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# 🌐 Overall Architecture (HLD)

- **Frontend** → React.js (SPA / PWA)
- **Backend** → Node.js + Express / NestJS (REST APIs)
- **Databases**
    - **PostgreSQL** → Users, roles, payments, transactions, profile metadata, reminders
    - **MongoDB** → Devotional content (Aarti, Hanuman Chalisa, language & version data)
- **Auth / OTP** → Twilio SMS
- **Storage** → Cloudflare R2 (audio, images, attachments)
- **Payments (₹10 one-time unlock)** → Razorpay / Play Billing
- **Notifications** → FCM / OneSignal
- **Deployment**
    - Backend → Docker + any cloud (AWS / Render / Railway / Cloudflare Workers)
    - Frontend → Vercel / Netlify
- **Security**
    - HTTPS everywhere
    - JWT-based auth tokens
    - Role-based Access (User / Pandit / Admin)

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# 🟠 BACKEND REQUIREMENTS (Node.js)

## 1️⃣ Core Responsibilities

- OTP-based authentication (signup + login)
- Role-based access (User / Pandit)
- Content APIs — Aarti & Hanuman Chalisa CRUD
- Uploads to **Cloudflare R2**
- Search APIs
- User Profile APIs
- Payment & unlock validation (₹10 one-time)
- Reminders & notifications scheduling
- Analytics / logs

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# 2️⃣ API Modules & Endpoints

## 🔐 Authentication (OTP – via Twilio)

**/auth/request-otp**

- Input: phone
- Generate OTP + store hashed with TTL
- Send via Twilio

**/auth/verify-otp**

- Input: phone, otp
- If new user → create account (role default USER)
- Return **JWT token**

No password — login and signup both via OTP.

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## 👤 User & Pandit Profiles

**/profile/me (GET)**

- Get profile details

**/profile/update (PUT)**

- Update name, language, city, role-specific fields
- Upload profile picture → R2 signed URL flow

**/profile/role/update (POST — Admin only)**

- Promote to Pandit

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## 📿 Content — Aarti & Hanuman Chalisa

Stored in **MongoDB** to support multi-language text, metadata & versions.

**/content/list (GET)**

- Filters: type, language, search

**/content/:id (GET)**

**/content/create (POST — Pandit/Admin)**

- Add Aarti or Chalisa (text + metadata)
- Upload audio/image via R2 signed URL

**/content/update/:id (PUT — Pandit/Admin)**

**/content/delete/:id (DELETE — Pandit/Admin)**

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## 🔍 Search

**/search?q=hanuman**

Supports:

- title
- language
- type
- full-text indexing (MongoDB)

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## 🔔 Reminders (Optional MVP Feature)

**/reminders/create**
**/reminders/delete**

Store reminder config in PostgreSQL
Cron/queue worker → push notification

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## 💰 Payment Unlock (₹10 One-Time)

**/payment/initiate**
**/payment/verify**

- Store transactions in PostgreSQL
- Set `is_unlocked=true` flag on success
- All premium content checks this flag

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## 📦 Cloudflare R2 Upload Flow

**/upload/sign-url**

- Backend signs upload URL
- FE uploads directly to R2
- Use for:
    - profile images
    - aarti audio
    - artwork

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# 3️⃣ Database Design (LLD-Level)

## 🗄️ PostgreSQL (Relational)

**users**

- id (uuid)
- phone
- role (USER | PANDIT | ADMIN)
- name
- profile_image_url
- language_pref
- is_unlocked (bool)
- created_at

**otp_verification**

- id
- phone
- otp_hash
- expires_at

**payments**

- id
- user_id
- amount
- transaction_ref
- status
- created_at

**reminders**

- id

- user_id
- time
- type (morning/evening)

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### 🍃 MongoDB (Content Store)

**content**

- _id
- type (aarti | chalisa)
- title
- language
- body_text
- meaning_text
- audio_url
- created_by (pandit)
- created_at

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## 4️⃣ Tech & Code Standards

- ESLint + Prettier

Layered architecture:
src/
  controllers/
  services/
  repositories/
  models/
  routes/
  middlewares/
  utils/

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- DTO validation (Joi / Zod)
- Winston logging
- Jest tests
- OpenAPI / Swagger Docs

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# 🔵 FRONTEND REQUIREMENTS (React.js)

## 1️⃣ Core Responsibilities

- Clean devotional UI
- OTP login/signup
- Display & play Hanuman Chalisa / Aarti
- Support **12+ languages**
- Show verse meanings
- Set reminders
- Manage user/pandit profiles
- If Pandit → CRUD content UI
- Offline mode for downloaded content
- Payment unlock UI

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## 2️⃣ Key Screens / Modules

### 🏠 Home

- Play Chalisa audio
- Read text
- Switch language
- Meaning toggle
- Download for offline

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### 🔐 Auth (OTP)

- Enter mobile number
- Enter OTP
- Handle resend timer

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### 👤 Profiles

**User View**

- Name

- Language
- Profile pic
- Unlock status

**Pandit View**

- Add/Edit/Delete content
- Upload audio to R2

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### 📿 Content Library

- List Aarti + Chalisa
- Filters (language/type)
- Search bar

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### 🎧 Player

- Background play
- Auto-scroll text with audio
- Repeat mode

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### 🔔 Reminder Settings

- Morning & Evening toggle
- Time selection

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### 💰 Payment Screen

- ₹10 one-time unlock CTA
- Success & restore purchase flow

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## 3️⃣ Frontend Tech Stack & Standards

- React 18+
- React Router

- Redux Toolkit / Zustand
- Axios
- i18n (react-i18next)
- PWA support (offline cache)
- Tailwind / MUI
- Form validation (Formik/Yup)

**Folder Structure**

```
src/
  components/
  pages/
  store/
  hooks/
  services/
  utils/
  assets/
  i18n/
```

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## 4️⃣ R2 Upload UX (Pandit/Admin)

- FE requests **signed upload URL**
- FE uploads file directly
- Store returned URL in DB via backend API

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## 5️⃣ Security & UX

- JWT stored in httpOnly cookie or secure storage
- Role-based UI gating
- Loader & error states everywhere
- Accessibility for older users
- Hindi default + easy language switch

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# ✅ Roles & Permissions Summary

| Feature | User | Pandit | Admin |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Read Chalisa/Aarti | ✔ | ✔ | ✔ |
| Add content | ✖ | ✔ | ✔ |
| Edit/Delete content | ✖ | ✔ | ✔ |
| Manage roles | ✖ | ✖ | ✔ |
| Unlock premium | ✔ | ✔ | ✔ |

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# 📌 Non-Functional Requirements

- 99.5% uptime
- API latency < 300ms
- OTP expiry 5 mins
- Rate limits on OTP & login
- Audit logs for content changes

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If you want, I can also:
✅ turn this into a **formal SRS / BRD format**
✅ generate **Swagger API docs**
✅ create **DB schema scripts**
✅ or propose **detailed LLD diagrams & flows**

Just tell me 👍