

ORgSys **(Organization Recognition System)** **Database Design**

Submitted to:

Asst. Prof. Ma. Rowena C. Solamo
Faculty Member

Submitted by:

GRANADA, Patrick James B.
MERCADO, Emir R.
YAP, Sharmaine A.

In partial fulfillment of Academic Requirements
Department of Computer Science
College of Engineering
University of the Philippines, Diliman

Revision Control

History Revision:

| <i>Revision Date</i> | <i>Person Responsible</i> | <i>Version Number</i> | <i>Modification</i> |
|-----------------------------|----------------------------------|------------------------------|--|
| 11/15/2013 | Emir Mercado Sharmaine Yap | 1.0 | Initial Document |
| 12/04/2013 | Emir Mercado | 1.1 | Added schoolyear attribute to <i>Requirements</i> relation |

Database Design

ROLE

| roleid | name |
|-----------|----------------|
| SMALLINT | VARCHAR(20) |
| 9 | x(20) |
| PK | NN |
| 0 | Associate Dean |
| 1 | Reviewer |
| 2 | Unit Head |

See Referential Integrity Rule #1 for details.

USER

| userid | username | name | password | roleid |
|-----------|-------------|-----------------|-------------|---------------|
| SMALLINT | VARCHAR(20) | VARCHAR(50) | VARCHAR(20) | SMALLINT |
| 99 | x(20) | x(50) | x(20) | 9 |
| PK | NN | NN | NN | FK, NN |
| 0 | sirji | Ji Reyes | ***** | 0 |
| 1 | dcshead | Cedric Festin | ***** | 2 |
| 2 | eeeihead | Someone Cool | ***** | 2 |
| 3 | iehead | Someone Awesome | ***** | 2 |
| 4 | reviewer1 | Sir Mark | ***** | 1 |

See Referential Integrity Rule #2 for details.

DEPARTMENT

| deptid | name | userid |
|-----------|-----------------------------------|-------------------|
| SMALLINT | VARCHAR(50) | SMALLINT |
| 19 | x(50) | 99 |
| PK | NN | FK, NN, ND |
| 0 | Department of Computer Science | 1 |
| 1 | EEE Institute | 2 |
| 2 | Chemical Engineering Department | 5 |
| 3 | Industrial Engineering Department | 3 |
| 4 | Mechanical Engineering Department | 6 |

See Referential Integrity Rule #3 for details

REQUIREMENT

| reqid | name | description | userid | schoolyear |
|-----------|------------------------|-------------|---------------|------------|
| SMALLINT | VARCHAR(50) | TEXT | SMALLINT | VARCHAR(9) |
| 19 | x(50) | | 9 | x(9) |
| PK | NN | NN | FK, NN | NN |
| 0 | List of Members | Text here | 0 | 2013-2014 |
| 1 | Report of Activities | Text here | 0 | 2013-2014 |
| 2 | Adviser Form | Text here | 0 | 2013-2014 |
| 3 | Schedule of Activities | Text here | 0 | 2013-2014 |
| 4 | List of Officers | Text here | 0 | 2013-2014 |

See Referential Integrity Rule #4 for details

ORGANIZATION

| orgid | name | status | viewkey | userid |
|-----------|-------------|-----------|---------------|---------------|
| INT | VARCHAR(50) | SMALLINT | VARCHAR(20) | SMALLINT |
| 99 | x(50) | 9 | 9 | 99 |
| PK | NN | NN | FK, NN | FK, NN |
| 0 | cursor | 0 | ***** | 1 |
| 1 | acm | 1 | ***** | 1 |
| 2 | circuit | 0 | ***** | 2 |
| 3 | erg | 2 | ***** | 2 |
| 4 | ieclub | 1 | ***** | 3 |

See Referencial Integrity Rule #5 for details

DOCUMENT

| docid | orgid | reqid | link | date | notes |
|-----------|---------------|---------------|----------------|------------|-----------|
| INT | INT | SMALLINT | VARCHAR(100) | TIMESTAMP | TEXT |
| 499 | 99 | 19 | x(100) | MM-DD-YYYY | |
| PK | FK, NN | FK, NN | NN | NN | |
| 0 | 0 | 0 | asdf1ja1skdjf1 | 03-03-2014 | Text here |
| 1 | 0 | 1 | asdfjkawejklbj | 12-08-2014 | Text here |
| 2 | 0 | 2 | a1wjeg1kjasae | 04-14-2014 | Text here |
| 3 | 1 | 1 | awjkasjdf1awes | 10-31-2014 | Text here |
| 4 | 2 | 3 | egwjf1kfuwejfa | 09-07-2014 | Text here |

STUDENT

| sid | name | enrolled | degree |
|-------------|------------------|-------------|---------------------|
| VARCHAR(10) | VARCHAR(50) | BOOLEAN | VARCHAR(100) |
| x(10) | x(50) | TRUE, FALSE | x(100) |
| PK | NN | NN | NN |
| 2011-04383 | Mercado, Emir | TRUE | BS Computer Science |
| 2011-05400 | Yap, Sharmaine | FALSE | BS Computer Science |
| 2011-31037 | Granada, Patrick | TRUE | BS Computer Science |

MEMBER

| sid | orgid | Enrolled |
|---------------|---------------|-------------|
| VARCHAR(10) | VARCHAR(50) | BOOLEAN |
| x(10) | x(50) | TRUE, FALSE |
| PK, FK | PK, FK | NN |
| 2011-04383 | 0 | TRUE |
| 2011-05400 | 0 | FALSE |
| 2011-01583 | 0 | TRUE |
| 2011-27228 | 0 | TRUE |
| 2011-45695 | 0 | TRUE |

| <i>Table Name</i> | <i>Description</i> |
|--------------------------|---|
| Role | This table contains all roles of users. |
| User | This table contains all user accounts |
| Department | This table contains all departments |
| Requirement | This table contains all requirements for renewal |
| Organization | This table contains all organizations applying for renewal |
| Document | This table contains all documents submitted by the organizations. |
| Student | This table contains all students enrolled. |
| Member | This table contains all members of the organizations. |

Referential Integrity Rules

1. Each element in the *Role* table has a set of privileges that are given to the users. The functionalities that the users will see in the system depend on their role.

Associate Dean (must have only one instance)

- **create** requirements
- **check** submissions
- **manage** organizations that are college-wide

Reviewer

- **check** submissions

Unit Head

- **manage** organizations that are department-based
- **head** departments

2. It is assumed that each individual involved in the system can only have one role. For example, the associate dean of the college cannot be the unit head of a department at the same time. Also, the members of the review committee are assumed to be not unit heads. From #1, the Associate Dean role can do the tasks of the Reviewer and Unit Head. In this way, the table for the users and their roles can be combined. Otherwise, a separate table must be created saying that the associate dean will have all three roles in the system, as seen in the table below.

USER_ROLE

| userid | roleid |
|----------|----------|
| SMALLINT | SMALLINT |
| 9 | 9 |
| PK, FK | PK, FK |
| 0 | 0 |
| 0 | 1 |
| 0 | 2 |
| 1 | 2 |
| 2 | 2 |
| 3 | 2 |
| 4 | 1 |

3. **NN** is put under the userid column of the Department relation to make sure that there is exactly one head per department. **ND** is put under the userid column to make sure that a user (a unit head in particular) cannot head more than 1 department.
4. To preserve the total participation constraint on the 'creates' relationship set, the userid column is placed in the Requirement relation instead of creating another relation for the relationship set. However the ERD and the relations cannot maintain the constraint that only one user (the associate dean) can create the requirements.
5. Only unit head users or the associate dean may manage organizations.
6. The following are observed using the *Document* relation:
 - Only one document may be submitted per requirement
 - One file

Triggering Operations [If any]

| | |
|-----------|---|
| User Rule | Event: Entity Name: Condition: Action: |
| | |