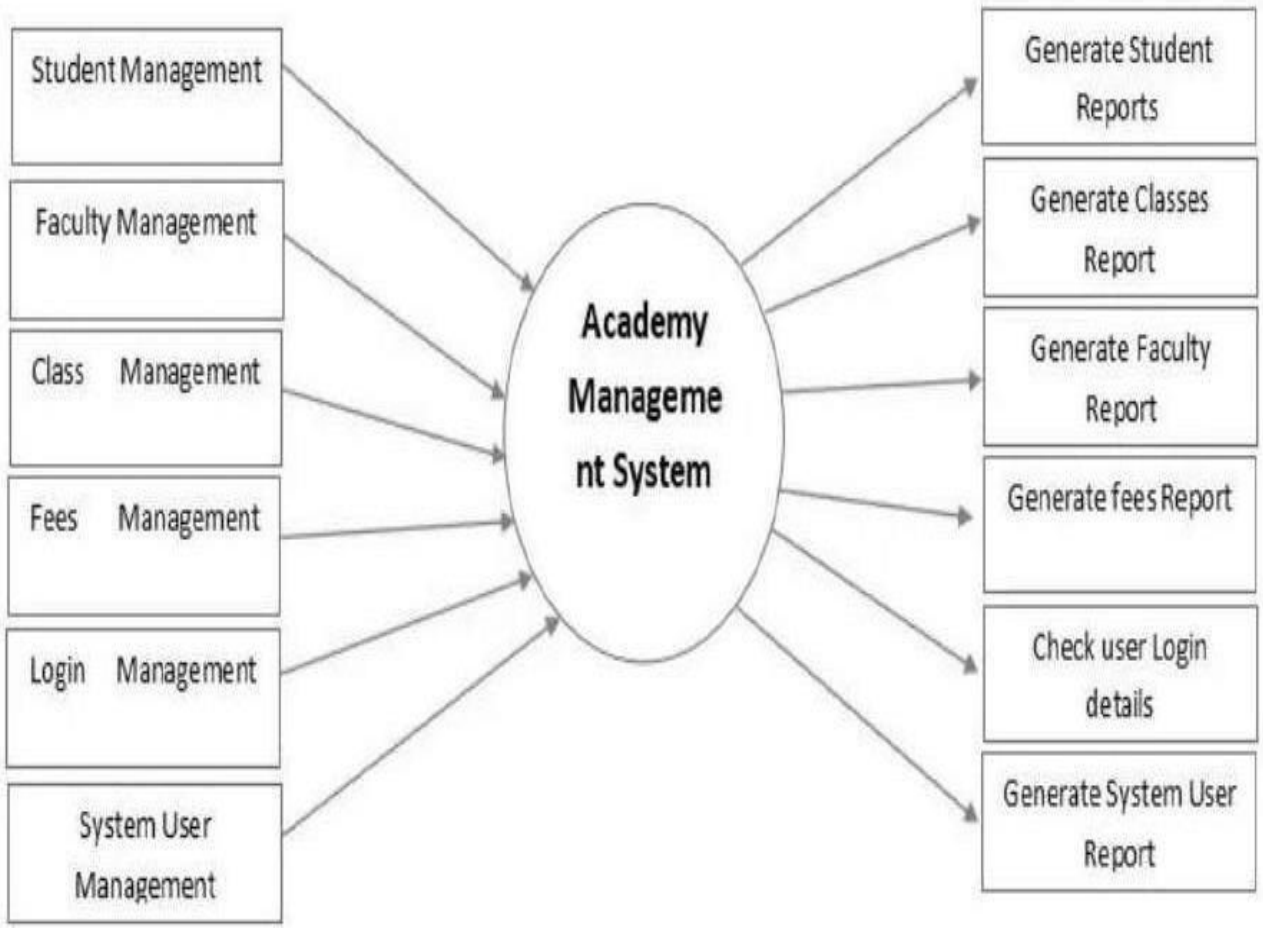
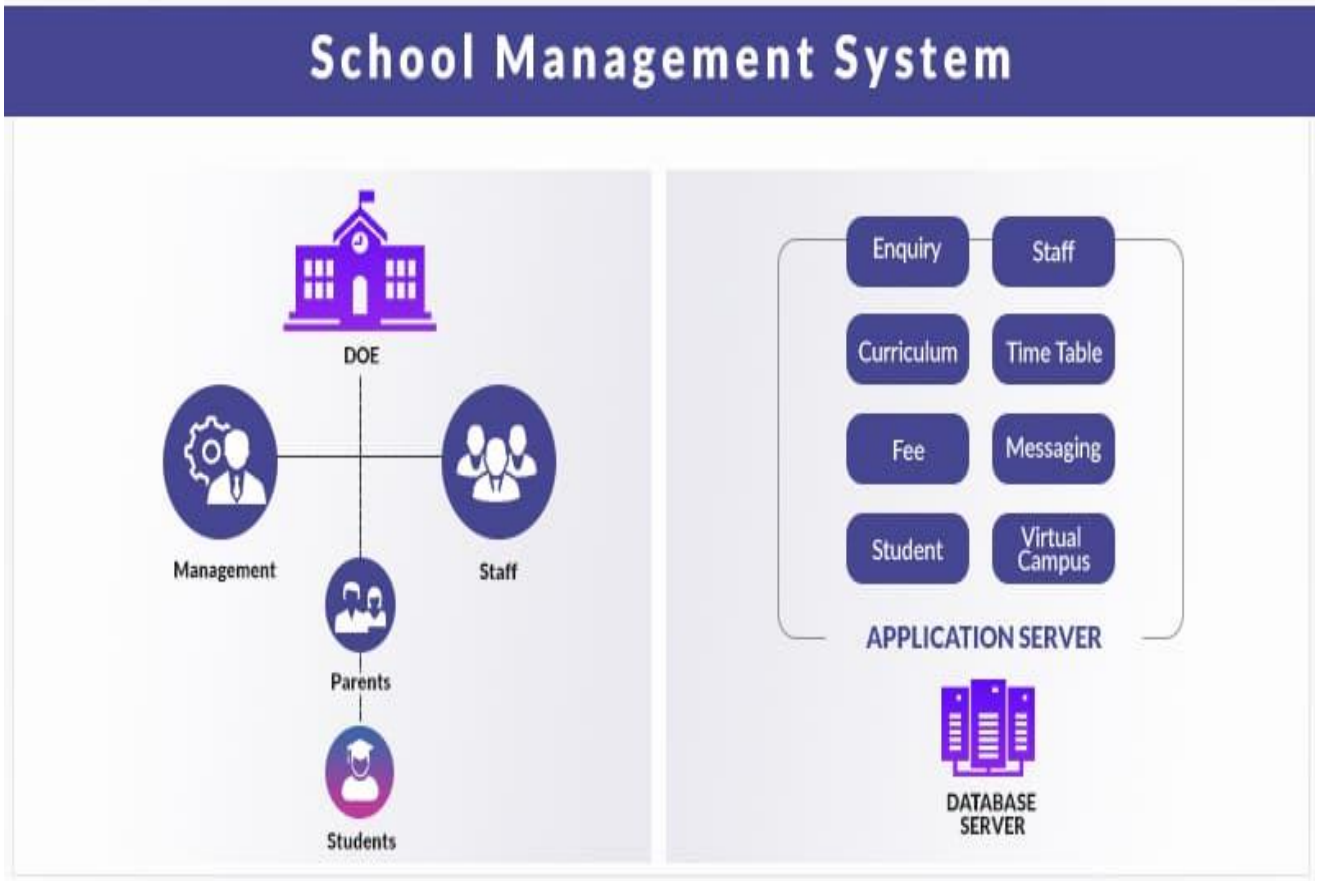
PROJECT DESIGHN PHASE PART II

TECHNICAL ARCHITECTURE

DEFINITION:

Technical architecture is a form of IT architecture that is used to design computer system. It involves the development of a technical blueprint with regard to the arrangement interaction, and interdependence of all elements so that system relevant requirements are met.





1.User Interface (UI):

Web-based or mobile app for administrators, teachers, students, and parents. Responsive design for accessibility on various devices.

2. Backend Server:

Server-side scripting and logic, often using a programming language like Python, Java, PHP, or Node.js. Frameworks like Django, Ruby on Rails, or Spring Boot can be used. Application server (e.g., Apache Tomcat, Nginx) for serving web applications.

3. Database:

Relational database management system (RDBMS) such as MySQL, PostgreSQL, or SQL Server for storing structured data.

NoSQL databases like MongoDB or Cassandra for handling unstructured data or high volume data.

4. Authentication and Authorization:

User authentication using technologies like OAuth, JWT, or traditional username/password. Role-based access control for different user types (admin, teacher, student, parent).

5. API Layer:

RESTful or Graph QL APIs for communication between the front-end and back-end. API security mechanisms (e.g., API keys, OAuth) for data protection.

6. Business Logic Layer:

Core application logic for managing student records, attendance, grades, schedules, and more. Integration with other school systems, such as HR or finance.

7. Data Storage:

File storage for documents, images, and other non-relational data. Cloud storage (e.g., Amazon S3, Google Cloud Storage) can be used.