DATABASE DESIGN

5.1 INTRODUCTION

Database: Databases can be extremely important tools for managing large amounts of data. A Database is a collection of related data, which can be of any size and complexity. By using the concept of a Database, we can easily store and retrieve the data. The major purpose of a database is to provide the information, which utilizes it with the information that the system needs according to its requirements.

Database Design: Database design is done before building it to meet the needs of end-users within a given information system that the database is intended to support. The database design defines the needed data and data structures that such a database comprises. Database design is the process of producing a detailed data model of a database. It involves defining the structure of the data, its organization, relationships, and constraints to ensure data integrity and efficient retrieval. Database design is crucial for building robust, scalable, and maintainable databases that effectively serve the needs of an organization or application.

5.2 SCOPE

The database system is referred to as self-describing because it not only contains the database itself, but also metadata which defines and describes the data and relationships between tables in the database

5.3 TABLE DESCRIPTION

Table Name: Head

Column Name	Data Type	Constraints	Description
head_id	int(11)	Primary Key	Head id
name	varchar(120)	Not Null	Name of the head
password	varchar(120)	Not Null	Password
email	varchar(210)	Not Null	Email of the head

Table Name: Faculty

Column Name	Data Type	Constraints	Description
teacher_id	int(11)	Primary Key	Teacher id
name	varchar(120)	Not Null	Name of the teacher

email	varchar(120)	Not Null	Email of the teacher
password	varchar(120)	Not Null	Password
designation	varchar(120)	Not Null	Designation
subject	varchar(500)	Not Null	Subject taught
added_by_id	int	Foreign Key(Head.id)	Head who added

Table Name: Batch(Faculty)

Column Name	Data Type	Constraints	Description
batch_id	int(11)	Primary Key	Batch id
name	varchar(120)	Not Null	Batch name
start_date	date		Start date
teacher_id	int	Foreign Key(Teacher.id)	Teacher of the batch
status	varchar(120)		Status of the batch

Table Name: Parent

Column Name	Data Type	Constraints	Description
parent_id	int(11)	Primary Key	Parent id
first_name	varchar(120)	Not Null	First name of parent
last_name	varchar(120)	Not Null	Last name of parent
phone	varchar(120)	Not Null	Phone number
email	varchar(120)	Not Null	Email of the parent
password	varchar(120)	Not Null	Password

Table Name: Student

Column Name	Data Type	Constraints	Description
student_id	int(11)	Primary Key	Student id
first_name	varchar(120)	Not Null	First name of student
last_name	varchar(120)	Not Null	Last name of student
phone	varchar(120)	Not Null	Phone number
email	varchar(120)	Not Null	Email of the student
password	varchar(120)	Not Null	Password
parent_id	int	Foreign Key(Parent.id)	Parent of the student
batch_id	int	Foreign Key(Batch.id)	Batch of the student

Table Name: Attendance(Overall)

Column Name	Data Type	Constraints	Description
attendance_id	int(11)	Primary Key	Attendance id
student_id	int	Foreign Key(Student.id)	Student id
date	date		Date of attendance
is_present	boolean	Default FALSE	Present or absent
marked_by_id	int	Foreign Key(Teacher.id)	Teacher who marked

Table Name: study material

Column Name	Data Type	Constraints	Description
id	INT	PRIMARY KEY, AUTO_INCREMENT	Primary key for the StudyMaterial table
batch_id	INT		Foreign key referencing the Batch table
file	VARCHAR(255)		Path to the uploaded file
file_name	VARCHAR(200)		Name of the file
uploaded_at	DATETIME		Timestamp of when the file was uploaded

Table Name: notices

Column Name	Data Type	Constraints	Description
id	INT	PRIMARY KEY, AUTO_INCREMENT	Primary key for the Notice table
text	VARCHAR(2000)		Text of the notice
batch_id	INT		Foreign key referencing the Batch table
time	DATE		Timestamp of when the notice was added