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Puppeteer Training with lightpanda

2 days (14 hours)

Overview

Puppeteer, when used with lightpanda, enables you to automate dynamic web flows using a high-performance, lightweight approach tailored for data collection, testing, and integration.

Our Puppeteer with lightpanda training will enable you to design reliable web automations by combining the power of the Puppeteer API with a headless browser designed for fast execution and reduced memory footprint.

You'll learn how to connect your scripts to lightpanda via the Chrome DevTools Protocol to navigate pages, manage navigation, target elements, fill out forms, and extract structured data from dynamic web applications.

The training will also guide you through setting up isolated contexts and managing cookies, cache, proxies, timeouts, and recovery mechanisms. You'll learn to identify the compatibility limitations of a headless browser and build scenarios tailored to real-world environments.

By the end of the training, you'll be able to structure maintainable automation scripts, improve their robustness and performance, and prepare them for execution in a CI/CD pipeline using appropriate testing, logging, and deployment practices.

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Install and configure a Puppeteer environment with lightpanda.

- Connect Puppeteer to a browser that exposes the Chrome DevTools Protocol.
- Automate navigation, user interactions, and web data extraction.
- Manage contexts, cookies, cache, proxies, and timeouts.
- Ensure the reliability and scalability of automation scripts for testing and data collection.

Target Audience

- JavaScript Developer
- Node.js Developer
- QA Engineer
- DevOps Engineer
- Data Engineer

Requirements

- Working knowledge of JavaScript to write asynchronous functions and manipulate objects.
- Proficiency in using Node.js and a package manager.
- Experience with Git for checking out and versioning a project.
- Basic understanding of HTML and CSS to identify elements on a web page.
- Knowledge of HTTP communications to understand navigation and network requests.

Technical Prerequisites

- A workstation running Linux with a terminal available, macOS with a terminal available, or Windows with WSL2 enabled.
- Installation of a recent LTS version of Node.js and access to the npm package manager.
- A code editor such as Visual Studio Code with a built-in terminal.
- A stable Internet connection that supports HTTPS and WebSocket traffic.
- Permissions to install npm dependencies on the workstation.

Agenda for our Puppeteer training course with lightpanda

[Day 1 - Morning]

Web Automation Architecture and Getting Started

- Overview of Puppeteer, lightpanda, and use cases for web automation.
- Understanding the principles of a headless browser, its benefits, and its compatibility limitations.
- Discover the role of the Chrome DevTools Protocol and WebSocket communication.
- Set up a Node.js project, install puppeteer-core, and the lightpanda dependency.
- Master the lifecycle of Browser, BrowserContext, and Page objects.
- Hands-on workshop: Set up the environment, run lightpanda locally, and connect a basic Puppeteer script to open a page and retrieve its title.

[Day 1 - Afternoon]

Navigation, Interactions, and Data Extraction

- Build reliable navigation using `page.goto`, timeouts, and loading conditions.
- Identify elements using CSS selectors, locators, and stable attributes.
- Automate clicks, text input, forms, keyboard actions, and user interactions.
- Extract structured content using `page.evaluate`, lists, links, and pagination.
- Handle errors, timeouts, inaccessible pages, and retry attempts.
- Hands-on workshop: Develop an extraction script for a dynamic page, traverse a paginated list, and generate a usable JSON file.

[Day 2 - Morning]

Performance, Persistence, and Access Control

- Configure the Lightpanda server, its listening port, and CDP connections.
- Isolate scenarios using navigation contexts and ensure proper resource cleanup.
- Manage cookies, persistent storage, and the HTTP cache to speed up execution.
- Configure a proxy, handle proxy authentication, and secure sensitive information.
- Measure execution times, analyze functional limits, and compare behavior with a standard browser.
- Hands-on workshop: Optimizing a data collection scenario with an isolated context, cache, cookies, and an

[Day 2 - Afternoon]

Making scripts reliable and scalable

- Structuring a project with modules, externalized configuration, and environment variable management.
- Designing robust scripts with logging, centralized error handling, and a retry strategies.
- Implement targeted tests, controlled datasets, and sustainable selectors.
- Adhere to responsible automation rules, frequency limits, and bot guidelines.
- Prepare for execution in a CI/CD pipeline, a container, or a remote environment.
- Hands-on workshop: Complete a mini automation project, from configuration to reliable data extraction and log generation.

Target Audience

This training is intended for both individuals and companies—large or small—that wish to train their teams in new, advanced IT technologies or to acquire specific industry knowledge or modern methodologies.

Entry-Level Assessment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals for the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Hands-On Training: 60% Practical, 40% Theoretical. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the instructor—supported by examples and reflection sessions—and group work.

Assessment

At the end of the session, a multiple-choice quiz is administered to verify that participants have successfully acquired the skills.

Certification

A certificate will be issued to each trainee who has completed the entire training program.