SYSTEM ARCHITECTURE FOR A SCHOOL MANAGEMENT SYSTEM.

Users

1. Students
2. Teachers
3. Parents

Functional Requirements:

Student

1. Should be able to sign up.
2. Should be able to log in.
3. Should be able to view his dashboard.
4. Should be able to view available courses.
5. Should be able to enroll in courses.
6. Should be able to download assignments.
7. Should be able to upload assignments
8. Should be able to take online exam on the application
9. Should be able to view and print results.

Teacher

1. Should be able to sign up.
2. Should be able log in.
3. Should be able to view his/her dashboard.
4. Should be able to create courses and upload course materials.
5. Should be able to post assignments.
6. Should be able the access student’s performance, grade uploaded assignments and exams.
7. Should be able to upload course materials and lectures.

Parent

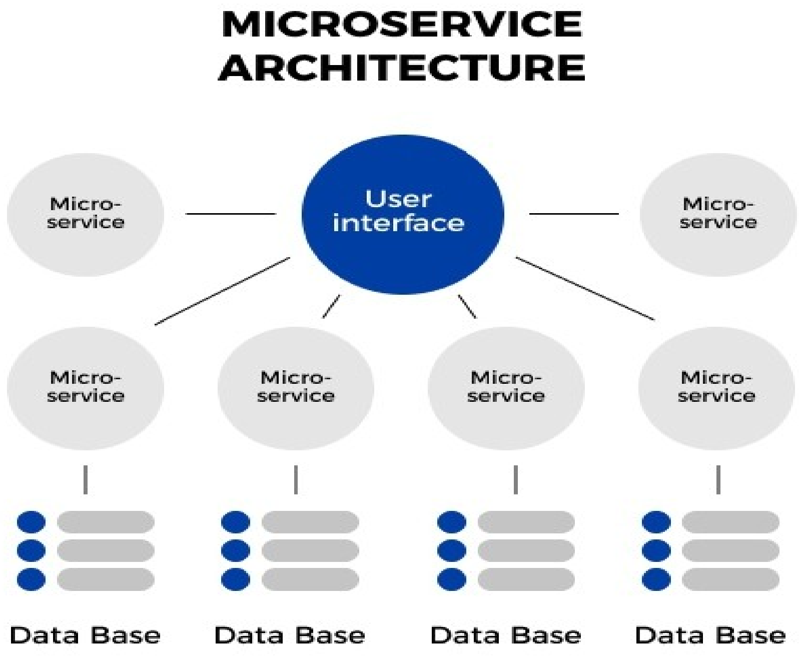
1. Should be able to login.
2. Should be able to view the performance of his/her ward.

The system must be scaled as one unit when demands on it are high; for example, you cannot add more capacity to the Student Record module independently of the rest when Course Registrations are underway.

It has more than one main functionalities, therefore using a Monolithic architecture is not advised. For easy scalability, the Microservice architecture is best.
Microservice architecture breaks down the system into independent sections (services) that can still communicate with each other. Why microservice architecture?

- Loosely coupled modules/components
- Can be independently deployed.
- Highly maintainable, testable and scalable.

These functionalities can be taken as the services, can be worked on independently and deployed separately. Clearly, this architecture has no single point of failure.
Decentralized data storage is best for microservice architecture hence each of the 3 services here will have separate databases. There can be additional databases to serve as redundant databases.


MICROSERVICE ARCHITECTURE
Micro-service
User interface
Micro-service
Micro-service
Micro-service
Micro-service
Micro-service
Data Base
Data Base
Data Base
Data Base