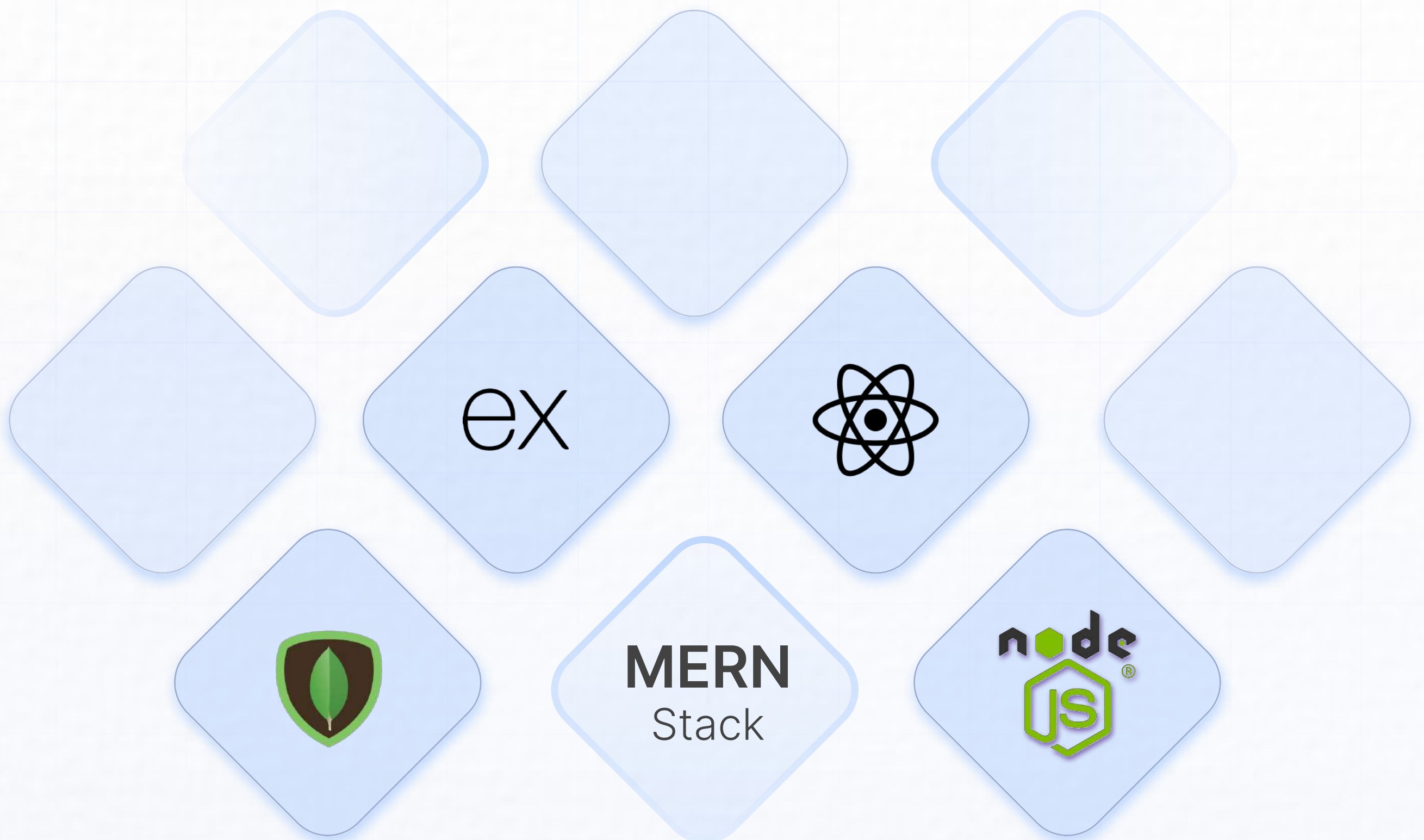


# 45 DAY CHALLENGE

To Learn

# MERN Stack



## Introduction and Setup

### Day 1: Introduction to JavaScript

- JavaScript fundamentals: variables, data types, functions, loops.

Resources

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### Day 2: HTML and CSS Basics

- Learn HTML tags, CSS styling, and responsive design.

Resources 1 | Resources 2

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### Day 3: JavaScript DOM Manipulation

- Manipulating DOM elements using JavaScript.

Resources

## Day 4: Introduction to Node.js

- Setting up Node.js, npm basics.

Resources

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## Day 5: Setting up MongoDB

- Installing MongoDB, basic CRUD operations.

Resources

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## Day 6: Review and Practice

- Review JavaScript, HTML, CSS, and Node.js basics.
  - Build a simple static website.
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## Day 7: Weekly Project

- Create a small project integrating HTML, CSS, JavaScript, and Node.js.

# Weekly Checklist

☐ Understand JavaScript fundamentals.

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☐ Get comfortable with HTML and CSS basics.

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☐ Learn basic Node.js and npm setup.

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☐ Perform CRUD operations with MongoDB.

## Frontend Development with React

### Day 8: Introduction to React

- Basics of React, JSX, components, props.

Resources

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### Day 9: React State Management

- Understanding state and lifecycle methods.

Resources

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### Day 10: React Hooks

- Using hooks like useState and useEffect..

Resources

## Day 11: React Router

- Implementing routing in React applications.

Resources

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## Day 12: Forms in React

- Handling forms and input in React.

Resources

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## Day 13: State Management with Redux

- Introduction to Redux, setting up a simple store.

Resources

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## Day 14: Weekly Project

- Build a small React project (e.g., Todo App).

Resources

[www.bosscoderacademy.com](http://www.bosscoderacademy.com)

# Weekly Checklist

☐ Understand React basics and JSX.

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☐ Learn state management and lifecycle methods.

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☐ Implement routing and forms in React.

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☐ Manage state with Redux.

## Backend Development with Node.js and Express.js

### Day 15: Introduction to Express.js

- Setting up Express, basic routing.

Resources

### Day 16: Middleware in Express.js

- Understanding and using middleware.

Resources

### Day 17: RESTful APIs

- Building RESTful APIs with Express.

Resources



## Day 18: Authentication and JWT

- Implementing authentication using JWT.

Resources

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## Day 19: MongoDB Integration

- Connecting MongoDB with Express, CRUD operations.

Resources

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## Day 20: Mongoose ODM

- Using Mongoose for data modeling.

Resources

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## Day 21: Weekly Project

- Build a small REST API with Express and MongoDB.

Resources

# Weekly Checklist

- ☐ Understand Express.js basics and routing.
- ☐ Implement middleware and build RESTful APIs.
- ☐ Integrate MongoDB with Express.
- ☐ Use Mongoose for data modeling and CRUD operations.

## Database Management with MongoDB

### Day 22: MongoDB Basics Review

- Review MongoDB basics, CRUD operations.

Resources

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### Day 23: Mongoose Schemas and Models

- Deep dive into Mongoose schemas and models.

Resources

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### Day 24: Aggregation and Indexing

- Using aggregation framework and indexes in MongoDB.

Resources

## Day 25: Data Validation

- Implementing data validation in Mongoose.

Resources

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## Day 26: Pagination and Sorting

- Implementing pagination and sorting.

Resources

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## Day 27: Authentication and Authorization

- Advanced authentication and role-based access control.

Resources

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## Day 28: Weekly Project

- Build a CRUD application with advanced MongoDB features.

Resources

# Weekly Checklist

☐ Review and perform CRUD operations in MongoDB.

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☐ Understand and implement Mongoose schemas and models.

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☐ Use MongoDB aggregation and indexing.

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☐ Implement data validation and pagination.

## Full Stack Integration and Deployment

### Day 29: Setting Up MERN Project

- Review MongoDB basics, CRUD operations.

Resources

### Day 30: Connecting Frontend and Backend

- Integrating React frontend with Express backend.

Resources

### Day 31: Building a Full CRUD Application

- Develop a full CRUD application (e.g., blog, eCommerce).

Resources

## Day 32: Testing with Jest and Mocha

- Writing tests for your application.

Resources

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## Day 33: CI/CD with Jenkins and GitHub Actions

- Setting up continuous integration and deployment.

Resources

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## Day 34: Error Tracking with Sentry

- Implementing error tracking.

Resources

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## Day 35: Performance Optimization

- Optimizing the performance of your application.

Resources

## Day 36: Security Best Practices

- Implementing security best practices.

Resources

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## Day 37: Deployment to Heroku and Vercel

- Deploying your application to Heroku and Vercel.

Resources

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## Day 38: Final Project Review and Launch

- Final review of your project, testing, and launch.

Resources

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## Day 39: Review and Practice

- Review all concepts learned and practice.



## Day 40: Weekly Project

- Create a complete MERN stack project integrating all components.

### Weekly Checklist

☐ Set up and structure a MERN project.

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☐ Integrate frontend and backend.

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☐ Develop a full CRUD application.

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☐ Perform testing and deploy the application.

## Advanced Topics and Final Projects

### Day 41: Advanced React Concepts

- Context API, advanced hooks, performance optimization.

Resources

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### Day 42: Advanced Node.js Concepts

- Streams, buffers, and advanced file handling.

Resources

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### Day 43: GraphQL with Node.js

- Introduction to GraphQL and integrating with Node.js.

Resources

## Day 44: WebSockets with Socket.io

- Real-time communication using WebSockets.

Resources

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## Day 45: Final Review and Capstone Project

- Review all concepts and build a capstone project.

Resources

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# Weekly Checklist

☐ Understand advanced React and Node.js concepts.

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☐ Integrate GraphQL with Node.js.

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☐ Implement real-time communication with WebSockets.


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☐ Complete a final capstone project.



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 Average package of **24LPA.**

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Lavanya  
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