MERN Stack Developer (3 Months)

## Week 1: Git & GitHub Basics

* Introduction to Git
* Basic Git Commands: init, status, add, commit, log, diff
* Branching and Checkout
* Remote Repositories: remote add, push, pull, clone
* Stash, Fetch, Merge
* GitHub Workflows: PRs and Collaboration

## Weeks 2–4: Complete JavaScript (Core + DOM + Async + ES6)

* Week 2: JavaScript Fundamentals
* - Variables, Data Types, Strings, Numbers, Arrays
* - Comparison, Type Conversion, Boolean Logic
* - Loops: for, while, do-while, if/else, switch
* - Functions: Declaration, Expressions, Arrow, Hoisting
* Week 3: Objects, DOM, Events
* - Object Methods, 'this', Arrays of Objects
* - DOM Selection, Manipulation, Event Handling
* - Forms, Validations, Regex
* - Local Storage Basics
* Week 4: Advanced JS + Tooling
* - Array Methods: map, filter, reduce, find, flatMap
* - OOP in JS: Constructors, Prototypes, ES6 Classes, Inheritance
* - Async JS: Callbacks, Promises, async/await
* - ES6+ Features: Destructuring, Spread/Rest, Sets, Maps
* - Modern Tooling: Modules, NPM Basics

## Weeks 5–6: Complete Node.js + Express + MongoDB

* Week 5: Backend Basics
* - Node.js Environment, Modules, NPM, REPL
* - Creating a Web Server
* - Express.js Setup, Routing, Middleware
* - REST APIs & CRUD
* - MVC Pattern & Folder Structure
* Week 6: MongoDB + Mongoose
* - MongoDB & Mongo Atlas Setup
* - Schemas & Models with Mongoose
* - Database CRUD Operations
* - Connecting Node + Mongo + Express
* - Server-Side Rendering (EJS)

## Week 7: Authentication + Deployment

* JWT Authentication (Login/Register)
* Password Hashing
* Route Protection with Middleware
* Deployment to Live Server (Cloud, Vercel, Render)

## Week 8: Postman API Testing

* Postman Installation & Setup
* Making GET, POST, PATCH, DELETE Requests
* Path Variables, Query Params, Collections
* Postman Environment & Variables
* JSON Payloads & Random Data
* API Authentication in Postman

## Weeks 9–11: React.js Frontend

* Week 9: React Fundamentals
* - React Setup (with Vite)
* - JSX, Components, Props
* - Event Handling & State (useState)
* - Conditional Rendering, Lists
* Week 10: React Hooks & Forms
* - useEffect for Side Effects & API Calls
* - useReducer, useRef
* - Forms, Lifting State Up
* - CRUD with Hooks
* Week 11: Advanced React
* - Context API, useContext
* - Custom Hooks
* - Performance: useMemo, useCallback, memo
* - Advanced Features: forwardRef, useDeferredValue, Suspense, lazy, createPortal

## Week 12: MERN Integration + Final Project

* Connecting React ↔ Express (MERN Full-Stack)
* MERN App Deployment (Frontend + Backend)
* Final Capstone Project (Blog, Task Manager, or Custom App)
* Version Control with GitHub
* Live Demo & Presentation

## Tools & Platforms Used

* Git, GitHub
* Node.js, Express.js
* MongoDB, Mongoose
* React, Vite
* Postman
* Cloud Deployment: Vercel