# SQL Week03 – Assignment – Valerie Briot

Contents

[SQL Week03 – Assignment – Valerie Briot 1](#_Toc435197194)

[Requirements: 1](#_Toc435197195)

[Data Modeling: 2](#_Toc435197196)

[ER Diagram: 3](#_Toc435197197)

[Data Sets: 4](#_Toc435197198)

[SQL Statements & Queries: 4](#_Toc435197199)

## Requirements:

An organization grants key-card access to rooms based on groups that key-card holders belong to. You may assume thatusers belong to only one group.

Your job is to design the database that supports the key-card system.

There are six users, and four groups.

Modesto and Ayine are in group “I.T.”

Christopher and Cheong woo are in group“Sales”.

There are four rooms:

“101”, “102”, “Auditorium A”, and “Auditorium B”.

Saulat is in group“Administration.

” Group “Operations” currently doesn’t have any users assigned.

I.T. should be able to access Rooms101 and 102.

Sales should be able to access Rooms 102 and Auditorium A.

Administration does not have access to any rooms.

Heidy is a new employee, who has not yet been assigned to any group.

## Data Modeling:

We have 3 entities to model; users, groups, and rooms and the relationships between them.

users:

Users have name. They will be identified by a unique numeric key (user\_id). Users can belong to only one group at a time.

*Additional Assumptions:*

Users will either not changed group when assigned or if they change group, we are only interesting in their current group association. Hence there is no need to model and historical element to the relationship “users belong to group”.

groups:

Groups have name. They will be identified by a unique numerical key (group\_id). Groups may have users associated to it (or not). Groups are also associated with rooms to indicate whether access to a room is given. A group can provide access to multiple rooms (or not have any access).

rooms:

Rooms have name. They will be identified by a unique numerical key (room\_id). Access to rooms is given at group level. More than one group can have access to a given room (or no group will have access).

*Additional Assumption:*

We will assume that once given, access to a room could be revoked or/and changed. However, we will assume that we are only interested in the current association therefore we will not model an historical quality to the relationship between rooms and groups.

Relationships:

“user belong to group”

At any given time, one user may belong to a (or none) group. This is a 1 (or zero) to many relations. Hence, group\_id will be a foreign key for user entity. Since a user does not have to belong to a group, this attribute can be NULL.

“group member have access to room”

Association to a group gives access to (possibly) multiple rooms (or none). Also, a room may be accessed by multiple groups. Hence, this relation is a “many to many”. To model it we will create an association table “group\_rooms\_access”.

groups\_rooms\_access will be identified by a unique numerical key. It will have a group\_id and a room\_id as foreign key.

## ER Diagram:

Diagram was done using Microsoft Office Visio Professional 2003.



## Data Sets:

tblgroups:

|  |  |
| --- | --- |
| **group\_id** | **group\_name** |
| 1 | I.T. |
| 2 | Sales |
| 3 | Administration |
| 4 | Operations |

tblusers:

|  |  |  |
| --- | --- | --- |
| **user\_id** | **user\_name** | **group\_id** |
| 1 | Modesto | 1 |
| 2 | Ayine | 1 |
| 3 | Christopher | 2 |
| 4 | Cheong woo | 2 |
| 5 | Saulat | 3 |
| 6 | Heidy |  |

tblrooms:

|  |  |
| --- | --- |
| **room\_id** | **room\_name** |
| 1 | 101 |
| 2 | 102 |
| 3 | Auditorium A |
| 4 | Auditorium B |

tblgroups\_rooms\_access:

|  |  |  |
| --- | --- | --- |
| **group\_room\_access\_id** | **group\_id** | **room\_id** |
| 1 | 1 | 1 |
| 2 | 1 | 2 |
| 3 | 2 | 2 |
| 4 | 2 | 3 |

## SQL Statements & Queries:

See attached SQL file: