Project Design Phase
Solution Architecture

Date	22 -06-2025
Team ID	LTVIP2025TMID53185
Project Name	BookNest: Where Stories Nestle
Maximum Marks	4 Marks

Solution Architecture:

BookNest: Solution Architecture

BookNest is a cloud-based platform that lets users read, review, and discover books. It uses a modern, layered architecture to ensure scalability, performance, and ease of use.

- The **Frontend** is built using React.js for the web and Flutter or React Native for mobile apps. It provides a clean and user-friendly interface for browsing and reading books.
- An **API Gateway** acts as the middle layer between the frontend and backend. It handles requests, manages user authentication, and routes data securely.
- The **Backend Services** are organized into microservices. These include services for books, user profiles, reading progress, reviews, and recommendations. Each service focuses on a specific task, making the system modular and scalable.
- The **Data Layer** includes PostgreSQL for storing structured data (like user info and book details), Redis for caching, Elasticsearch for fast book searching, and Amazon S3 or Cloudinary for storing book files and images.
- **Authentication** is done using OAuth 2.0 and JWT tokens, supporting login via email or social accounts like Google.
- A **CDN (Content Delivery Network)** helps load images and files quickly across different regions, and **Load Balancers** distribute traffic evenly across services.
- **DevOps tools** like Docker, Kubernetes, and GitHub Actions are used for deployment and management, ensuring continuous delivery.
- **Monitoring and Analytics** tools like Grafana, ELK Stack, and Google Analytics are used to track system performance and user behavior.

Example - Solution Architecture Diagram: