**School management system**

**Sample Database application**

In this application we will describe the sample database application, called School 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 School 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 School

* School 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** .
* School 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.
* School 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**.
* School 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.**
* School contains **Exam Type** as entity its attribute are exam type id, name, description where exam type is a primary key.
* School contains **Attendance** as entity its attribute are date, student id, status, remark where student id is a foreign key.
* School 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**.

* School 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.**
* School contains **Grade** as entity its attribute are grade id, name, description where grade id is the primary key.
* School 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**.
* School 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) |