📘 EdTech Platform with Online Compiler & Task Unlock System

1️⃣ Platform Structure (मूळ बांधणी)

हा platform तीन लेवल्समध्ये विभागलेला असेल:

1. Beginner – Java चे बेसिक concepts, syntax, data types, operators, control statements.

2. Intermediate – OOPs concepts (Classes, Objects, Inheritance, Polymorphism), Collections, Exception Handling.

3. Advanced – Multi-threading, JDBC, Spring Boot, Design Patterns, Real-world projects.

Modes of Learning:

Online Tutorials: Pre-recorded videos, PDFs, assignments.

Live Sessions: Specific doubt clearing / revision classes.

Offline Sessions: Thane station जवळ असलेल्या classroom मध्ये on-demand.

2️⃣ Key Features (मुख्य वैशिष्ट्ये)

Learning Management System (LMS):
Student login → courses enroll → progress track.

Gamification:
Badges (Beginner Badge, Intermediate Badge, etc.), XP points, leaderboards.

Community & Mentorship:
Discussion forum / WhatsApp + Discord group.

Certification:
प्रत्येक level पूर्ण झाल्यावर auto-generated digital certificate.

3️⃣ Course Expansion (भविष्यातील अभ्यासक्रम)

Java नंतर या course library मध्ये पुढील विषय जोडता येतील:

Python (Data Science, ML Basics)

Web Development (HTML, CSS, JS, React)

Salesforce (CRM + Apex + LWC Basics)

Soft Skills & Interview Preparation

4️⃣ Business Model (उत्पन्न मॉडेल)

Beginner Pack (Budget friendly): फक्त Self-paced videos + quizzes.

Intermediate Pack: Videos + doubt clearing + assignments checking.

Advanced Pack: Videos + live sessions + offline support + certificate.

Corporate Training: कंपन्यांसाठी fresher training packages.

5️⃣ Marketing Strategy (प्रचार योजना)

Website Integration: DigitioHub official website वर "Academy Section".

Social Media: Reels/Shorts – "30 sec Java tips", testimonials.

Workshops: Free demo sessions → funnel into paid courses.

College Tie-ups: Final year students + placement prep batches.

6️⃣ Tech Stack (तांत्रिक रचना)

Frontend: React / Next.js + Tailwind CSS.

Backend: Node.js (Express) किंवा Django/FastAPI.

Database: PostgreSQL / Firebase for user progress.

Video Hosting: Vimeo / YouTube private.

Payments: Razorpay (India), Stripe (Global).

Certificates: Auto-generated (Canva API / Custom template).

7️⃣ Online Compiler Integration (ऑनलाइन कोड रनर)

Judge0 API (Recommended)

Free + Open-source.

Supports 60+ languages.

REST API integration: User code → Judge0 → Output result.

इतर पर्याय: JDoodle API, Sphere Engine, HackerEarth Assessments.

8️⃣ Task & Auto-Grading Logic (Task Based Unlock System)

प्रत्येक lesson मध्ये code tasks असतील.

Student ने code लिहून submit केल्यावर → Online Compiler testcases run करेल.

Pass Rule:

Must pass mandatory hidden testcases.

Minimum 80% testcases pass झाले पाहिजेत.

जर fail झाले तर hints + retries (cooldown सह).

Successfully pass झाल्यावरच पुढचा module unlock होईल.

9️⃣ Architecture (सिस्टम आर्किटेक्चर)

1. Frontend (React + Monaco Editor): User-friendly IDE experience.

2. Backend (Node/Express / Django): Business logic + API calls.

3. Online Compiler (Judge0): Code execution sandbox.

4. Database (Postgres): Users, Courses, Submissions, Progress.

5. Queue System (BullMQ/Celery): Heavy code submissions handle करण्यासाठी.

🔟 Testcases & Anti-Cheat (गुणवत्ता नियंत्रण)

Public Testcases: Student ला दिसतील.

Hidden Testcases: Student ला दिसणार नाहीत (cheating टाळण्यासाठी).

Edge Cases: Large inputs, zero inputs, invalid inputs.

Performance Cases: Time + memory limit check.

Plagiarism Check: Code similarity check (MOSS-like).

Randomized Testcases: प्रत्येक attempt ला वेगळे hidden cases.

1️⃣1️⃣ Certificates & Verification (प्रमाणपत्र)

Auto-issued certificate only if student passes final module.

Each certificate ला unique ID + public verification link.

Leaderboard + XP system to motivate students.