



## so now move to the project i choose MERN.

for that what i have to install on my machine

Perfect! Let me create a **complete setup guide** for your MERN stack development environment.

### ▮ Complete MERN Setup Guide for Windows/Mac/Linux

#### Installation Checklist:

- ✓ Node.js + NPM
- ✓ MongoDB (Local or Cloud)
- ✓ Git (Version Control)
- ✓ Visual Studio Code (Code Editor)
- ✓ Postman (API Testing)
- ✓ Required VS Code Extensions

#### STEP 1: Install Node.js (with NPM)

##### Latest Stable Versions (2026):

- **Node.js v22.x LTS** (Recommended for you)
- **npm v10.x** (comes with Node.js)

##### Installation for Windows:

1. **Download from:** <https://nodejs.org/en/download>
2. **Click:** "Download the LTS version" (Green button)
3. **Run installer** (.msi file)
4. **Check:** "Add to PATH" during installation
5. **Click Next** → **Finish**

##### Installation for macOS:

```
# Using Homebrew (easiest way)
brew install node

# Or download from: https://nodejs.org/en/download
```

## Installation for Linux (Ubuntu/Debian):

```
curl -fsSL https://deb.nodesource.com/setup_22.x | sudo -E bash -  
sudo apt-get install -y nodejs
```

## Verify Installation:

Open **Command Prompt/Terminal** and run:

```
node -v      # Should show: v22.x.x  
npm -v       # Should show: 10.x.x
```

## STEP 2: Install MongoDB

You have **2 options**:

### Option A: MongoDB Atlas (Cloud) - RECOMMENDED ✓

**Easiest for beginners + no local setup needed**

1. Go to: <https://www.mongodb.com/cloud/atlas>
2. **Click:** "Sign Up Free"
3. **Create account** with email
4. **Click:** "Create Deployment"
5. **Choose:** Free Tier (M0)
6. **Select:** Your region (choose nearest to India - Mumbai or Bangalore)
7. **Click:** "Create Deployment"
8. **Create Database User:**
  - Username: `railway_user`
  - Password: Save this! (you'll need it)
9. **Get Connection String:**
  - Click "Drivers"
  - Copy connection string: `mongodb+srv://username:password@cluster.mongodb.net/...`

**Store this safely!** You'll use it in `.env` file later.

## Option B: MongoDB Community (Local) - For Offline Development

### Windows:

1. Download: <https://www.mongodb.com/try/download/community>
2. Run installer (.msi)
3. Choose "Install as a Service"
4. Complete installation

### Verify installation:

```
mongosh --version
```

### macOS:

```
brew tap mongodb/brew  
brew install mongodb-community  
brew services start mongodb-community
```

### Linux (Ubuntu):

```
curl -fsSL https://www.mongodb.org/static/pgp/server-7.0.asc | sudo apt-key add -  
sudo apt-get install -y mongodb-org  
sudo systemctl start mongod
```

## STEP 3: Install Git

**Download from:** <https://git-scm.com/downloads>

This is for version control and pushing to GitHub.

### Verify installation:

```
git --version
```

## STEP 4: Install Visual Studio Code (Code Editor)

**Download from:** <https://code.visualstudio.com/>

This is where you'll write all your code.

## STEP 5: Install VS Code Extensions

Open VS Code and install these extensions:

### 1. ES7+ React/Redux/React-Native snippets

- By: dsznajder.es7-react-js-snippets

### 2. Prettier - Code formatter

- By: esbenp.prettier-vscode

### 3. ESLint

- By: dbaeumer.vscode-eslint

### 4. Thunder Client (or Postman)

- By: rangav.vscode-thunder-client

### 5. MongoDB for VS Code

- By: MongoDB

### 6. Tailwind CSS IntelliSense

- By: bradlc.vscode-tailwindcss

**How to install:**

- Press `Ctrl+Shift+X` (Windows/Linux) or `Cmd+Shift+X` (Mac)
- Search extension name
- Click "Install"

## STEP 6: Install Postman (API Testing Tool)

**Download from:** <https://www.postman.com/downloads/>

This helps you test your backend API before frontend integration.

## STEP 7: Install Additional Tools (Optional but Recommended)

### MongoDB Compass (GUI for MongoDB)

```
# Download from: https://www.mongodb.com/products/compass  
# Visual tool to manage your database
```

### Nodemon (Auto-restart server on code changes)

```
npm install -g nodemon
```

## ✓ VERIFICATION CHECKLIST

Run these commands to verify everything is installed:

```
# Check Node.js
node -v

# Check npm
npm -v

# Check Git
git --version

# Check MongoDB connection (if using local)
mongosh --version
```

All showing versions? Great! ✓ You're ready!

## STEP 8: Configure Global NPM Packages

```
# Update npm to latest
npm install -g npm@latest

# Install Vite (modern build tool for React)
npm install -g vite

# Install Create React App (alternative)
npm install -g create-react-app
```

## ▮ SUMMARY OF WHAT YOU INSTALLED

Tool	Purpose	Version
<b>Node.js</b>	JavaScript runtime	v22.x
<b>npm</b>	Package manager	v10.x
<b>MongoDB Atlas</b>	Cloud Database	Free tier
<b>Git</b>	Version control	Latest
<b>VS Code</b>	Code editor	Latest
<b>Postman</b>	API testing	Latest

## ▮ FOLDER STRUCTURE (What You'll Create Next)

```
BRC-NOCC-System/
├── frontend/                (React app - Vercel)
│   ├── src/
│   ├── public/
│   └── package.json
├── backend/                (Node.js + Express - Render/Railway)
│   ├── models/
│   ├── routes/
│   ├── controllers/
│   ├── middleware/
│   ├── .env
│   └── server.js
└── README.md
```

## ▮ NEXT STEPS

Once installation is complete:

1. **Create React Frontend** (using Vite or Create React App)
2. **Create Node.js Backend** (Express server)
3. **Connect MongoDB Atlas** (using connection string)
4. **Create API Routes** (for authentication, user management, etc.)
5. **Build Admin Dashboard** (with role-based access)

## ? TROUBLESHOOTING

**Issue:** Command not found (node/npm/git)

**Solution:**

- Restart computer after installation
- Check if installed in PATH environment variable

**Issue:** MongoDB connection refused

**Solution:**

- Make sure MongoDB is running (local) or check MongoDB Atlas connection string
- Verify username/password in connection string

**Issue:** Port already in use

**Solution:**

```
# Change port in .env file
PORT=5000 # Instead of 3000
```

**Once you've installed all of these, let me know! ☐**

**Then I'll help you:**

1. ✓ Create the complete React frontend
2. ✓ Create the Node.js backend
3. ✓ Set up MongoDB database
4. ✓ Build authentication system (3 user roles)
5. ✓ Create admin dashboard

**Ready to proceed with MERN project creation? ☐**

✱✱

1. <https://www.nodejs.tech/ro/download>
2. <https://docs.npmjs.com/downloading-and-installing-node-js-and-npm/>
3. <https://www.igmguru.com/blog/create-a-database-in-mongodb>
4. <https://reactnative.dev/docs/set-up-your-environment>
5. <https://nodejs.org/en/download/current>
6. <https://www.mongodb.com/docs/manual/tutorial/getting-started/>
7. <https://www.sencha.com/blog/how-to-create-mobile-apps-using-react-js/>
8. <https://nodejs.org/en/download>
9. [https://www.w3schools.com/mongodb/mongodb\\_get\\_started.php](https://www.w3schools.com/mongodb/mongodb_get_started.php)
10. <https://react.dev/learn/installation>
11. <https://github.com/nodejs/node>
12. <https://www.mongodb.com/products/self-managed/community-edition>
13. <https://www.mongodb.com/docs/get-started/>
14. <https://www.geeksforgeeks.org/reactjs/reactjs-environment-setup/>
15. <https://www.geeksforgeeks.org/node-js/update-node-js-and-npm-to-latest-version/>
16. <https://www.simplilearn.com/tutorials/mongodb-tutorial/install-mongodb-on-windows>
17. <https://nareshit.com/blogs/react-environment-setup-step-by-step-guide-nareshit>
18. <https://blog.risingstack.com/update-node-js-latest-version/>
19. [https://www.librechat.ai/docs/configuration/mongodb/mongodb\\_community](https://www.librechat.ai/docs/configuration/mongodb/mongodb_community)
20. <https://www.youtube.com/watch?v=HYMMFbQT2D4>