**Work Order System Database Schema & Table Description**

Diagram

Description automatically generated

Below is an overview of the tables within the Work Order Systems SQL Database. Each table has a different set of columns that are defined with data types and constraints.

**Asset Table:**

This table contains a building’s assets which a Requester can create work orders against.

* AssetID (PK, INT) – this field contains the value that uniquely identifies each record and therefore cannot be NULL. This field is auto-increment to ensure there are no duplicates.
* ParentAsset (VARCHAR,10) – represents the location or asset that this record “belongs” to. This field does not allows for NULL, as an asset should always have a parent.
* AssetTag (VARCHAR, 15) – this is a character-based identifier that helps locate the asset. This value cannot be NULL.
  + It is encouraged to use the following naming convention: <ParentAsset Reference><AssetRef><Number>.
    - EX.) A door for room 201 in BH Snell Hall would be SN201DR-1.
* AssetType (VARCHAR, 15) – describes what the asset is, i.e. Door, Room Type. No NULLS allowed in this table.

**Problem:**

This table lists the types of problems a Work Order can be assigned. It allows a manager to create reports based on the problems occurring in the building to determine trends. All fields must have a value, no NULL values.

* ProblemID (PK, INT) – this field contains the value that uniquely identifies each record. This field is auto-increment to ensure there are no duplicates.
* ProblemDesc (VARCHAR, 100) – a description of the type of problem.
* Shop (VARCHAR, 25) – the trade/shop that would work on the problem.
* ProblemCode (VARCHAR, 20) – an abbreviation of the problem type. The shortened version takes up less space on a report but is still understood.
  + It is recommended the value follow the naming convention: <Shop first initial>-<description without unnecessary vowels>.
    - EX) the code leaky sink, generally fixed by the Plumbing team would be P-SNKLEAK

**Users:**

The Users table contains records representing each individual in the system.

* UserID (PK, INT) – this field contains the value that uniquely identifies each record and therefore cannot be NULL. This field is auto-increment to ensure there are no duplicates.
* UserFirstName (VARCHAR, 25) – the user’s first name. No NULL values allowed.
* UserLastName (VARCHAR, 25) – the last name of the user. No NULL values allowed.
* Username(VARCHAR, 50) – the value the user logs into the system with. This should be an email address. No NULL values allowed.
* Password (VARCHAR, 50) – the second value of the user’s credentials. This is held in the database as a hash value to keep the information secure. No NULL values allowed.
* PhoneNumber (VARCHAR, 11) – this field contains a phone number where the user can be contacted. It cannot be NULL.
* Role (VARCHAR, 15) – this column describes the user’s purpose in the system: Requester, Technician, or Manager. This determines how the user can interact with the application. No NULL values allowed.
* Shop (VARCHAR, 25) – this field will only be populated for Technicians and Managers, if necessary.
* LocationID (FK, INT) – the LocationID, a foreign key to the Asset table, represents the typical location the Requester can be found in the building. When they enter a work order, the page will automatically bring up this asset, to save the user from having to select their office/location as it is assumed most of the work orders will be entered for that space.

**WorkOrderComms:**

This table holds the conversation between the Requester and Technician or Manager. Whenever a user drops a message, this table stores the message with the WOCommID. None of the fields in this table can be NULL.

* WOCommID (PK, INT) – this field contains the value that uniquely identifies each record and therefore cannot be NULL. This field is auto-increment to ensure there are no duplicates.
* CommDate (Date) – the date the message is entered into the system.
* Message (VARCHAR, 250) – the message the user would like to relay.
* WkOrdID (FK, INT) – reference field to the Work Order table, i.e. which work order the message is for.
* MsgUserID (FK, INT) – establishes the relationship to the User’s table. In order words, who entered the message.

**WorkOrders:**

This table consists of all the work orders in the system.

* WorkOrderID (PK, INT) – this field contains the value that uniquely identifies each record and therefore cannot be NULL. This field is auto-increment to ensure there are no duplicates.
* RequestDate (Date) – contains the date the request is entered into the system. This field cannot be NULL.
* Issue (VARCHAR, 100) – describes the problem the user is reporting. NULL values cannot exist in this field.
* Shop (VARCHAR, 25) – represents the trade that will work on the reported problem. Since this is not populated until the Manager assigns the work order, NULL values are allowed.
* Status (VARCHAR, 19) – the current state of the work order (see below for possible values). When a work order is entered, the default value is “Open”. This field cannot be NULL.
  + Open – entered into the system and is currently waiting to be assigned or being worked on.
  + On-Hold – there are various reasons this status could represent. Most of the time the technician will be waiting on a part or piece of information from the Requester.
  + Complete – the reported issue has been resolved.
  + Canceled – this status is used when the issue has been determined not to exist, a duplicate entry into the system, or not a problem the facilities team is responsible for.
* LaborHours (INT) – this field details the number of hours it took for the assigned Technician to resolve the issue. This field is not populated until the Technician/Manager closes it and therefore NULL values are allowed.
* Solution (VARCHAR, 200) – provides the details on how the Technician resolved the reported problem. NULL values are allowed since this field cannot be populated until the work order is complete.
* RequesterID (FK, INT) – this column contains the reference to the User table record representing the user who is requesting assistance with a problem. This field cannot be NULL.
* ProblemID (FK, INT) – this is the reference back to the Problems table. This value is not populated until the Manager assigns the work order and therefore can contain NULL values initially.
* AssetID (FK, INT) – this field contains the foreign key that represents the identifier of the asset the issue pertains to. It cannot be NULL.
* TechnicianID (FK, INT) – the TechnicianID column contains the value that refers back to the User table of the user who is the assigned Technician. Initially this field will not be populated since the Manager assigns the Technician to the work order, hence this field is allowed to contain NULL values.