

## NexPrep Backend – Professional Roadmap

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### 1. Original MVP & Roadmap (April 2025)

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- Marks per question & ExamType tagging
- CSV import with dynamic hierarchy creation
- Fixed paper TestSeries + TestAttempt flow
- Student dashboard (attempts, review)
- Per test leaderboard
- Cool down retake limit (3 hours)

### 2. New Data Model Additions (2025-04-20 workshop)

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Question:

- meta.accuracy (correct / total)
- meta.avgTime
- tags [array]
- revision (version int)

TestAttempt:

- events [{ts, qId, action}]
- attemptNo (for limit per series)

User:

- roles ['student', 'admin', 'super', 'instructor']
- settings.preferredExamType
- profile.phone, profile.email

TestSeries:

- startAt, endAt (Date)
- visibility ('public', 'private', 'org')

Payment:

- transactions [{orderId, amount, status}]

Audit:

- auditLogs { user, action, entity, before, after, ts }

### 3. High Priority Features to Implement Next

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#### A. Attempt Limits & Scheduling

- Pre-check attemptNo, enforce startAt/endAt

#### B. Analytics API

- /api/analytics/series/:id (avg %, accuracy per q)
- /dashboard/me (weak topics)

#### C. SuperAdmin Role & RBAC

- Manage admins, toggle maintenance

#### D. Logging & Monitoring

- Winston logger, daily rotate
- Sentry (optional)

### 4. Medium Priority Enhancements

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- Adaptive Test Generator (uses Question.meta)
- Image & KaTeX rendering for STEM questions
- Bulk export / rate limiting
- Payments (Razorpay) schema + webhook

### 5. Long Term / Optional

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- Proctoring snapshots (S3)
- PWA offline mode
- Multi-tenancy (orgId on core documents)

### 6. Deployment & CI

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- Dockerfile + docker-compose
- GitHub Actions: lint → Jest → Newman → build

### 7. Immediate Indexes to Create

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```
db.questions.createIndex({ examType:1, 'meta.accuracy':1 })
db.testattempts.createIndex({ student:1, series:1 })
db.auditlogs.createIndex({ ts:-1 })
```

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