



# Learning NextJS. Introduction

Dmitry Makarenkov, Ph.D. (Tech.)

<https://dmpsy.club>

NextJS  $\geq$  ReactJS + NodeJS




# Target Audience

The NextJS adepts, wishing to follow modern trends in full-stack Web apps development

*Magic formula:*

NextJS  $\geq$  ReactJS (front-end) + NodeJS (back-end)



# Why NextJS? Key Benefits

- “All in one”: both front-end and back-end comprise a full-stack NextJS app
- Moving away from the ReactJS monolithic architecture: there are (default) server components and client components (executed in the browser), static & dynamic rendering, all that gives one an advantage in terms of SEO website promotion
- Intuitive hierarchy of site pages based on server folders structure
- Well-developed authentication and authorization mechanisms
- Advanced error handling and data validation methods
- Server Actions: secure methods of interaction between client and server components ( via a hidden POST request) for CUD DB operations
- Wide range of connectors to databases of various types
- The last but not the least: inherited features and capabilities of JS, TypeScript, ReactJS, NodeJS, axios *etc.*



# Key Sections of the NextJS Course

The present training consists of two parts:

- NextJS Basics
- Advanced topics

The first part is based on an adapted version of the official course:

<https://nextjs.org/learn/dashboard-app>

The second part is dedicated to more advanced topics like:

- Localization of NextJS apps to different languages
- Styling NextJS apps with Material Design (MUI)
- Connecting NextJS apps to various DBs like MySQL, Prisma *etc.*
- Uploading NextJS apps to a host Web server and/or Github or GitLab



# Review of Part 1, NextJS Basics

<b>1</b>	<b>Getting Started</b>	<b>NextJS at a first glance</b>
<b>2</b>	<b>CSS Styling</b>	<b>Variants of styling NextJS apps</b>
<b>3</b>	<b>Optimizing Fonts &amp; Images</b>	<b>How to optimize fonts and images</b>
<b>4</b>	<b>Creating Layouts &amp; Pages</b>	<b>Creating Layouts &amp; Pages files within a server folders structure</b>
<b>5</b>	<b>Navigation Between Pages</b>	<b>How to move between NextJS pages</b>
<b>6</b>	<b>Setting up DB</b>	<b>Configuring a local Postgres DB</b>

# Review of Part 1, NextJS Basics (cont.)

7	Fetching Data	Retrieving data from the local Postgres DB using <code>pg</code> (instead of <code>vercel/postgres</code> , as officially recommended)
8	Static & Dynamic Rendering	Learning Static & Dynamic Rendering basics
9	Streaming	The dynamic loading of components with <code>loading.tsx</code> , <code>Suspense</code> and <code>Skeletons</code>
10	Partial Pre-Rendering	Discussing the prospective approach of partial pre-rendering of slow components
11	Search & Pagination	Implementing data search and page-by-page data output



## Review of Part 1. NextJS Basics (cont.)

12	<b>Server Actions (for create / update / delete DB records in a protected mode)</b>	<b>Calling server-side functions (<i>aka</i> server actions) from a client component via a hidden secure POST request instead of ordinary REST API calls</b>
13	<b>Handling Errors</b>	<b>Error-handling with (error.tsx, notFound, 404.tsx) NextJS tools or try/catch</b>
14	<b>Improving Accessibility</b>	<b>How to make the client interface user-friendly and validate user inputs</b>
15	<b>Adding Authentication</b>	<b>Implementing user authentication using NextAuth.js, Middleware and the useActionState hook</b>



## Review of Part 1. NextJS Basics (end)

16	<b>Adding Metadata</b>	<b>Configuring Metadata with NextJS methods that is rather critical in the effective SEO promotion sense</b>
17	<b>Next Steps</b>	<b>Useful NextJS links: docs, templates and repository</b>

In practical terms, you get a good starting template for a point of sale accounting or online store with user authentication and the ability to monitor statistics, search, create, update and delete client invoices with a connection to a local Postgres DB





See you at the next session -

## 1. Getting Started / NextJS at a First Glance

The presentation is available for download here:

[https://dmpsy.club/references/NextJS/lesson\\_000\\_introduction\\_eng.pdf](https://dmpsy.club/references/NextJS/lesson_000_introduction_eng.pdf)

<https://dmpsy.club>

postmaster@dmspy.club

