training code: JSRCT / ENG DL 3d / EN

Web applications with the React framework

Training recipients

The training is dedicated to:

- JavaScript / TypeScript programmers who want to extend their skills with the Reactframework,
- People interested in building web applications in React (SPA, SSR, SSG),
- Frontend developers who want to work in the modern React and TypeScript ecosystem,using hooks and React Router,
- Project teams wanting to adopt React as their main frontend technology and to startcollaborating with AI assistants when writing React code.

Benefits

1. Ability to build web applications in React. Understanding SPA architecture and awareness ofalternative rendering modes (SSR, SSG, hybrid) and hydration techniques in the context ofmodern projects.
2. Knowledge of the React framework and its ecosystem in the latest version. Learninginstallation, configuration, working with function components, hook-based reactivity,routing, and communication with APIs.
3. Updating knowledge of JavaScript and getting to know TypeScript. Familiarization with themodern JavaScript standard (ES.Next) and the TypeScript language, which is today thestandard when working with React.
4. Deliberate application state management at three levels: local, global, and server —together with an understanding of which layer to choose for a given problem.
5. Introduction to LLM-assisted programming. Configuring project context for AI assistants andusing them in everyday work, including test generation.
6. Practical knowledge of developer tools. Effective use of the Node.js platform, CLI tools,linters, builders, and the TypeScript compiler.

Training program

Training program

1. Web application architecture
- Rendering modes: SPA, SSR, SSG/prerender, hybrid
- Hydration and modern UI delivery techniques
- Communication standards with the backend system

2. Node.js platform
- Characteristics and architecture
- Package management
- Tools: compiler (tsc), linter, builder (Vite)

3. React
- Installing and configuring the project (Vite; React Router)
- Introduction to TypeScript and ES.Next
- Framework architecture, function components
- Defining templates, JSX, dynamic manipulation of styles
- Component reactivity and logic based on hooks (useState, useEffect, useRef,useMemo, custom hooks)
- Communication between components, parent-child relationship (props,composition)
- State management at three levels: local (hooks), global (a state managementlibrary), server (TanStack Query)
- Form handling and React Actions (useActionState, useOptimistic, use)
- Routing, navigation and rendering modes with React Router (SPA, SSR, SSG)
- Communication with the API (TanStack Query)

4. LLM-assisted programming – introduction
- Configuring project context for the LLM (rules, context files)
- Generating unit and component tests with AI support (Vitest, React Testing Library)
- Good practices when working with AI agents

Expected preparation of the participant

Knowledge of HTML, CSS, JavaScript at the basic level.

Training Includes

- Training method Workshops.
- Mode: Distance Learning (DL)
- Level: Intermediate

- Duration: 3 days | 21h
- Language: English

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3 days / 21 hours

Language

- Training: English