**Student management system**

**Sample Database application**

In this application we will describe the sample database application, called Student management system, which serve to illustrate the basic ER model concepts and their use in schema design. We list the date requirements for the database here, and then create its conceptual schema step-by-step as we introduce the modeling concepts of the ER model. The Student management system database keeps track of a school student, parents, teachers, exam results, course, exam, classroom-students, grade, Attendance. Suppose that after the requirements collection and analysis phase, the database designers provide the following description of the Student

* Student contains **student** as entity its attribute are student Id , email , password , first name , last name ,date of birth, phone number ,mobile number , parent id ,date of join, status, last login date, last login ip, gender where student id is primary key and parent id is foreign key from entity **parent** .
* Student contains **parent**  as entity its attribute are email , password , first name , last name ,date of birth, phone number ,mobile number , parent id ,date of join, status, last login date where parent id is primary key.
* Student contains **Exam result** as entity its attribute are exam id, student id, course id, marks where this entity contains three foreign key that are exam id from **Exam**, student id from **Student**, course id from **Course**.
* Student contains **Exam** as entity its attribute are exam id, exam type id, name, start date where exam id is primary key and exam type id is foreign key from entity **Exam type.**
* Student contains **Exam Type** as entity its attribute are exam type id, name, description where exam type is a primary key.
* Student contains **Attendance** as entity its attribute are date, student id, status, remark where student id is a foreign key.
* Student contains **Class room** as entity its attribute are classroom id,

Year, grade, section, status, remarks, teacher id where classroom id is primary key, grade is the foreign key from entity **Grade** and teacher id is foreign key from entity **Teacher**.

* Student contains **Classroom student** as entity its attribute are classroom id, student id where classroom id is foreign key from entity **Class room** and student id is foreign key from entity **student.**
* Student contains **Grade** as entity its attribute are grade id, name, description where grade id is the primary key.
* Student contains **Grade** as entity its attribute are course id, grade id, name, description where course id is the primary key and grade id is the foreign key from entity **Course**.
* Student contains **Teacher** as entity its attribute are teacher id, email , password , first name , last name ,date of birth, phone number ,mobile number , parent id ,date of join, status, last login date where teacher id is the primary key

**Entity tables:**

**Student**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Student\_id(primary key) | Int(45) |
| Email | Varchar(45) |
| Password | Varchar(45) |
| Fname | Varchar(45) |
| Lname | Varchar(45) |
| Dob | Date |
| phone | Varchar(45) |
| mobile | Varchar(45) |
| Parent\_id | Int(45) |
| Date\_of\_join | Date |
| Status | Boolean |
| Last\_login\_date | Date |
| Last\_login\_ip | Varchar(45) |
| Gender | Varchar(45) |

**Parents:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Parent\_id | Int(45) |
| Email | Varchar(45) |
| Password | Varchar(45) |
| fname | Varchar(45) |
| lname | Varchar(45) |
| dob | Date |
| phone | Varchar(45) |
| mobile | Varchar(45) |
| Last\_login\_date | Date |
| Last\_login\_ip | Varchar(45) |
| Status | Boolean |

**Exam Result:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Exam\_id | Int(45) |
| Student\_id | Int(45) |
| Course\_id | Int(45) |
| Marks | Varchar(45) |

**Exam:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Exam\_id(primary key) | Int(45) |
| Exam\_type\_id | Int(45) |
| Name | Varchar(45) |
| Start\_date | Date |

**Exam type:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Exam\_type\_id(primary key) | Int(45) |
| Name | Varchar(45) |
| description | Varchar(45) |

**Attendance:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Date | Date |
| Student\_id | Int(45) |
| status | Boolean |
| Remark | Varchar(45) |

**Classroom:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Classroom\_id(primary key) | Int(45) |
| Year | Year |
| Grade\_id | Int(45) |
| Section | Char(3) |
| Status | Boolean |
| Remarks | Varchar(45) |
| Teacher\_id | Int(45) |

**Teacher:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Teacher\_id(primary key) | Int(45) |
| Email | Varchar(45) |
| Password | Varchar(45) |
| fname | Varchar(45) |
| lname | Varchar(45) |
| dob | Date |
| phone | Varchar(45) |
| mobile | Varchar(45) |
| Last\_login\_date | Date |
| Last\_login\_ip | Varchar(45) |
| Status | Boolean |

**Classroom Student:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Classroom\_id | Int(45) |
| Student\_id | Int(45) |

**Grade:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Grade\_id(primary key) | Int(45) |
| Name | Varchar(45) |
| Description | Varchar(45) |

**Course:**

|  |  |
| --- | --- |
| **Attribute** | **Data type** |
| Grade\_id(primary key) | Int(45) |
| Name | Varchar(45) |
| Description | Varchar(45) |
| Course\_id(primary key) | Int(45) |

**SQL FILE**

**show databases;**

**create database SMS;**

**use SMS;**

**drop database SMS;**

**create table Student(**

**Student\_id int(20)primary key not null,**

**Email varchar(45),**

**Password varchar(45),**

**Fname varchar(45),**

**Lname varchar(45),**

**DOB date,**

**Phone varchar(15),**

**Mobile varchar(15),**

**Parents\_id int(20),**

**date\_of\_join date,**

**Status boolean,**

**last\_login\_date date,**

**last\_login\_ip varchar(45)**

**);**

**select \* from Student;**

**describe student;**

**create table Parents(**

**Parents\_id int(20) primary key not null,**

**Email varchar(45),**

**Password varchar(45),**

**Fname varchar(45),**

**Lname varchar(45),**

**DOB date,**

**Phone varchar(15),**

**Mobile varchar(15),**

**date\_of\_join date,**

**Status boolean,**

**last\_login\_date date,**

**last\_login\_ip varchar(45)**

**);**

**select \* from Parents;**

**describe Parents;**

**alter table Student add constraint `m\_Parents\_id` foreign key (Parents\_id) references Parents (Parents\_id);**

**create table teacher(**

**teacher\_id int(20) primary key not null,**

**Email varchar(45),**

**Password varchar(45),**

**Fname varchar(45),**

**Lname varchar(45),**

**DOB date,**

**Phone varchar(15),**

**Mobile varchar(15),**

**date\_of\_join date,**

**Status boolean,**

**last\_login\_date date,**

**last\_login\_ip varchar(45)**

**);**

**create table Classroom(**

**Classroom\_id int(20)primary key not null,**

**Years year,**

**Grade\_id int(20),**

**section char(2),**

**status boolean,**

**remarks varchar(45),**

**teacher\_id int(20)**

**);**

**alter table Classroom add constraint `N\_teacher\_id\_fk` foreign key (teacher\_id) references teacher(teacher\_id);**

**create table Grade(**

**Grade\_id int(20)primary key not null,**

**name varchar(45),**

**description varchar(45)**

**);**

**alter table Classroom add constraint `b\_Grade\_id\_fk` foreign key (Grade\_id) references Grade(Grade\_id);**

**create table Course(**

**Course\_id int(20)primary key not null,**

**Grade\_id int(20),**

**name varchar(45),**

**description varchar(45)**

**);**

**alter table Course add constraint `\_Grade\_id\_fk` foreign key (Grade\_id) references Grade(Grade\_id);**

**create table Classroom\_Student(**

**Classroom\_id int(20),**

**Student\_id int(20)**

**);**

**alter table Classroom\_Student add constraint `l\_Classroom\_id\_fk`foreign key (Classroom\_id)**

**references Classroom(Classroom\_id);**

**alter table Classroom\_Student add constraint `v\_Student\_id\_fk`foreign key(Student\_id)**

**references Student(Student\_id);**

**create table Attandence(**

**Present\_Date date,**

**Student\_id int(20),**

**Status boolean,**

**remark text**

**);**

**alter table Attandence add constraint `mm\_Student\_id\_fk`foreign key(Student\_id)**

**references Student(Student\_id);**

**create table Exam\_Type(**

**exam\_type int(20)primary key not null,**

**name varchar(45),**

**description varchar(45)**

**);**

**create table Exam(**

**Exam\_id int(20)primary key not null,**

**exam\_type int(20),**

**name varchar(45),**

**status\_date date**

**);**

**alter table Exam add constraint`o\_exam\_type\_fk`foreign key(exam\_type) references Exam\_type(exam\_type);**

**create table Exam\_result(**

**Exam\_id int(20),**

**Student\_id int(20),**

**Course\_id int(20),**

**marks varchar(45)**

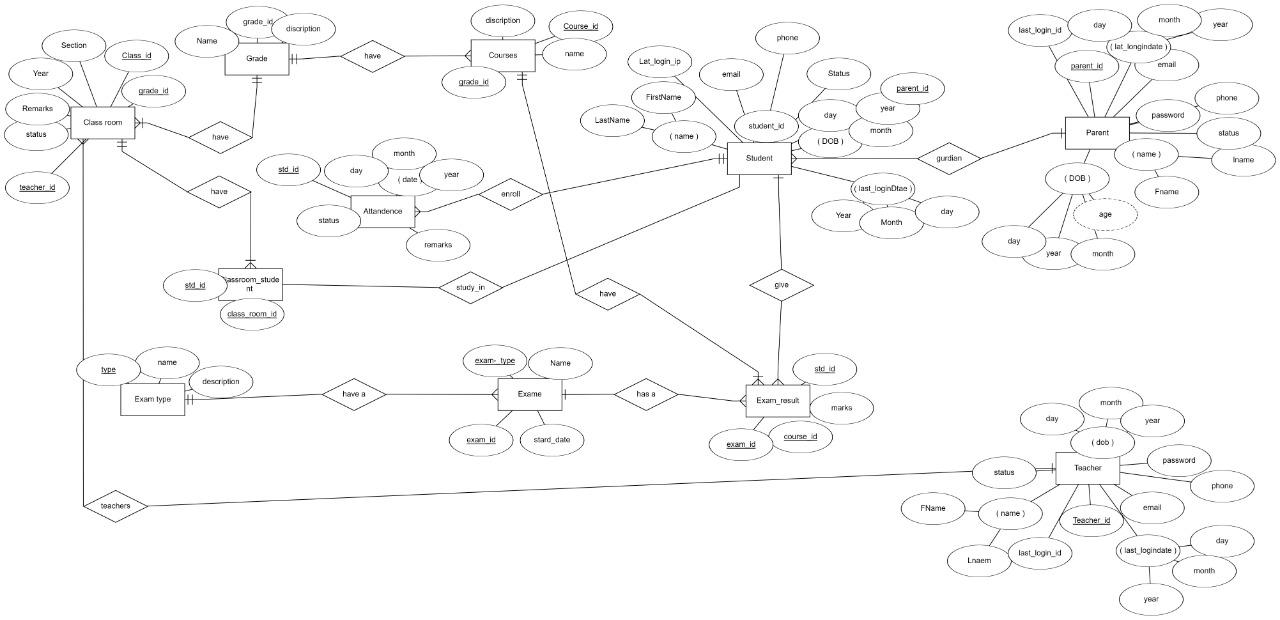
**);**

**alter table Exam\_result add constraint `e\_Exam\_id\_fk` foreign key(Exam\_id)references Exam(Exam\_id);**

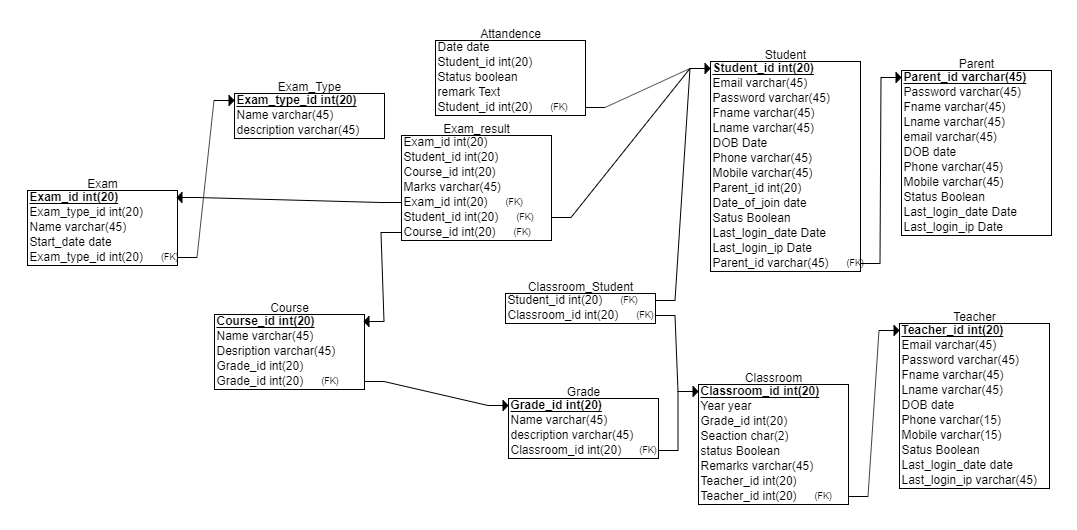
**alter table Exam\_result add constraint`p\_Student\_id\_fk`foreign key(Student\_id) references Student(Student\_id);**

**alter table Exam\_result add constraint`k\_Course\_id\_fk` foreign key(Course\_id) references Course(Course\_id);**

**ER Diagram**

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**ER Mapping**

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