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Week Five, Full Stack MERN project

These cover productivity, education, finance, health, utility, and more.

Live Full Stack MERN Projects

#	Project Title	Domain	Description
1	Task Manager App	Productivity	Add/edit/delete tasks, mark complete, due dates
2	Notes Keeper	Personal Utility	Create and manage personal notes with tags
3	Expense Tracker	Finance	Record, categorize, and visualize expenses
4	Personal Portfolio Builder	Professional	Build a dynamic personal resume/portfolio site
5	E-Commerce Product Catalog	Commerce	Product listing, details, cart, checkout UI
6	Online Book Library	Education	Add, borrow, and review books
7	Event Scheduler	Events	Create and RSVP for events
8	Job Tracker	Career	Track job applications, company details, statuses
9	Blog Platform	Content Creation	Post, edit, comment on blogs
10	Weather Dashboard	Utility	Weather forecast + custom location notes

#	Project Title	Domain	Description
11	Quiz System	Education	Add quizzes, take tests, get scores
12	Interview Prep Tracker	Career	Track topics, schedule mock interviews
13	Fitness Journal	Health	Log workouts, calories, goals
14	Diet Planner	Health/Nutrition	Meal plans, recipes, track intake
15	Book Tracker	Learning	Save read/wishlist books, ratings
16	Digital CV Generator	Career	Add sections and export resume in PDF
17	Discussion Forum	Community	Post topics, reply, upvote
18	Live Poll App	Survey/Feedback	Create polls, vote, see results
19	CRM for Freelancers	CRM	Manage leads, clients, invoices
20	Student Assignment Portal	Education	Submit, track, and grade assignments
21	Movie Watchlist	Entertainment	Add movies, set watched/unwatched
22	Time Tracker	Productivity	Start/stop timers, log tasks
23	Inventory Management	Retail/Logistics	Add/remove/update product inventory
24	Grocery List Manager	Household	Add grocery items, mark as bought
25	Travel Bucket List	Lifestyle	Save places, notes, travel status
26	Mind Map Builder	Productivity	Create visual mind maps for notes
27	Password Vault (with encryption)	Security	Save credentials securely (local encryption)
28	Habit Tracker	Personal Growth	Add habits, daily progress chart
29	Chat App (Socket.io)	Communication	Real-time messaging (basic version)
30	Customer Feedback System	Business	Collect and view product feedback
31	Issue/Bug Tracker	Development	Log issues, assign priorities and statuses
32	Digital Wallet Tracker	Finance	Add income/expense records, balance graph
33	Certificate Generator	Education	Auto-generate course certificates
34	Travel Planner	Lifestyle	Create trips, checklist, budget tracking
35	Flashcard Study App	Education	Create and flip flashcards, self-testing
36	Goal Tracker	Personal Growth	Set and monitor goals (daily/weekly/monthly)
37	Freelancer Dashboard	Career	Manage projects, deadlines, payments
38	School Attendance Manager	Education	Mark and view attendance records
39	Alumni Connect Portal	Social Network	Chat, search alumni, post updates
40	Mentorship Platform	Learning/Career	Book mentorships, leave feedback
41	Skill Tracker	Self-Improvement	Add learned skills, skill trees, ratings
42	Donation Tracker	NGO/Charity	Log donations, donor list, generate reports

#	Project Title	Domain	Description
43	Pet Care Log	Lifestyle	Track vet visits, vaccinations, food logs
44	Complaint Management System	Admin Utility	File, track, and resolve complaints
45	Startup Idea Incubator	Innovation	Submit ideas, get votes and comments
46	Resume Builder with Templates	Career	Choose template, fill form, export resume
47	Hostel Room Booking	Travel/Utility	Book rooms, manage schedules, reviews
48	Class Timetable Planner	Academic Utility	Add periods, teacher allocation
49	Virtual Classroom	Education	Join/host sessions, notes, chat
50	Voting App for Clubs/Events	Events	Members vote for activities, track results

Full Playbook for **MERN Stack Full Stack Integration Projects** listed above. This will guide you through structure, tools, features, database schema, APIs, and deployment. Use this as a reference model to start building any of the projects from scratch to live deployment.

MERN Stack Project Playbook

1. Tech Stack

Layer	Tools/Libraries
Frontend	React.js, Axios, React Router, Tailwind CSS / Bootstrap
Backend	Node.js, Express.js
Database	MongoDB (with Mongoose ODM)
Environment	dotenv for secrets, CORS for API communication
Deployment	Vercel (frontend), Render / Railway (backend + MongoDB)

2. Folder Structure

```

project-name/
├── client/                                # React Frontend
│   ├── public/
│   └── src/
│       ├── components/
│       ├── pages/
│       ├── App.js
│       └── index.js
└── server/                                # Express + Node.js Backend

```

```

| controllers/
| models/
| routes/
| config/db.js
| server.js
| .env
| package.json # Use concurrently for both frontend/backend

```

🧠 3. Common Features (Use Case Specific)

Feature	Implementation Tool
Authentication	JWT (json web tokens)
CRUD Operations	RESTful APIs
API Communication	Axios
Form Validation	React Hook Form/Yup
State Management	useState / useReducer
Search / Filter	Custom filter functions
Role Management	Middleware in Express

🇮🇳 4. Sample MongoDB Schema Examples

a. Notes App:

```

const noteSchema = new mongoose.Schema({
  title: String,
  content: String,
  userId: mongoose.Schema.Types.ObjectId,
  tags: [String],
  createdAt: { type: Date, default: Date.now }
});

```

b. Task Manager:

```

const taskSchema = new mongoose.Schema({
  title: String,
  description: String,
  status: { type: String, enum: ['pending', 'done'] },
  dueDate: Date,
  userId: mongoose.Schema.Types.ObjectId,
});

```

📡 5. REST API Sample Routes

Method	Endpoint	Description
GET	/api/tasks/	Get all tasks for user
POST	/api/tasks/	Create new task

Method	Endpoint	Description
PUT	/api/tasks/:id	Update a task
DELETE	/api/tasks/:id	Delete a task
POST	/api/auth/register	Register new user
POST	/api/auth/login	Login and return token

6. Authentication (JWT Setup)

- **Register/Login**
- Store JWT in `localStorage`
- Attach token to every Axios request in frontend

```
// In Axios Setup
axios.defaults.headers.common['Authorization'] = `Bearer ${token}`;
```

7. Development & Testing Tools

Tool	Purpose
Postman	API Testing
MongoDB Atlas	Cloud DB
Nodemon	Auto-restart backend
Concurrently	Run React + Express together

8. Deployment Plan

Part	Tool	Steps
Frontend	Vercel / Netlify	Push frontend <code>client/</code> folder
Backend	Render / Railway	Push backend <code>server/</code> , connect to MongoDB
MongoDB	Atlas	Create DB cluster, copy URI to <code>.env</code>
CORS	Enable from Vercel domain to backend API	

9. Sample `.env` File

```
PORT=5000
MONGO_URI=mongodb+srv://<username>:<password>@cluster.mongodb.net/project
JWT_SECRET=mysecretkey
```

10. CI/CD & Version Control

- GitHub for codebase
- GitHub Actions (optional)
- Vercel & Render auto-deploy from GitHub commits

11. Project Report Format (Deliverable)

Section	Content Example
Title & Objective	Expense Tracker using MERN Stack
Tech Stack Used	React, Express, Node, MongoDB
Problem Statement	Manual expense tracking is tedious
Features	Add/Delete/Edit, Summary, Graphs
Screenshots	Home, Dashboard, Add Expense
Deployment Link	https://expense-app.vercel.app
GitHub Repo	https://github.com/user/project

