

## Developer Onboarding Pack – Dental Backend

### 1. Project Overview

This backend powers a complete dental clinic management platform: patients, treatments, plans, invoices, appointments, follow-ups, prescriptions, consents, reports, analytics, USD→PKR pricing, Drive backup, cron jobs, notifications, and more.

### 2. Folder Structure

See consolidated folder map. Each module lives in src/. All routes registered via src/routes/index.master.ts. Workflows orchestrate cross-module logic.

### 3. Environment Setup

Requirements: Node 18+, Docker, Postgres, npm.

Steps:

- npm install
- Create .env (PORT, NODE\_ENV, DATABASE\_URL, ADMIN\_PIN, USD\_PKR\_API\_URL)
- docker-compose up --build or run your own Postgres

### 4. Database & Prisma

- prisma/schema.prisma defines all models.
- Run migrations: npx prisma migrate dev --name init
- Generate client: npx prisma generate

### 5. Running the Backend

Dev: npm run dev

Prod: npm run build && npm start

Docker: docker-compose up --build

### 6. Key Modules

- Patients: CRUD and profile workflows.
- Treatments & Plans: USD-pegged pricing, surfaces, multi-visit.
- Invoices: pre-PDF builder, discounts, outstanding logic.
- Prescriptions: condition → protocol engine.
- Follow-ups: automated rules + manual scheduling.
- Appointments: strict slot system, no-show logic.
- Reports & Analytics: yearly/monthly summaries.
- Sync: Dexie → server → Drive snapshot.

### 7. Workflows Core

Use workflows.service.ts for:

- finalizeVisitFromPlan
- auto follow-ups
- invoice + outstanding updates
- gamification events

## 8. Cron Jobs

Required:

- Hourly USD→PKR
- Daily Drive backup
- Daily reminders
- 11PM no-show

## 9. API Usage Examples

GET /api/patients

POST /api/appointments

POST /api/invoices

POST /api/prescriptions

GET /api/reports/yearly

## 10. Testing

Use supertest or Postman. Validate OpenAPI in openapi-core.yaml.

## 11. Deployment

Use Dockerfile + docker-compose. Behind Nginx/Cloudflare with HTTPS. Health endpoints:

- /health
- /api/health/deep

## 12. Replacing Providers

Swap dummy providers for real:

- SMS
- Email
- Drive
- PDF (pdfkit/puppeteer)