

8-Week Backend Builder's Roadmap

Learn modern backend tools by **building first and learning along the way**. Each week includes a mini-project that focuses on one core technology.

Week 1 – Redis: Speed Boost for Your App

Build: A simple login system that stores sessions in Redis instead of a database.

Learn: - How to use Redis as a cache or session store

- Setting and getting keys, expiry times

Example: Store user session `{ userId: 12 }` in Redis for 15 minutes after login.

Week 2 – RabbitMQ (or NATS): Message Queue Basics

Build: An email queue — your app adds an “email to send” job to a queue, and another service sends it later.

Learn: - Producer/consumer pattern

- Decoupling tasks with queues

Example: When a user registers, enqueue “send welcome email” so signup isn’t slow.

Week 3 – gRPC: Service-to-Service Talk

Build: Two microservices — `user-service` and `billing-service` — that communicate via gRPC instead of REST.

Learn: - Define `.proto` files

- Generate client/server code

- Make fast internal RPC calls

Example: Billing service requests user data using gRPC.

Week 4 – Kafka: Real-Time Event Stream

Build: A mini analytics pipeline — one service publishes “user clicked” events; another reads them and counts totals.

Learn: - Topics, producers, consumers

- How event streams differ from queues

Example: Log every click on your site in real time.

Week 5 – Docker: Pack & Run Anywhere

Build: Dockerize one of your earlier projects.

Learn: - Dockerfile basics

- Build and run containers

- Share your app via Docker Hub

Example: `docker run myapp` works the same on any machine.

Week 6 – Kubernetes: Manage Many Containers

Build: Deploy the Dockerized app to Kubernetes (Minikube or local cluster).

Learn: - Pods, Deployments, Services

- Auto-restart and scaling

Example: Your app runs 3 replicas, and Kubernetes restarts one if it crashes.

Week 7 – Prometheus + Grafana: Monitor Everything

Build: Add metrics collection to your API (like request count, response time) and show them on a Grafana dashboard.

Learn: - Exporting metrics

- Setting up Grafana panels

Example: See “requests per second” graph live updating.

Week 8 – ELK Stack: Logging Like a Pro

Build: Centralized log viewer — collect logs from multiple microservices and search them in Kibana.




Learn: - Structured logging

- Log pipelines with Logstash

- Querying logs in Kibana

Example: Search “error” and instantly find which service failed.

Optional Add-Ons

-  **WebSockets:** Build a live chat.
-  **GraphQL:** Build an API where the frontend chooses its data.
-  **Redis Streams:** Try real-time queues inside Redis.