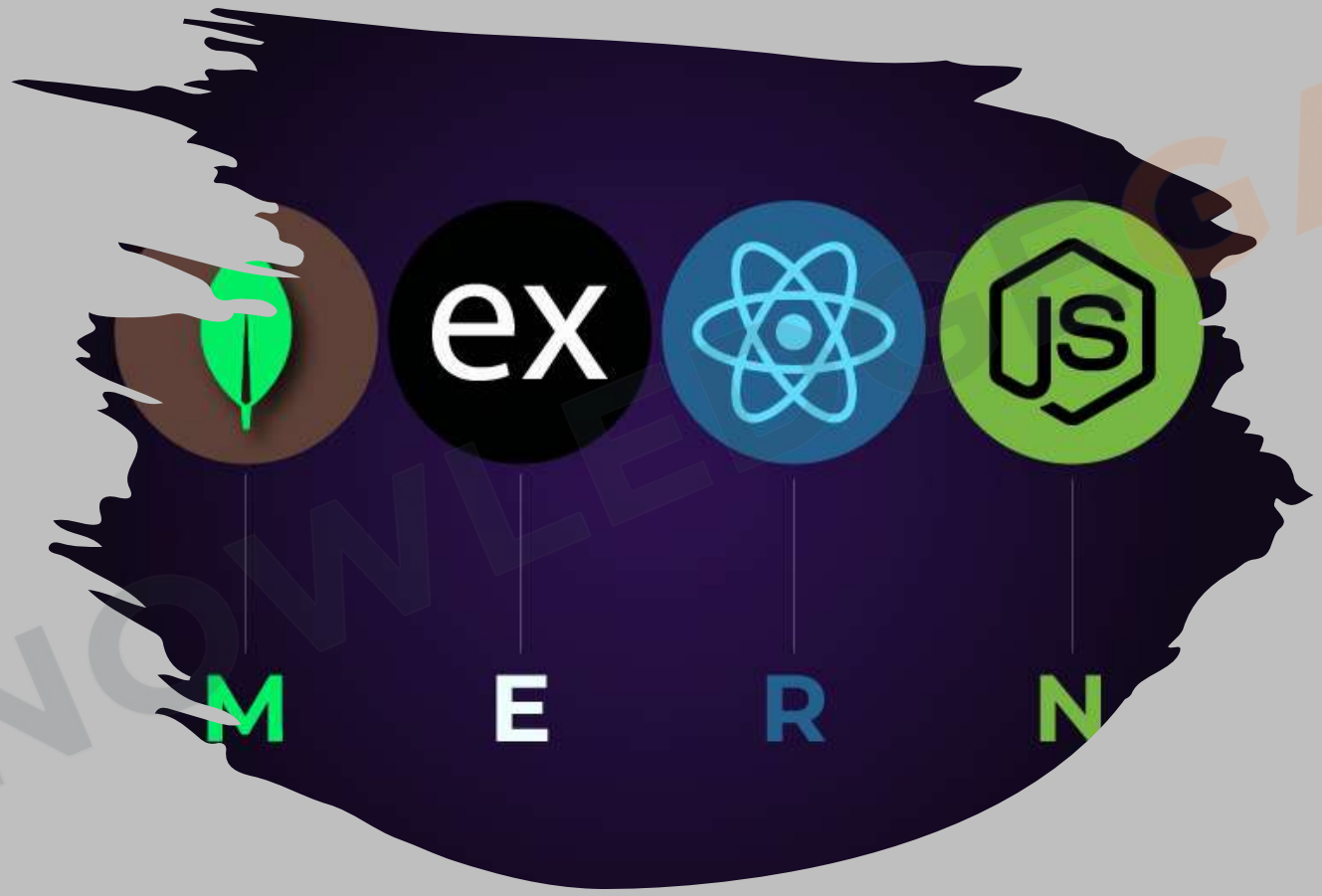
Introduction to

MERN Architecture



KNOWLEDGE GATE

M E R N

KNOWLEDGEGATE

FrontEnd / BackEnd / FullStack

Client Side / Front-End
Web Development

Server Side
Back-End

Full Stack

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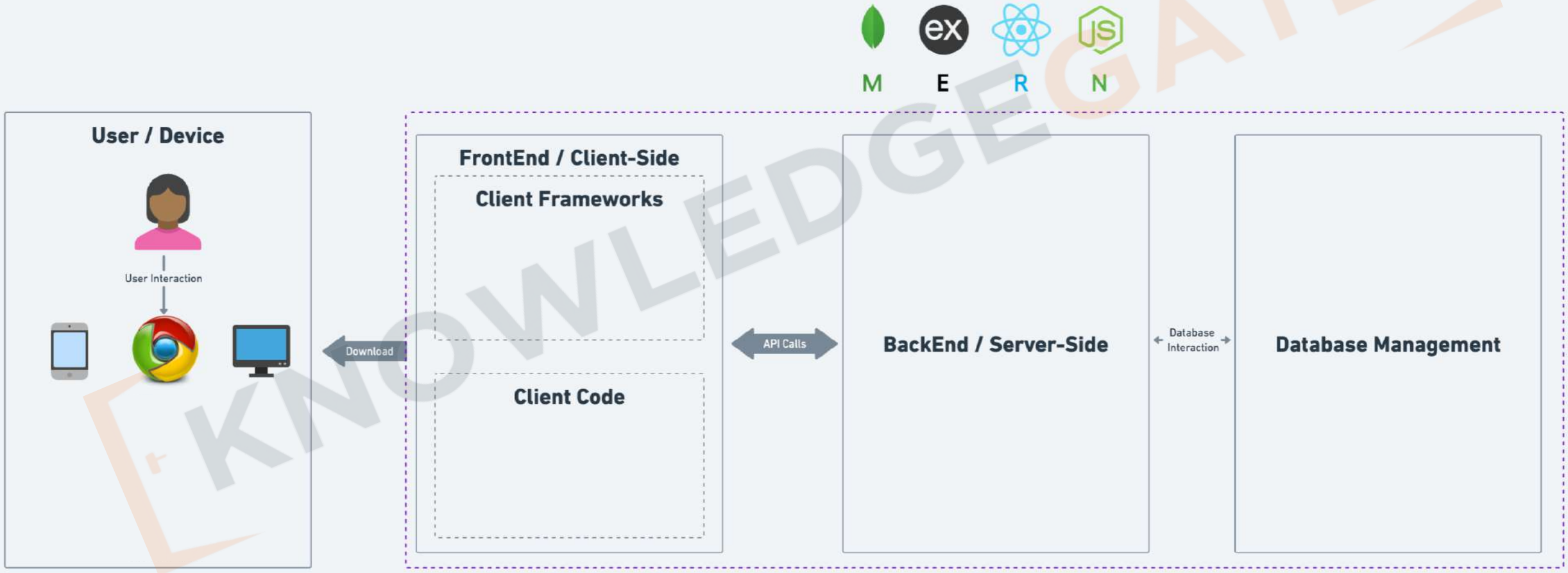
MERN Architecture



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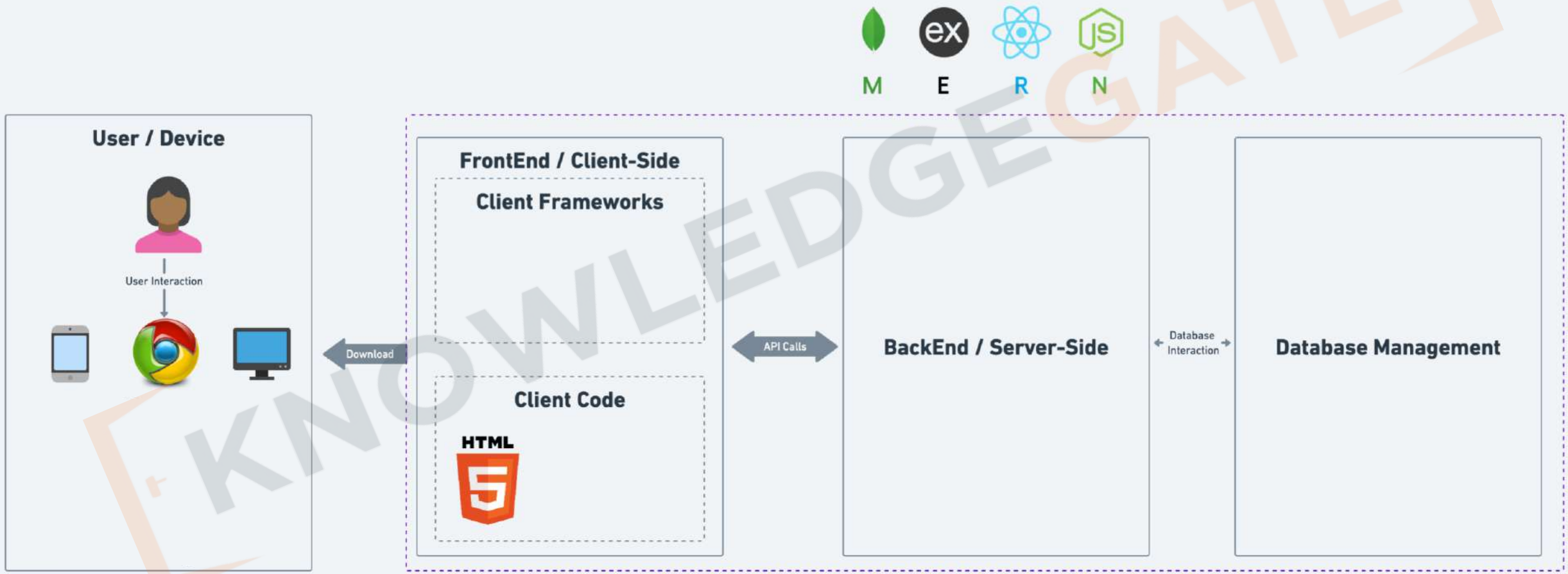
MERN Architecture



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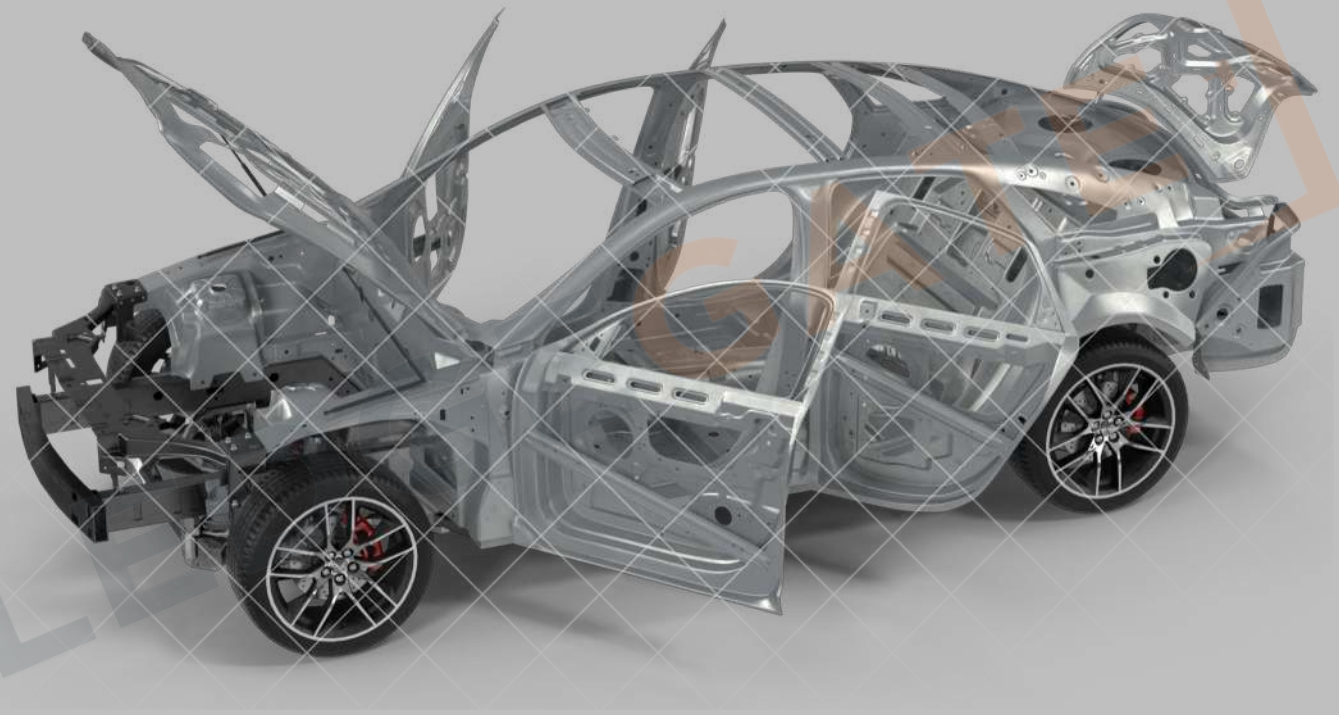
(Hypertext Markup Language)



1. Structure: Sets up the layout.
2. Content: Adds text, images, links.
3. Tags: Uses elements like <p>, <a>.
4. Hierarchy: Organizes elements in a tree.

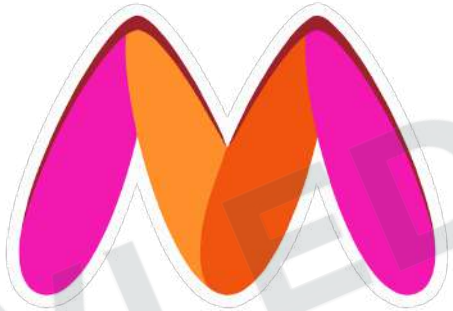
HTML 10%

myntra.com

Myntra Insider New Gift CardTrack OrdersContact Us
Men

- Topwear
- T-Shirts
- Casual Shirts
- Formal Shirts
- Sweatshirts
- Sweaters
- Jackets
- Blazers & Coats
- Suits
- Rain Jackets
- Indian & Festive Wear
- Kurtas & Kurta Sets
- Sherwanis
- Nehru Jackets
- Dhotis

- Bottomwear
- Jeans
- Casual Trousers
- Formal Trousers
- Shorts
- Track Pants & Joggers
- Innerwear & Sleepwear
- Briefs & Trunks
- Boxers
- Vests
- Sleepwear & Loungewear
- Thermals
- Plus Size



Myntra

only HTML

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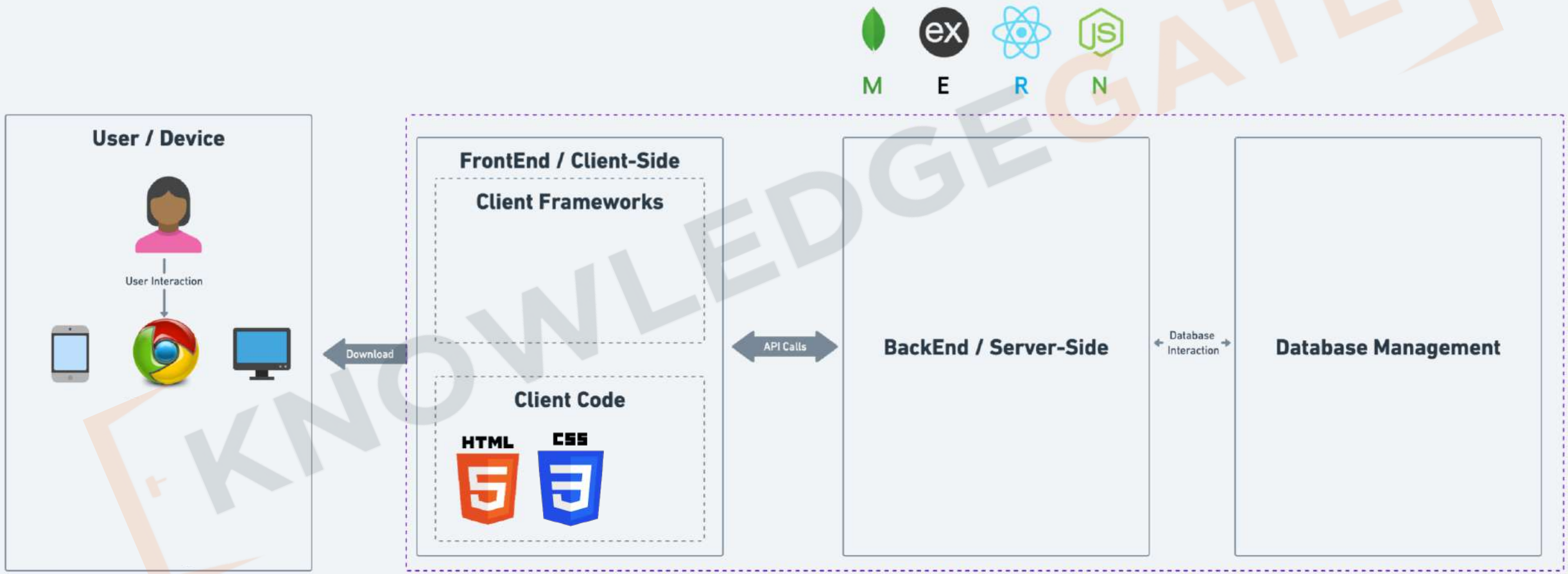
HTML 10% CSS 10%

MERN Architecture



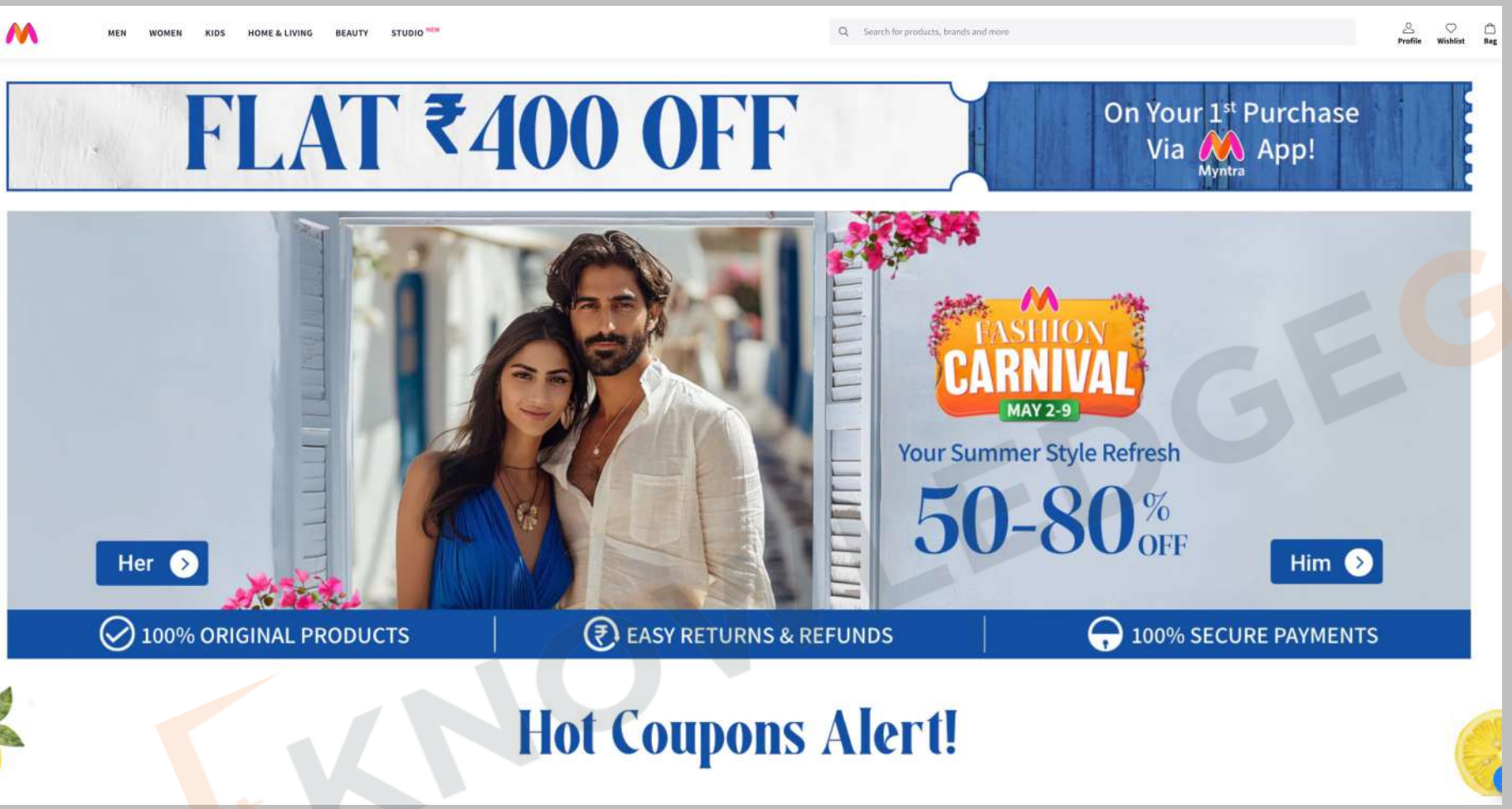
KNOWLEDGEGATE

HTML 10% CSS 10%

(Cascading Style Sheets)

1. Style: Sets the look and feel.
2. Colors & Fonts: Customizes text and background.
3. Layout: Controls position and size.
4. Selectors: Targets specific HTML elements.

HTML 10% CSS 10%



Myntra with CSS

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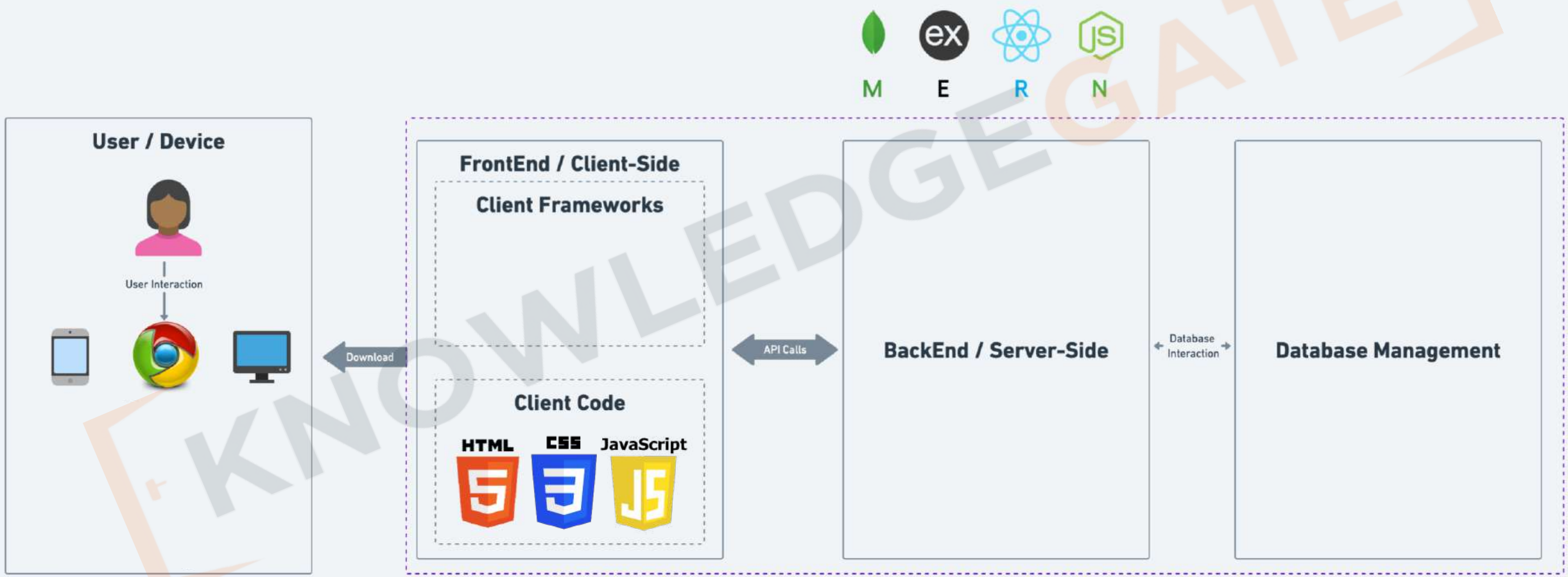
HTML 10% CSS 10% JavaScript 20%

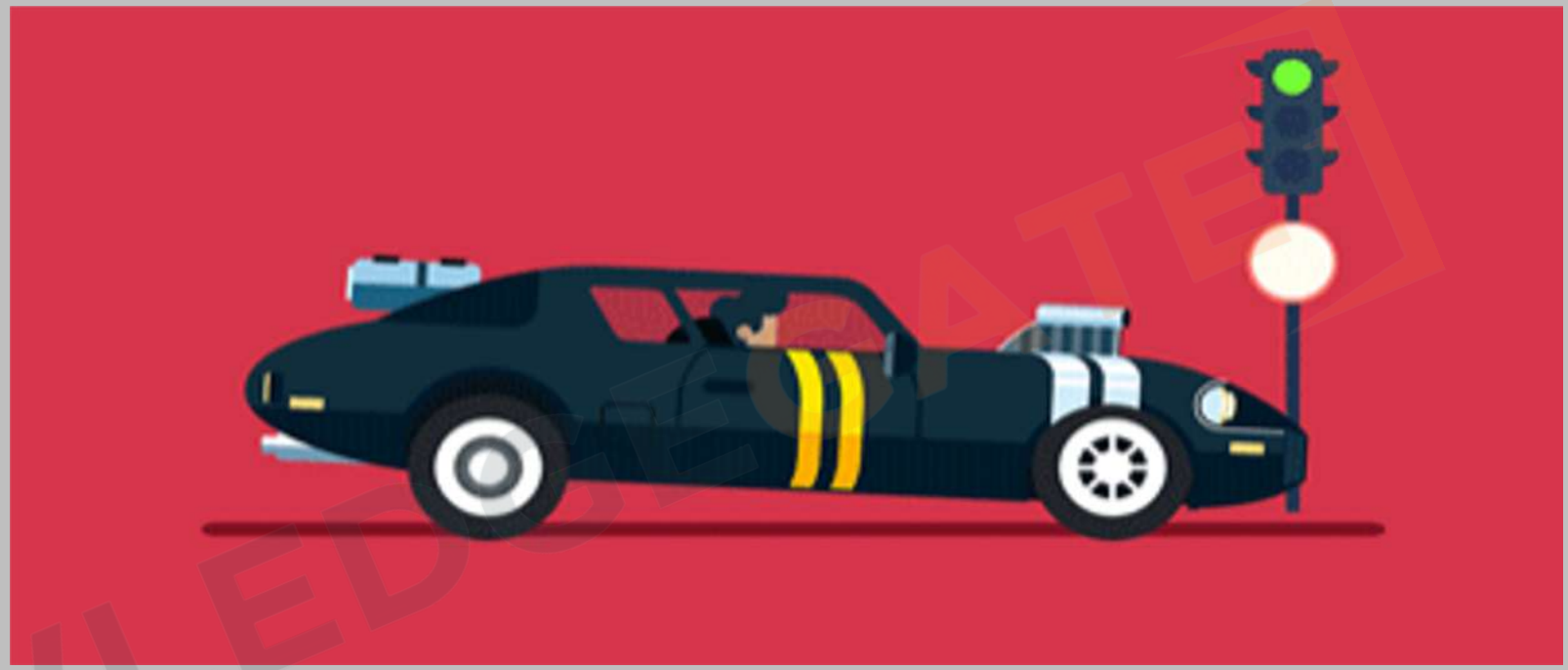
MERN Architecture



KNOWLEDGEGATE

HTML 10% | CSS 10% | JavaScript 20%

JavaScript



1. JavaScript has nothing to do with Java
2. Actions: Enables interactivity.
3. Updates: Alters page without reloading.
4. Events: Responds to user actions.
5. Data: Fetches and sends info to server.

HTML 10% | CSS 10% | JavaScript 20%

Myntra with JS

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Role of Browser

1. Displays Web Page: Turns HTML code into what you see on screen.
2. User Clicks: Helps you interact with the web page.
3. Updates Content: Allows changes to the page using JavaScript.
4. Loads Files: Gets HTML, images, etc., from the server.

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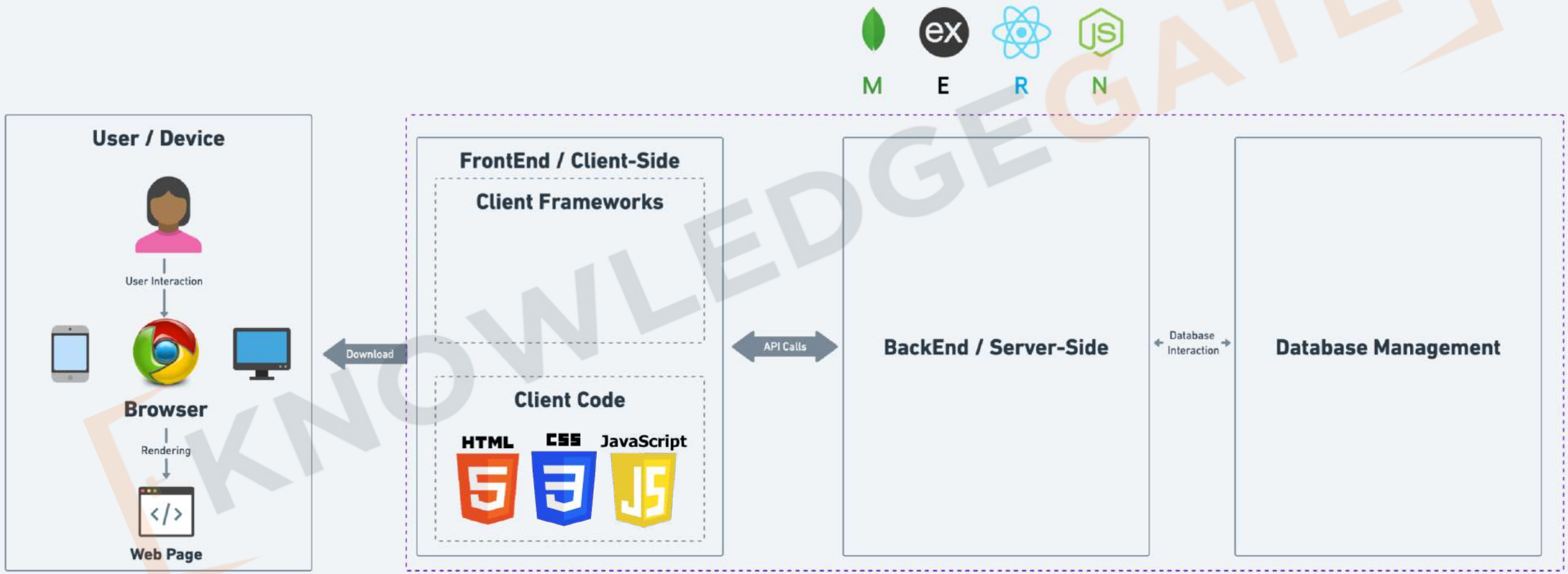

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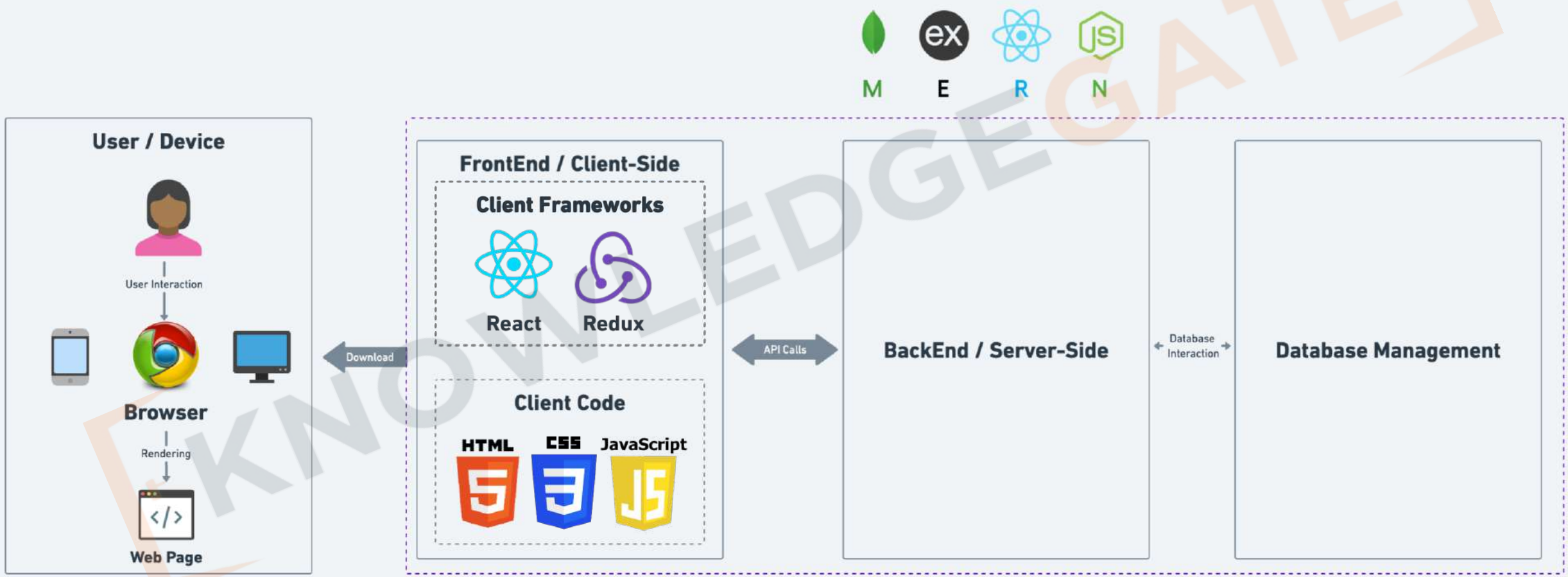

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What is ReactJS

1. JavaScript library to build Dynamic and interactive user interfaces
2. Developed at Facebook in 2011.
3. Currently most widely used JS library for front-end development.
4. Used to create single page application (page does not re-load).

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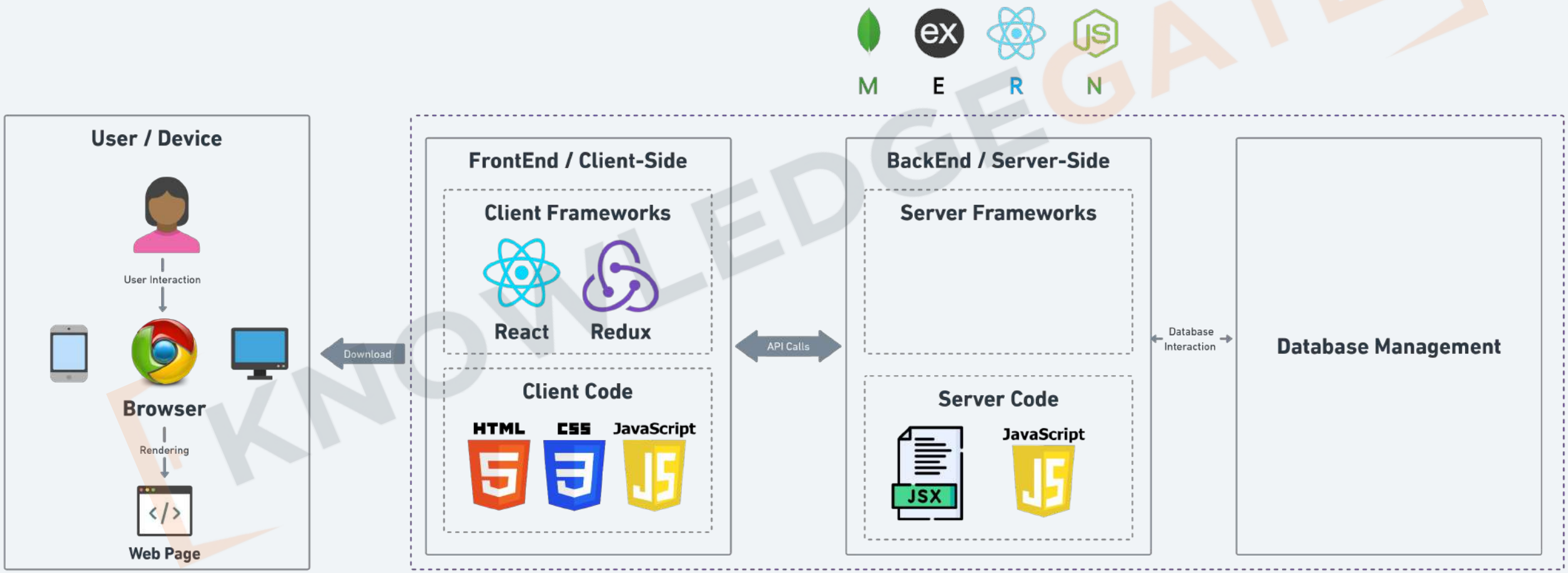
HTML 10% | CSS 10% | JavaScript 20% | ReactJS 20% | NodeJS 20%

MERN Architecture



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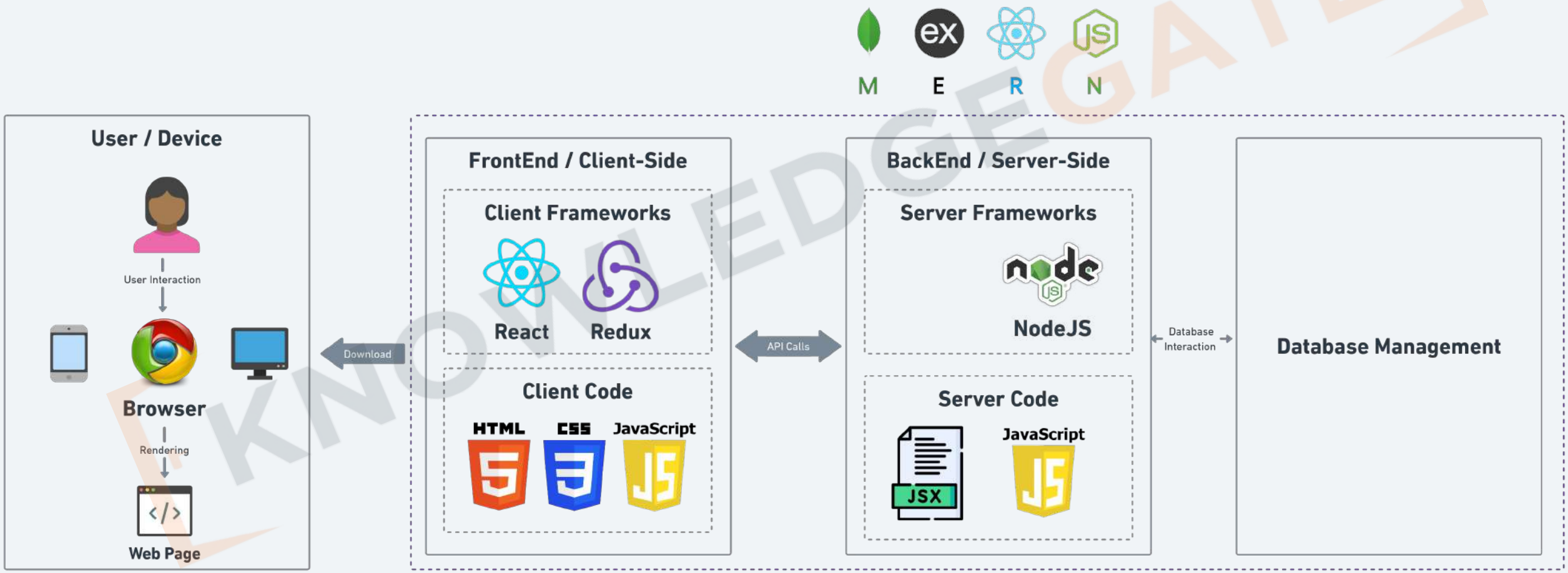
MERN Architecture



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What is NodeJs

1. JavaScript Runtime: Node.js is an open-source, cross-platform runtime environment for executing JavaScript code outside of a browser.
2. Built on Chrome's V8 Engine: It runs on the V8 engine, which compiles JavaScript directly to native machine code, enhancing performance.
3. Design: Features an event-driven, non-blocking I/O model for efficiency.
4. Full-Stack JavaScript: Allows using JavaScript on both server and client sides.
5. Scalability: Ideal for scalable network applications due to its architecture.
6. Versatility: Suitable for web, real-time chat, and REST API servers.

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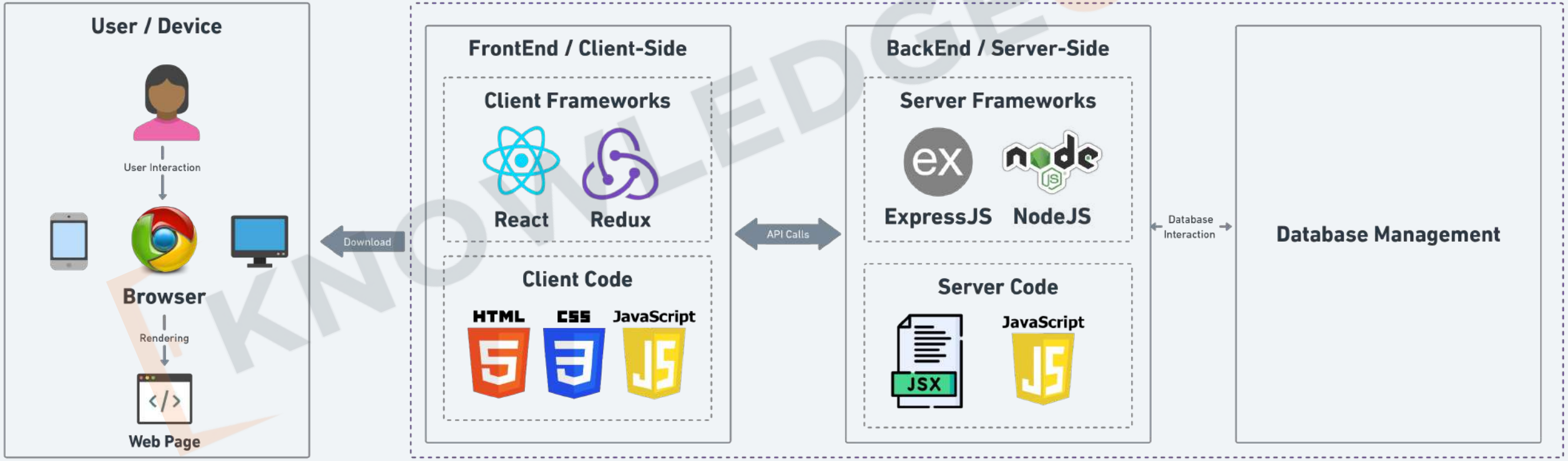
MERN Architecture



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What is ExpressJs

1. Web Framework: Express.js is a minimalist web framework for Node.js, designed for building web applications and APIs.
2. Function: Utilizes middleware for flexible request handling.
3. Simplicity: Streamlines web application development.
4. Flexibility: Customizable with extensive middleware support.
5. Routing: Efficient management of HTTP routes.
6. Speed: Offers performance without compromise.

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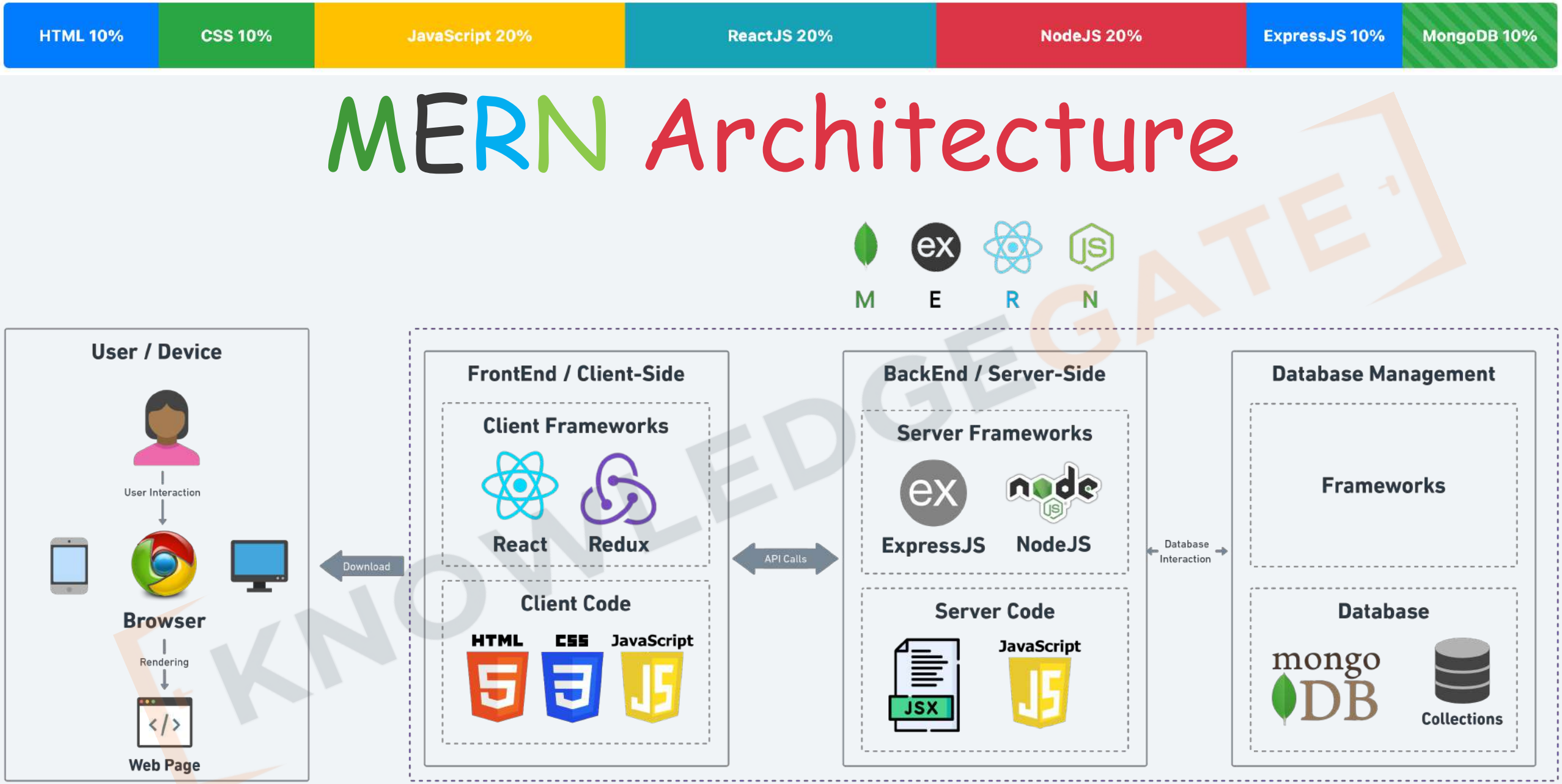
HTML 10%
CSS 10%
JavaScript 20%
ReactJS 20%
NodeJS 20%
ExpressJS 10%
MongoDB 10%
MERN Architecture
M
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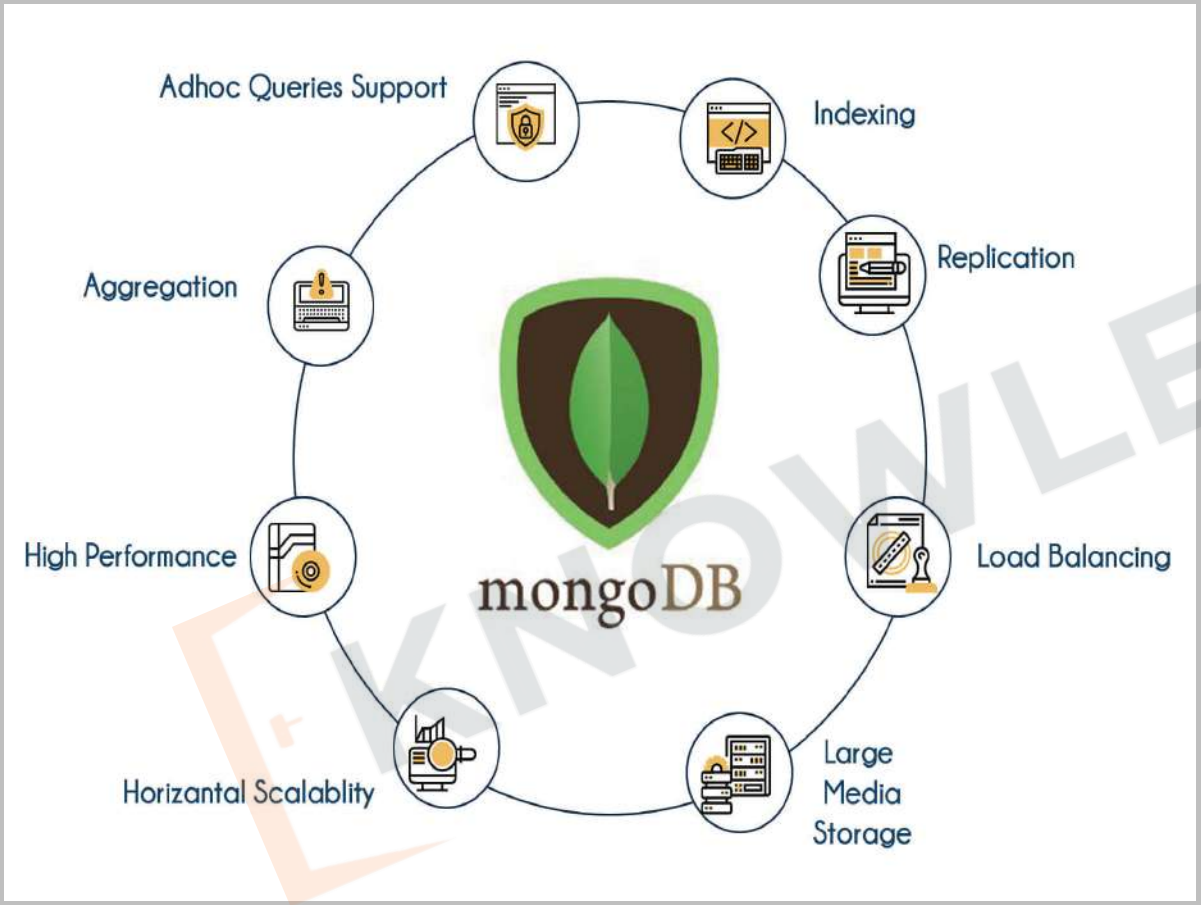
User / Device
User Interaction
Browser
Rendering
Web Page
Download
FrontEnd / Client-Side
Client Frameworks
React
Redux
Client Code
HTML
CSS
JavaScript
API Calls
BackEnd / Server-Side
Server Frameworks
ExpressJS
NodeJS
Server Code
JSX
JavaScript
Database Interaction
Database Management
Frameworks
Database
mongo DB
Collections
KNOWLEDGEGATE

What is MongoDB



1. NoSQL Database: MongoDB is a document-oriented NoSQL database used for high volume data storage.
2. Document Model: Instead of tables and rows, MongoDB uses collections and documents that provide flexibility and allow data to be stored in JSON-like formats.
3. Scalability: Supports horizontal scaling with sharding.
4. Flexible Schema: Adapts easily to varied data structures.
5. Performance: Optimized for quick reads and writes.
6. Querying: Offers advanced querying capabilities.

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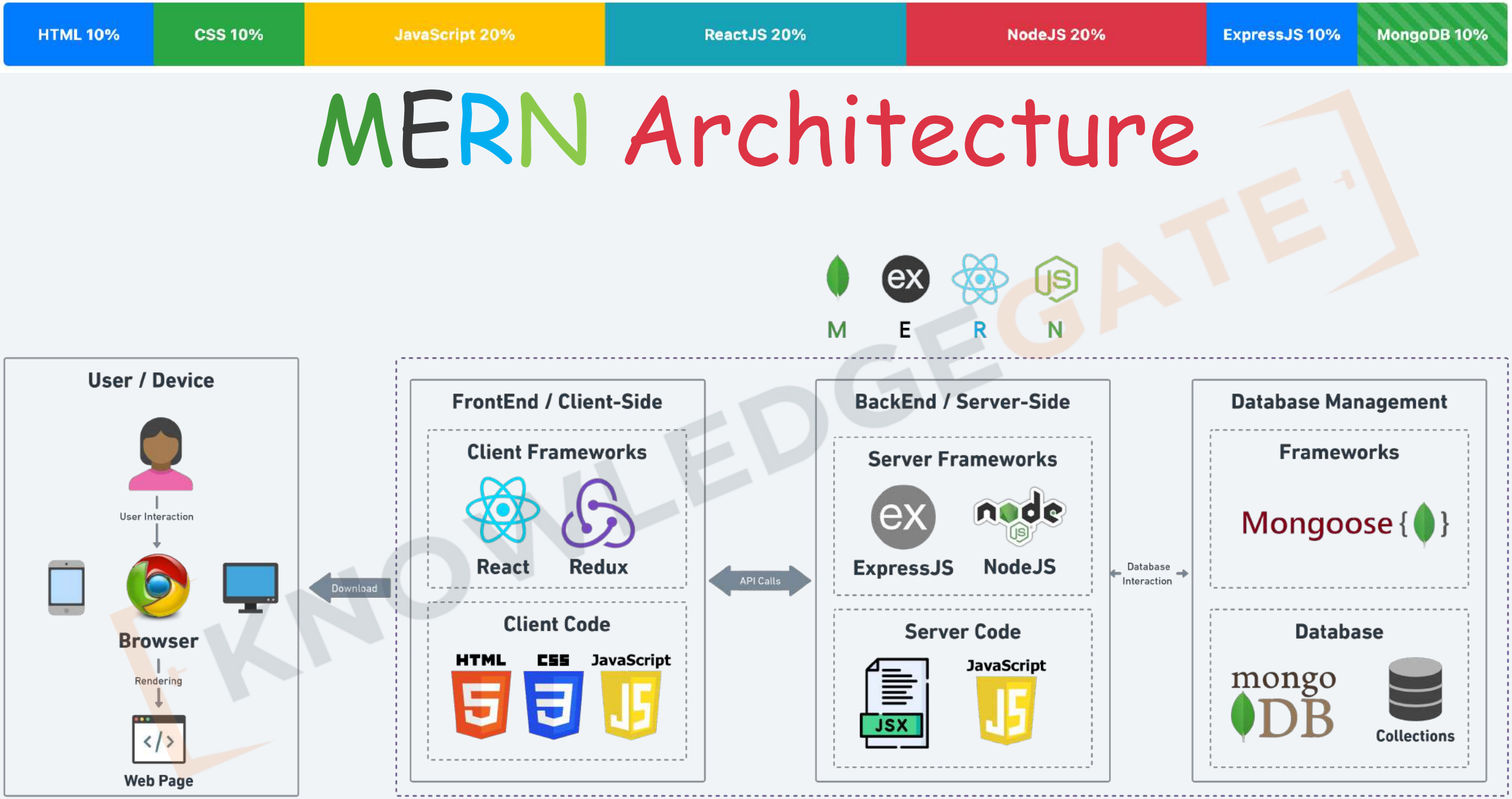
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Collections

Software Deployments

1. Process: Software deployment involves delivering a software product to a user or system environment.
2. Stages: Includes all stages from release to active use, encompassing installation, configuration, running, and updating of software.
3. Availability: Ensures software is available for use by target users or systems.

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HTML 10% | CSS 10% | JavaScript 20% | ReactJS 20% | NodeJS 20% | ExpressJS 10% | MongoDB 10%

EVOLUTION OF SOFTWARE DEPOLYMENT

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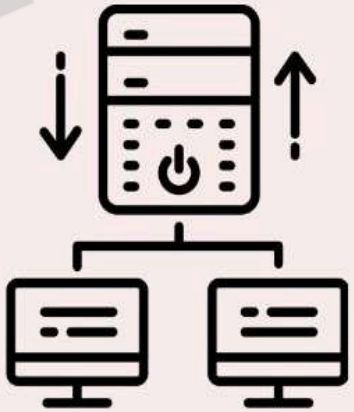
Requires manual configuration and can be costly and inflexible, making it challenging for larger, complex applications.

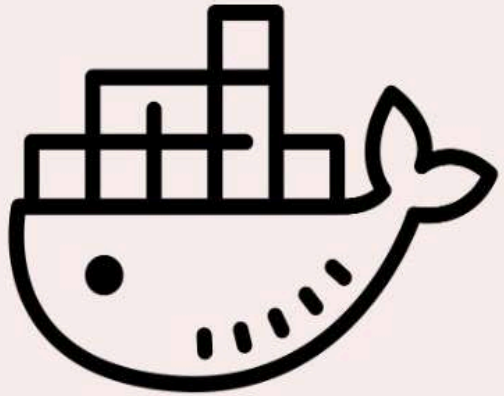
Physical machine

Allow scalability and isolated deployment of applications, but can be resource-intensive and time-consuming when boot up.



Virtual machines

Providing a flexible way to deploy, scale and manage resources. Challenges include networking and additional tools.



Containerization