



Codevensiva Academy

The MERN Stack Intensive

12-Week Full-Stack Program

Detailed Course Syllabus

```
codevensiva-academy – bash

# enrolling in the MERN intensive...
$ npx codevensiva init mern-intensive --weeks 12
✓ Stack ..... MongoDB · Express · React · Node
✓ Projects ..... 3 shipped builds + 1 capstone
✓ Outcome ..... a portfolio that gets you hired
$ npm run build-your-career _
```

12

WEEKS

4

STORY ARCS

4

REAL PROJECTS

1

DEMO DAY

A week in the cohort

MON

Concept deep-
dive & live code

TUE-WED

Guided lab +
pairing

THU

Build sprint on
your project

FRI

Code review &
demo

WKND

Stretch
challenge
(optional)



// MAP

How the 12 weeks unfold

We don't teach topics in a vacuum — we teach them in the order you'd actually build software. The cohort moves through four arcs, and each one ends with something real that ships.

WEEKS 01–03

Frontend Forge

Modern JavaScript, the React mindset, hooks, and your first interactive interfaces.

WEEKS 04–06

React Mastery

Routing, global state, data-fetching, styling & performance — then ship a polished frontend.

WEEKS 07–09

Backend Engine

Node, Express, MongoDB and bullet-proof authentication. APIs that don't fall over.

WEEKS 10–12

Full-Stack Fusion

Wire it all together, add real-time magic, deploy to the world, present on Demo Day.

The full toolchain you'll command

JavaScript ES2024+

React 18

Vite

React Router

Context + Reducers

React Query

Tailwind CSS

Node.js

Express

MongoDB Atlas

Mongoose

JWT + bcrypt

Socket.io

Git & GitHub

Postman

Jest + RTL

Vercel

Render

By Demo Day you can...

- ✓ Build responsive React UIs with clean component architecture
- ✓ Design and secure RESTful APIs with Node, Express & JWT
- ✓ Model, query and relate data in MongoDB with Mongoose
- ✓ Ship a complete MERN product to production with confidence

Who this is for

Career-changers, CS students who want real shipping experience, and self-taught developers ready to go full-stack. Basic comfort with HTML/CSS and a willingness to build every single week is all you bring — we handle the rest.



01

// BOOT SEQUENCE

Modern JavaScript & the Dev Environment

REPO + README

"Before you build skyscrapers, you learn to pour concrete." We sharpen the language everything else stands on.

YOU'LL LEARN

let / const

arrow fns

destructuring

modules

promises

async / await

fetch

Git & GitHub

DevTools

■ Build · Quote Forge

A dynamic quote generator that pulls live from a public API and renders to the DOM — your first taste of async data.

02

// THE COMPONENT MINDSET

React Fundamentals

PROJECT 1 STARTS

Stop thinking in pages. Start thinking in components — small, reusable pieces that snap together.

YOU'LL LEARN

JSX

components

props

Vite setup

virtual DOM

lists & keys

conditional UI

■ Build · DevCard

A composable developer profile card — props in, beautiful UI out. The atom of everything you'll build next.

03

// STATE OF MIND

Hooks & Interactivity

P1 MILESTONE

Static UIs are postcards. This week your interfaces start to remember, react, and respond.

YOU'LL LEARN

useState

useEffect

events

controlled forms

lifting state

useRef

■ Build · TaskPilot (frontend)

A Kanban-style task board with add, edit, drag & persist-in-state. Project 1 takes shape.



04

// ROUTING THE GALAXY

React Router & App Architecture

MULTI-PAGE APP

One screen is a demo. Many screens, wired cleanly, is a product.

YOU'LL LEARN

react-router

nested routes

URL params

layouts

custom hooks

folder structure

■ Build · Cineverse

A multi-page movie browser on a public API — search, detail pages, clean routing.

05

// GLOBAL STATE & DATA FLOW

Context, Reducers & Data Fetching

SHARED STATE

When state needs to be everywhere at once, prop-drilling breaks. Time for a real data layer.

YOU'LL LEARN

useContext

useReducer

Context API

React Query

caching

loading / error states

■ Build · Cineverse+

Add favorites & a watchlist powered by global state and cached data fetching.

06

// POLISH & PERFORMANCE

Styling, UX & Optimization

SHIP P1

The difference between a class project and a portfolio piece is the last 10%. We obsess over it.

YOU'LL LEARN

Tailwind CSS

responsive design

accessibility

useMemo / useCallback

React.memo

form validation

■ Ship · Project 1 → Production

Polish, optimize and **deploy your frontend to Vercel**. Your first live, shareable URL.



07

// SERVER AWAKENS

Node.js & Express

PROJECT 2 STARTS

You've ruled the browser. Now cross to the other side and run JavaScript on the server.

YOU'LL LEARN

Node runtime

npm scripts

Express

routing

middleware

REST design

Postman

■ Build · Vault API

A RESTful API for a notes & bookmarks service — routes, middleware, the works.

08

// DATA PERSISTS

MongoDB & Mongoose

FULL CRUD

Memory is fleeting; databases are forever. Give your API a place to actually keep things.

YOU'LL LEARN

NoSQL concepts

MongoDB Atlas

Mongoose schemas

CRUD

relationships

validation

indexing

■ Build · Vault API + DB

Wire Vault to MongoDB Atlas for true persistence and real, queryable data.

09

// GUARDIANS OF AUTH

Authentication & Security

SHIP P2

A real app needs locks on the doors. We build them properly — no hand-waving.

YOU'LL LEARN

bcrypt

JWT

sessions vs tokens

protected routes

role-based access

CORS

rate limiting

■ Ship · AuthForge (Project 2)

A secure auth service + protected API — register, log in, guard resources.

Deployed.



ARC IV · FULL-STACK FUSION · WEEKS 10-12

10

// THE FUSION

Connecting MERN End-to-End

CAPSTONE SCAFFOLD

Two halves, one brain. This is the week React and Express finally shake hands.

YOU'LL LEARN

React ↔ API

axios layer

auth on frontend

protected UI routes

env config

project structure

■ Build · Capstone Foundation

Scaffold your full-stack capstone: client + server + DB + auth, all talking.

11

// REALTIME & BEYOND

Advanced Features

THE WOW FACTOR

This is where a project starts to feel like a product people would actually pay for.

YOU'LL LEARN

Socket.io

file uploads

Stripe basics

pagination & search

optimistic UI

Jest + RTL

■ Build · Capstone Power-ups

Add a standout feature — live chat, notifications, payments or uploads — plus tests.

12

// SHIP IT

Deployment, DevOps & Demo Day

CAPSTONE

Code that lives on your laptop helps no one. Today, the world gets to use what you built.

YOU'LL LEARN

deploy MERN

Render / Railway

Atlas in prod

env secrets

CI basics

security checklist

portfolio polish

■ Ship · Capstone + Demo Day

Deploy your full MERN product, write the docs, and present it live to the cohort.



// PORTFOLIO

What you'll have built

You don't graduate with notes — you graduate with a build log. Three shipped projects and one capstone, each one a story you can tell in an interview.

PROJECT 01 · FRONTEND

TaskPilot

Weeks 02–06 · React

A responsive, interactive task board that proves you own the React frontend.

- ▶ Component architecture
- ▶ Hooks & state management
- ▶ Tailwind & responsive UX
- ▶ Deployed to Vercel

PROJECT 02 · BACKEND

AuthForge API

Weeks 07–09 · Node + DB

A secure, persistent REST API with real authentication and protected resources.

- ▶ Express + middleware
- ▶ MongoDB & Mongoose
- ▶ JWT + bcrypt auth
- ▶ Role-based access

PROJECT 03 · FULL-STACK

Capstone

Weeks 10–12 · MERN

A complete product of your choosing — front to back, deployed and demoed.

- ▶ End-to-end MERN
- ▶ Real-time / advanced feature
- ▶ Tested & documented
- ▶ Live on the internet

// CHOOSE YOUR FINAL BOSS

Capstone tracks

Pick a direction in Week 10 and build it into something real. Each comes with a starter brief and stretch goals.

ShopSphere

E-commerce store with cart, checkout & Stripe payments.

DevConnect

A social network for developers with live chat & profiles.

TaskPilot Pro

Team project manager with roles, boards & real-time sync.

MediBook

Appointment booking with scheduling, auth & notifications.

Career launch kit (woven throughout)

GitHub portfolio

README craft

live deploy links

code reviews

pair programming

Demo Day pitch

technical storytelling



// COMMIT

Your first commit starts here

Twelve weeks from now you won't be "learning to code." You'll be a developer with a live portfolio, a deployed full-stack app, and the muscle memory of shipping every single week.

```
codevensiva-academy - graduation.sh

# 12 weeks later...
$ git log --oneline --author="you"
alf9c2e feat: deploy capstone to production
7d3b8a0 feat: add realtime chat with socket.io
3e9011f feat: secure auth with jwt + bcrypt
c08a47d feat: ship react frontend to vercel
f00b123 init: hello, world
$ echo "I am a full-stack developer."
```

Format & commitment

- ✓ 12 weeks · live cohort-based learning
- ✓ Daily labs, weekly sprints & Friday demos
- ✓ Mentor code reviews on every project
- ✓ Demo Day to show the world what you built

What you leave with

- ✓ 3 portfolio projects + 1 deployed capstone
- ✓ A polished GitHub & live project links
- ✓ Production deployment experience
- ✓ The confidence to build anything in MERN



Codevensiva Academy

Code, intensively.

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