# Data Management and Storage

* The Online School Management system is thoughtfully designed to effectively handle various types of school related data. It makes sure that all information is properly arranged, securely stored and provide easy access whenever needed. The system's database is developed to manage large amounts of information efficiently and supporting the various function of the system. Here’s more detailed information about which types of data is stored and how to keep the data secured.

**Variety of data stored**

* Online School Management system handles various types of data, and each are essential at every stage for smooth running of the system. Below are the types of data stored in this system:

**Students:**

The following are types of student’s data stored in online school management system:

* **Name**: The student's full name is stored.
* **Address**: The student's address is stored.
* **Date of Birth**: The student's age-related record is stored.
* **Contact Information**: student’s contact detail and email address are stored.
* **Enrolment Details**: student's enrolment detail, including the date of enrolment and current grade level are stored.
* **Academic Records**: student's academic performance, including grades from previous classes are stored.

**Teachers:**

The following are types of teacher’s data stored in online school management system:

* **Name**: The teacher's full name is stored.
* **Address**: The teacher's address is stored.
* **Subject Expertise**: The subjects the teacher is qualified to teach to the students is stored.
* **Contact Information**: contact details and email address for communication to the teachers.
* **Professional Details**: Qualifications, certifications, and employment history are stored.
* **Class Assignments**: Information about the classes assigned to the teacher.

**Classes:**

The following are types of class-related data stored in online school management system:

* **Class Name**: The name for the class.
* **Teacher Assigned**: The teacher assigned for the class.
* **Schedule**: The timing and days when the class is scheduled.
* **Student Enrolment**: The list of students which are allowed in the class.

**Attendance:**

The following are types of attendance data stored in online school management system:

* **Student ID**: The identifier for the student is stored for the attendance.
* **Class ID**: The identifier for the class.
* **Date**: The date of the lecture session.
* **Attendance record**: Shows whether the student was present, absent, late, or sick.

**Grades:**

The following are types of grade-related data stored in online school management system:

* **Student ID**: The identifier for the student is stored for grading a student.
* **Class ID**: The identifier for the class.
* **Grade**: The grade awarded to the student.
* **Remarks**: Additional feedback from the teacher.

**Fees:**

The following are types of fee-related data stored in online school management system:

* **Student ID**: The identifier for the student to store the fees related detail.
* **Amount**: The amount of the fee.
* **Due Date**: The deadline for fee payment.
* **Payment Status**: Indicates whether the fee has been paid, partially paid, or is overdue.

**Communication:**

The following are types of communication-related data stored in online school management system:

* **Communication Logs**: It records messages and notifications exchanged between teachers, students, and parents during the conversation.

**Data Security**

The Online School Management System contains varieties of sensitive information about different things so keeping it private and protected is very essential for this whole system. Here are different ways that protect the data:

**Encryption:**

* The data which are exchange between system and user are encrypted using transport layer security. So, if someone tries to intercept the data, they will be unable to read and data remain secured.
* The data which are stored in database are also encrypted so that if unauthorised get access and tries to decode that data, they won’t be able to access it.

**Access Control:**

* The system ensures that users can only access the information they need for their role. For example, students can only see their own records and they can’t get access to manage the exam, the teacher will only get access to prepare papers for the students of the classes.
* The system should have authentication and authorization facility in it so that it verifies the user’s identification and watch that the users can only perform the task in which they are permitted.

**Data Backup:**

* The system should regularly back up all data to prevent loss in case of system failures or data loss.
* Backups should be encrypted to keep data safe even when stored in the database and against unauthorised user access.
* There should be multiple copies of data stored in different location. So, even if the data at one location fails then too, we have a backup for it.

# Use Cases Implemented

* The online school management will have following use cases which will cover every aspect for smooth conduct of system.

**Student enrolment:**

* Register new student’s details and manage enrolment details.
* Administrator can insert and manage student’s personal and enrolment details.

**Teacher Management:**

* Teacher’s detail, scheduling and class assignments are managed by the teachers.
* The system will allow teacher to create and update teacher’s profile, including subject expertise and assigned class.

**Class Scheduling:**

* It will create and manage class schedules, enrol students and assign teacher.
* The system enables admin to schedule class for the students, assign teacher for the class and keep data of student involved.

**Attendance Tracking:**

* It will record attendance of students and teacher.
* The system allows teacher to take attendance of the students and at the end produce an attendance report.

**Grade Management:**

* It will enter and manage student’s grade and at the end it will generate student grade report.
* The teacher will enter grades for assignments, exams and test and the system will produce a grade report at the end.

**Fee Processing:**

* It will keep tracking for fees payments and give fee reminder message.
* The systems enable fee processing and give reminder message to parents for their remaining amount left to pay.

**Communications:**

* The messages and notification will be sent to parents, teacher and students.
* The system has special communication tool from where teacher can communicate with students and parents and can send notification about deadline and special events.

**Report Generation:**

* It will generate reports on student’s performance, on attendance and on school’s overall performance.
* The system creates various report to ensure goo conduct of school performance.

**User-privilege Management:**

* It will ensure data security and user access control.
* The system will allow authorised user to access their specific data and also their data and information Is protected.

# Conclusion

* This detailed overview of the Online School Management System offers a clear insight into its goals, key features, data management, user benefits, and design principles. It is crafted to overcome the challenges of original school management methods, providing a modern, efficient, and easy-to-use solution for educational institutions. By automating administrative process, boosting communication, and ensuring real-time access to essential data, OSMS aims to enhance the overall efficiency and effectiveness of school operations, creating a beneficial for administrators, teachers, students, and parents.