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MCP Apps Training in TypeScript

2 days (14 hours)

Overview

MCP Apps extend the Model Context Protocol with interactive interfaces integrated into compatible hosts. Using tools, resources, and application views, they enable the creation of dashboards, forms, and validation workflows to enhance collaboration between users and AI agents.

Our MCP Application Development training will enable you to go beyond text-based responses to build interactive applications tailored to business use cases and host constraints.

You'll learn how to set up an MCP server, expose structured results, serve interface resources, and connect views to tools using host communication mechanisms.

By the end of the training, you'll be able to develop an interface with filters and forms, manage its state, refresh data, and incorporate human validation before sensitive actions are taken.

This course also covers sandboxing, permissions, data protection, testing, and observability to help you build applications that are accessible, secure, and ready for production.

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

Objectives

- Design an architecture that integrates the server, tools, resources, views, and host responsibilities

- Develop tools with structured results and interface resources tailored to MCP Apps
- Implement server interactions and updates from an application view
- Integrate human validation and permission controls for sensitive actions
- Test, debug, and prepare an MCP application for deployment

Target Audience

- Full-stack developer
- AI agent developer
- Software engineer
- Application architect

Prerequisites

- Experience with TypeScript development and asynchronous programming
- Knowledge of HTML and CSS for building web interfaces
- Experience creating or integrating an MCP server with tools and resources
- Understanding of HTTP requests, JSON data, and access control principles

Technical Prerequisites

- Computer with at least 8 GB of RAM, installation permissions, and available local ports
- Node.js 20 or higher environment with npm and the educational project’s dependencies installed
- Git, Visual Studio Code, and a recent browser with developer tools installed
- @modelcontextprotocol/ext-apps SDK and basic-host test server configured according to the instructions provided prior to the session
- Stable internet connection allowing for the download of dependencies and the data exchange required for the workshops

Our MCP Apps in TypeScript Training Program

[Day 1 - Morning]

Architecture and Uses of MCP Apps

- Introduction to MCP Apps, the official extension for interactive interfaces in compatible hosts
- Relationships between MCP servers, tools, resources, hosts, application views, and users
- Differences between interactive views, text, Markdown, structured data, RAG results, and traditional web applications
- Use cases: dashboards, forms, validations, media, maps, reports, and Operational

- Host compatibility, capability discovery, lifecycle, text fallback, and trust boundaries
- Hands-on workshop: Mapping an operational dashboard with human validation by identifying the tools, resources, views, and host responsibilities.

[Day 1 - Afternoon]

Building interface tools and resources

- Designing MCP tools, input schemas, structured results, and actionable responses for a view
- Declaring UI resources, linking metadata, and content type text/html;profile=mcp-app
- Mapping views to tool results, resources, prompts, and capabilities announced by the server
- Management of application state, refresh, errors, loading, and partial
- TypeScript project organization, asset and schema bundling, view compilation, and reproducible setup
- Hands-on workshop: Developing a server-side tool and its interface resource to display an in a test host.

[Day 2 - Morning]

Communication with the host and user flow

- Roles of the App and AppBridge classes, initialization, and JSON-RPC exchanges via postMessage
- Calling server tools from the view, reading resources, and receiving updated results via the host
- Designing forms, filters, detailed navigation, visualizations, and action review screens actions
- Presentation of user context, statuses, permissions, data provenance, and trust limits
- Human validation before writes, external actions, and side effects, with server-side permissions
- Hands-on workshop: Add filters and a form to the dashboard, refresh results from the server, and confirm a sensitive action before it is executed.

[Day 2 - Afternoon]

Security, testing, and preparation for production

- Sandboxing, content security policy, untrusted content, and rendering constraints imposed by hosts
- Least privilege for tools, resources, user data, and external services; a distinction between visibility and authorization

- Reduced risk of prompt injection, data leaks, proxy confusion, and unauthorized actions
- Testing and debugging of rendering, the bridge, tool calls, schemas, and between hosts
- Operational readiness: versioning, observability, accessibility, rolling deployment, and rollback
- Hands-on workshop: Testing user flows and access denials, diagnosing a communication error, tightening permissions, and creating a production deployment checklist.

Target Audience

This training is intended for both individuals and companies—large or small—that wish to train their teams in a new advanced IT technology or to acquire specific business knowledge or modern methods.

Assessment at the Start of Training

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 with 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 operation 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.

Training organization registered under number 11 75 54743 75. This registration does not constitute state accreditation.
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