - Exploring GraphQL: A Query Language for APIs

Course Overview

GraphQL is revolutionizing the way that developers are building websites, but what exactly is it?

In this course, you'll learn about what GraphQL is and why it is getting so much attention from software engineers. You'll learn what its advantages are over REST, what types of software architectures to use it with, and why it benefits both frontend and backend developers. You'll practice GraphQL queries in an interactive playground, and you'll also learn advanced topics such as how to implement a GraphQL server on the backend, how to use a GraphQL server with a client, and how to keep your GraphQL server secure. The course content was originally created by Prisma, and updated and maintained by Novvum.

If you are a programmer, this course will help you gain the skills needed to use GraphQL for a small project or professionally in production. You'll feel comfortable getting started with the right tools for your use case.

If you are nontechnical, this course will help you communicate with developers and participate in conversations about GraphQL. You will understand when and why to use GraphQL for a project.

Course Instructors

Allison Colyer is a full stack developer at Novvum. She has a background in curriculum development and specializes in technical communication.

Rohit Ravikoti is the co-founder and CTO of Novvum. He has worked extensively with GraphQL since its initial release and has spoken at various global conferences sharing his knowledge and experience.

Audience

Anyone who is interested in learning about GraphQL.

Prerequisites

It helps to have some general knowledge about how websites get information from servers, but it is not required.

Chapters 2-6 are considered advanced and require:

- Familiarity with web architecture such as clients and servers
- Familiarity with web development concepts such as caching, HTTP requests, build-time, etc.

Course Length

8 hours.

Course Learning Objectives

In this course, you will learn:

- What GraphQL is and how it works
- When to use GraphQL
- About the advantages GraphQL has over other paradigms such as REST.

Course Outline

Welcome!

- Welcome!

Chapter 1. GraphQL Fundamentals

- Introduction
- Introduction to GraphQL
- A Comparison of GraphQL and REST
- GraphQL Core Concepts
- GraphQL Architecture
- Knowledge Check (Verified Certificate track only)

Chapter 2. Advanced Tutorial: Clients

- Introduction
- Clients
- Knowledge Check (Verified Certificate track only)

Chapter 3. Advanced Tutorial: Server

- Introduction
- Server
- Knowledge Check (Verified Certificate track only)

Chapter 4. Advanced Tutorial: More GraphQL Concepts

- Introduction
- More GraphQL Concepts

- Knowledge Check (Verified Certificate track only)

Chapter 5. Advanced Tutorial: Tooling and Ecosystem

- Introduction
- Tooling and Ecosystem
- Knowledge Check (Verified Certificate track only)

Chapter 6. Advanced Tutorial: Security

- Introduction
- Security
- Knowledge Check (Verified Certificate track only)

Chapter 7. Common Questions

- Common Questions

Final Exam (Verified Certificate track only)

edX Platform

If you are using edX for the first time, we strongly encourage you to start by taking a free 'how to use edX' course that the team at edX has made available. In this course, you will learn how to navigate the edX platform, how to connect with other edX learners, how to answer problems on the edX platform, how grades work in edX courses, and how to complete your first course.

Click here to register for "*DemoX*" and you will be on your way. You will find the edX platform simple and intuitive.

Getting Help

For any **technical issues** with the edX platform (including login problems and issues with the Verified Certificate), please use the **Help** icon located on the upper right side of your screen.

One great way to interact with peers taking this course and resolving any **content-related issues** is via the **Discussion Forums**. These forums can be used in the following ways:

- To discuss concepts, tools, and technologies presented in this course, or related to the topics discussed in the course material.
- To ask questions about course content.
- To share resources and ideas related to GraphQL.

We strongly encourage you to not only ask questions, but to share with your peers opinions about the course content, as well as valuable related resources. The Discussion Forums will be reviewed periodically by the Linux Foundation staff, but it is primarily a community resource, not an 'ask the instructor' service.

To learn more tips on how to use them, read the following article: "*Getting the Most Out of the edX Discussion Forums*".

Course Timing

This course is entirely self-paced; there is no fixed schedule for going through the material. You can go through the course at your own pace, and you will always be returned to exactly where you left off when you come back to start a new session. However, we still suggest you avoid long breaks in between periods of work, as learning will be faster and content retention improved.

The chapters in the course have been designed to build on one another. It is probably best to work through them in sequence; if you skip or only skim some chapters quickly, you may find there are topics being discussed you have not been exposed to yet. But this is all self-paced and you can always go back, so you can thread your own path through the material.

Learning Aids

Besides simple exposition through text and figures, this course uses additional methods to present the learning material, including videos, GraphQL Playground, external resources and knowledge check questions (Verified Certificate track only).

Audit and Verified Tracks

You can enroll into an audit or a verified track. In an audit track, you will have access to all ungraded course content: course readings, videos, and learning aids, but no certificates are awarded when auditing. You will not be able to access any graded content (knowledge check questions at the end of each chapter, and the final exam).

In order to receive a certificate, you will need to obtain a passing grade (please refer to the “Grading” section below), verify your identity with edX, and pay a fee. Once all edX requirements have been met, you can download your certificate from the Progress tab.

To learn more about audit and verified tracks, visit edX Help Center > Certificates.

Grading (Verified Certificate track only)

At the end of each chapter, you will have a set of graded **knowledge check questions**, that are meant to further check your understanding of the material presented. The grades obtained by answering these knowledge check questions will represent **20%** of your final grade.

The remaining **80%** of your final grade is represented by the score obtained in the **final exam**. The final exam is located at the end of the course and it consists of 10 questions.

You will have a maximum of two attempts to answer each knowledge check and final exam question (other than True/False questions, in which case, you have only one attempt). You are free to reference your notes, screens from the course, etc., and there is no time limit on how long you can spend on a question. You can always skip a question and come back to it later.

In order to complete this course with a passing grade, you must obtain a passing score (knowledge check and final exam) of minimum 70%.

Course Progress and Completion (Verified Certificate track only)

Once you complete the course (including knowledge check questions and final exam), you will want to know if you have passed. You will be able to see your completion status using the **Progress** tab at the top of your screen, which will clearly indicate whether or not you have achieved a passing score.

Professional Certificate Program

Professional Certificate programs are a series of courses designed by industry leaders and top universities to build and enhance critical professional skills needed to succeed in today's most in-demand fields.

To learn more about our Professional Certificates, visit Blockchain for Business Professional Certificate and 5G Strategy for Business Leaders Professional Certificate.

About The Linux Foundation

The Linux Foundation partners with the world's leading developers and companies to solve the hardest technology problems and accelerate open technology development and commercial adoption. The Linux Foundation makes it its mission to provide experience and expertise to any initiative working to solve complex problems through open source collaboration, providing the tools to scale open source projects: security best practices, governance, operations and ecosystem development, training and certification, licensing, and promotion.

Linux is the world's largest and most pervasive open source software project in history. The Linux Foundation is home to Linux creator Linus Torvalds and lead maintainer Greg Kroah-Hartman, and provides a neutral home where Linux kernel development can be protected and accelerated for years to come. The success of Linux has catalyzed growth in the open source community, demonstrating the commercial efficacy of open source and inspiring countless new projects across all industries and levels of the technology stack.

The Linux Foundation's work today extends far beyond Linux, fostering innovation at every layer of the software stack. The Linux Foundation is the umbrella organization for many critical open source projects that power corporations today, spanning all industry sectors:

- Big data and analytics (ODPi, R Consortium)
- Networking (OpenDaylight, ONAP, OPNFV)
- Embedded (Dronecode, Zephyr)
- Web tools (JS Foundation, Node.js)
- Cloud computing (Cloud Foundry, Cloud Native Computing Foundation, Open Container Initiative)
- Automotive (Automotive Grade Linux)
- Security (The Core Infrastructure Initiative)
- Blockchain (Hyperledger)
- And many more.

To learn more about the Linux Foundation, click here.

The Linux Foundation Events

The Linux Foundation hosts an increasing number of events each year, including:

- Open Source Summit North America, Europe, Japan and China
- Embedded Linux Conference + OpenIoT Summit North America and Europe
- Open Source Leadership Summit
- Open Networking Summit North America and Europe
- KubeCon + CloudNativeCon North America, Europe and China
- Automotive Linux Summit
- KVM Forum
- Linux Storage Filesystem and Memory Management Summit
- Linux Security Summit North America and Europe
- Cloud Foundry Summit
- Hyperledger Global Forum
- And many more.

To learn more about the Linux Foundation events and to register, click here.

The Linux Foundation Training

The Linux Foundation offers several types of training:

- Classroom
- Online
- On-site
- Events-based.

To get more information about specific courses offered by the Linux Foundation, click here.

The Linux Foundation Certifications

The Linux Foundation certifications give you a way to differentiate yourself in a job market that's hungry for your skills. We've taken a new, innovative approach to open source certification that allows you to showcase your skills in a way that other peers will respect and employers will trust:

- You can take your certification from any computer, anywhere, at any time
- The certification exams are performance-based
- The exams are distribution-flexible
- The exams are up-to-date, testing knowledge and skills that actually matter in today's IT environment.

The Linux Foundation and its collaborative projects currently offer the following certifications:

- Linux Foundation Certified System Administrator (LFCS)
- Linux Foundation Certified Engineer (LFCE)
- Certified Kubernetes Administrator (CKA)
- Certified Kubernetes Application Developer (CKAD)
- Cloud Foundry Certified Developer (CFCD)
- Certified Hyperledger Fabric Administrator (CHFA)
- Certified Hyperledger Sawtooth Administrator (CHSA)
- OpenJS Node.js Application Developer (JSNAD)
- OpenJS Node.js Services Developer (JSNSD).

Open Source Guides for the Enterprise

The Linux Foundation in partnership with the TODO Group developed a set of guides leveraging best practices for:

- Running an open source program office, or

- Managing an open source project in your organization.

To learn more, you can visit the following webpage: "*Open Source Guides for the Enterprise*".

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