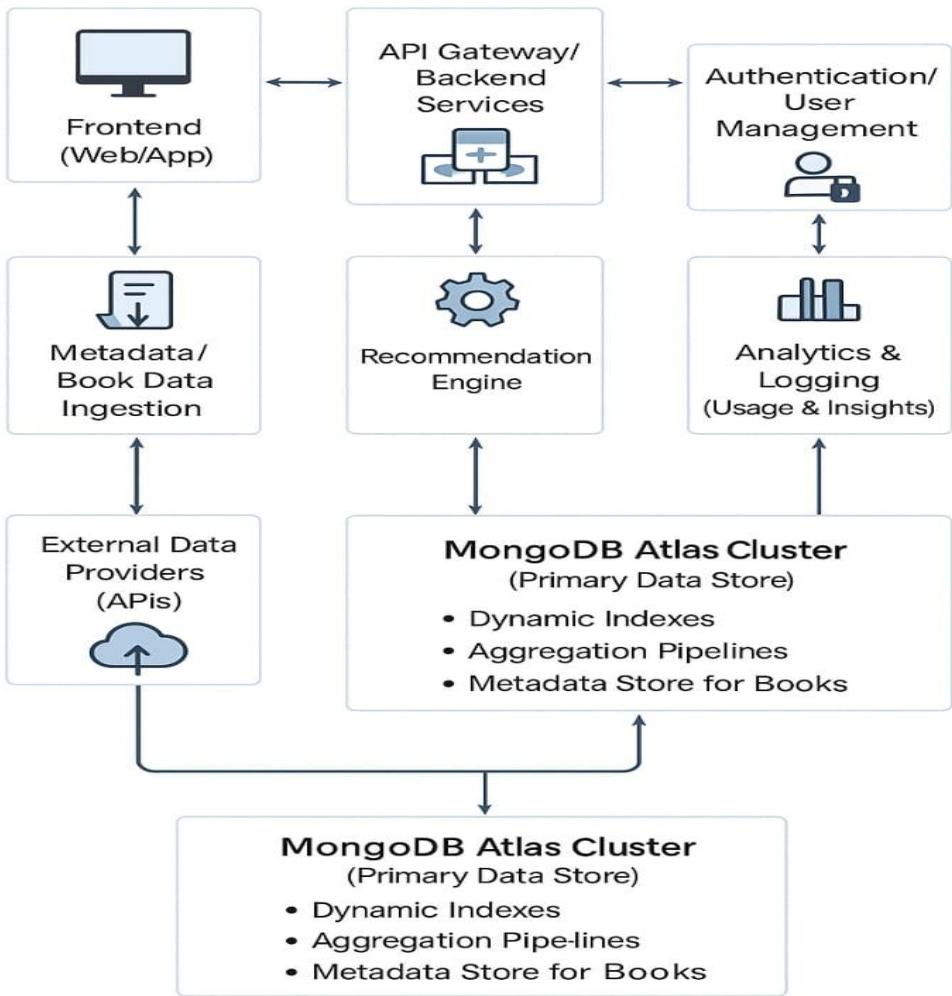


# SOLUTION ARCHITECTURE

Date	23 JUNE 2025
Team Id	LTVIP2025TMID53096
Project name	BOOK NEST: WHERE STORIES NESTLE
marks	4 MARKS

## BookNest – Solution Architecture:

### BookNest Solution Architecture



### 🎯 Objective

To design a scalable, secure, and responsive solution architecture that delivers a seamless experience for readers, authors, and administrators.

### 🏗️ Core Layers of the Architecture

#### 1. Presentation Layer (Frontend)

- **Users:** Readers, Admins, Authors
- **Technology:** React.js (Web) / Flutter (Mobile)
- **Functions:**
  - Browse/search books
  - View book details & reviews
  - Manage cart and wishlist

## 2. Application Layer (Backend/API Layer)

- **Technology:** Node.js (Express) / Django (Python)
- **API:** RESTful API or GraphQL
- **Key Services:**
  - User Authentication (JWT)
  - Book Management (CRUD operations)

## 3. Data Layer (Database & Caching)

- **Relational Database:** PostgreSQL / MySQL
  - Users
  - Books
  - Orders
  - Authors

## 4. Integration Layer

- **Payment Gateway:** Stripe, Razorpay, or PayPal
- **Email & SMS Notifications:** SendGrid / Twilio
- **Cloud Storage:** AWS S3 for book covers, media
- **Search Engine:** Elasticsearch (for advanced book search)

## 5. DevOps & Deployment

- **CI/CD Pipeline:** GitHub Actions / GitLab CI
- **Containerization:** Docker
- **Orchestration (optional):** Kubernetes
- **Hosting:** AWS (EC2, RDS, S3, Lambda), or Firebase for real-time DB

---

## 6. Monitoring & Security

- **Monitoring Tools:** Prometheus, Grafana, New Relic
- **Logging:** ELK Stack (Elasticsearch, Logstash, Kibana)
- **Security:**
  - SSL/TLS for HTTPS
  - OAuth 2.0 / JWT Authentication
  - Rate limiting (via API Gateway)
  - Data encryption at rest & in transit