**Q) Determine a meaningful brand name for your project.**

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**Q) Describe business processes/transactions in sentences.**

We have designed a conceptual schema for Silver Oak Cooperative School using the entity-relationship model. We have derived relationships among students and staff, mapped staff to their respective departments and stored information about activities that staff, and students are involved in. The business rules are as follows:

* Each department has a unique ID and name.
* Each staff has a unique ID, name, designation and type (teaching or non-teaching)
* Each department has at least one staff member. However, a staff member can be associated to only one department. These conditions are described by a relationship named ‘report’
* Each student is described by a unique ID, name, date of birth, address, gender, class and section.
* Each guardian has its name, phone number, email and address stored in the table.
* The guardian table is dependent upon the student table. Each guardian is, therefore, identified by a combination of a name and a unique student ID. For every guardian, there needs to be at least one student in the student table. Similarly, each student should have at least one or more guardians. This is defined by the relationship ‘relate’.
* Each subject has a unique ID, title and description associated with it.
* Every student takes up at least one subject. However, it is not necessary that every subject is taken up by a student. This relationship is defined by an attribute ‘grade’.
* Each activity has a unique ID, name, date of activity and description associated with it.
* For each activity that is organized by a staff member, there are none or more students that participate. There could be multiple activities that students participate in that are organized by a staff member. Also, there are multiple staff members that can organize one activity in which a student participates. This relationship is defined by the ‘participate’ relation. *– Note: This is a ternary relationship.*
* For each staff member that teaches a subject, there is at least one student who takes up that subject. Since a staff member can be a non-teacher, it is possible that a subject taken up by a student is not taught by a staff member. Also, only one teaching staff member can teach a student a given subject. This relationship is defined by the ‘teach’ relation. *– Note: This is a ternary relationship.*

**Q) Identify at least 5 entity types.**

**Strong entities:**

Department

Student

Staff

Subject

Activity

**Weak entity:**

Guardian

**Q) Identify relationship types including at least one many-to-many binary or higher-degree relationship type - no singleton entity type.**

**Binary relationships:**

Report: (One-to-Many)

Relate: (Many-to-Many)

Score(grade): (Many-to-Many)

**Ternary relationships:**

Participate: (Many-to-Many-to-Many)

Teach: (One-to-Many-to-Many)

**Q) Perform database analysis on entity and relationship types, i.e. ER schema.**

Entities, Attributes and Primary Keys:

Department (**dptId**, dptName)

Student (**stdId**, -stdLastName, -stdFirstName, stdGender, stdDateOfBirth, stdAddress, stdClass, stdSection)

Staff (**stfId**, stfName, stfType, stfDesignation)

Subject (**sbjId**, sbjTitle, sbjDescription)

Guardian (**grdName**, grdEmail, grdPhoneNo, grdRelationship)

Activity (**actId**, actName, actDate, actDescription)

## Relationships, Attributes, Degrees, Participating Entities and Constraints

Report: binary relationship

1 Staff to 1 Department

1 Department to 1 or more Staff

Relate: binary relationship

1 Guardian to 1 or more Student

1 Student to 1 or more Guardian

Score(grade): binary relationship

1 Student to 1 or more Subject

1 Subject to 0 or more Student

Participate: ternary relationship

1 Staff and 1 Student to 1 or more Activity

1 Staff and 1 Activity to 0 or more Student

1 Activity and 1 Student to 1 or more Staff

Teach: ternary relationship

1 Staff and 1 Subject to 1 or more Student

1 Staff and 1 Student to 0 or more Subject

1 Subject and 1 Student to 1 Staff

**Q) Design an ER diagram - editable source file not required.**

