**Database Design**

**NASA EVA Gamification**

*Group 3*

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| --- | --- | --- | --- |
| **Version Number** | **Description of Change** | **Author** | **Date** |
| 1.0 | Initial Creation of Document | Jacqueline Macfadyen | 03/10/2018 |
| 1.1 | Revised Document Structure | Victoria Guadagno, Michael Salgo | 03/11/2018 |

# Overview

The database described in this document will augment the default MediaWiki database to allow for the gamification of the NASA EVA MediaWiki. The database will store the values necessary to track badges earned by users. The badge table will store details about the badge, the user and when it was earned.

# Specific Terms and Acronyms

|  |  |
| --- | --- |
| **Term/Acronym** | **Description** |
| SQL | Structured Query Language |
| DDL | Data Definition Language |
| DML | Data Manipulation Language |
| ER Diagram | Entity Relationship Diagram |

# Hardware and Software

## Diagram Tool

Lucidchart online tool for diagramming.

## Database

MariaDB 10.1.30

MariaDB is platform independent and will run on Windows, Mac, or Linux. PhpMyAdmin was used to interface with the database.

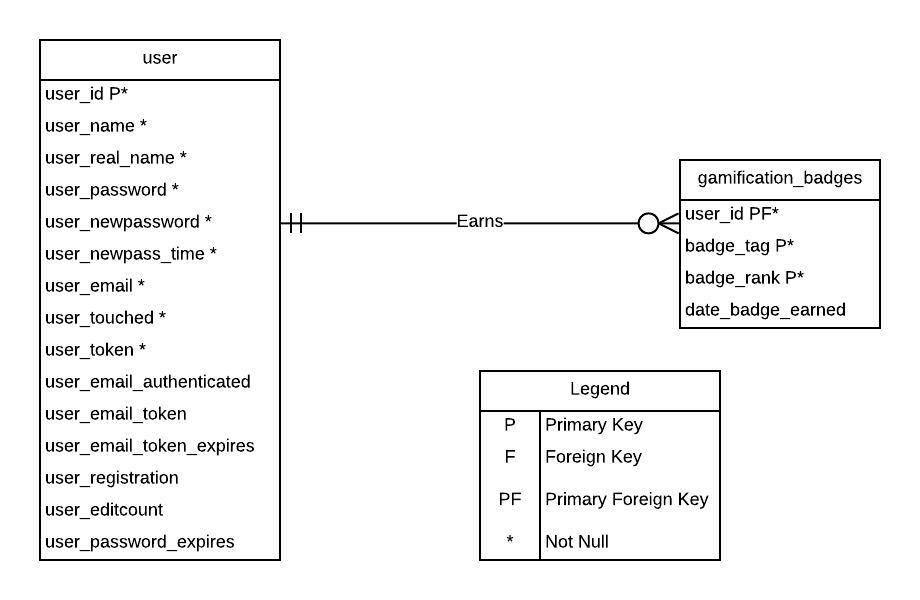
## SQL Editor

Sublime Text Editor for the Mac.

## DDL and DML

SQL will be used for the DDL and DML. The information captured in the ER diagram will be used to generate SQL scripts to create the database tables. In addition, SQL will also be used to create DML scripts to insert data to be used for testing.

# ERD



# Relationships

There is a 1:M relationship between user and gamification\_badges.

# Cardinalities/Business Rules

A user can have zero to many gamification badges; a gamification badge is created for one and only one user.

# Entities

1. Entity Name: user

Entity Description: registered users in the MediaWiki database

Main attributes of user:

Attribute Name: user\_id [Primary Key]

Attribute Description: auto incremented user id

Attribute Name: user\_name

Attribute Description: user’s screenname

Attribute Name: user\_real\_name

Attribute Description: user’s real name

Attribute Name: user\_password

Attribute Description: user’s password

Attribute Name: user\_newpassword

Attribute Description: user’s new password

Attribute Name: user\_new\_pass\_time

Attribute Description: datetime user’s new password was generated

Attribute Name: user\_email

Attribute Description: email address of user

Attribute Name: user\_touched

Attribute Description: last time user logged in

Attribute Name: user\_token

Attribute Description: user’s token (if applicable)

Attribute Name: user\_email\_authenticated

Attribute Description: datetime user’s email was authenticated

Attribute Name: user\_email\_token

Attribute Description: token for user’s email (if applicable)

Attribute Name: user\_email\_token\_expires

Attribute Description: datetime user’s email token expires (if applicable)

Attribute Name: user\_registration

Attribute Description: datetime user registered on site

Attribute Name: user\_editcount

Attribute Description: number of times user has edited a page

Attribute Name: user\_password\_expires

Attribute Description: expiration date of user’s password (if applicable)

1. Entity Name: gamification\_badges

Entity Description: gamification badges earned by users

Main attributes of gamification\_badges:

Attribute Name: user\_id [Primary Key] [Foreign Key to user entity]

Attribute Description: user id

Attribute Name: badge\_tag [Primary Key]

Attribute Description: badge tag

Attribute Name: badge\_rank [Primary Key]

Attribute Description: badge rank

Attribute Name: date\_badge\_earned

Attribute Description: date badge earned

# Assumptions and Special Considerations

1. The date\_badge\_earned field will be populated when the badge is actually earned and null when the NASA EVA Gamification is installed for any retroactive badges that may be awarded.
2. Only one badge of the same tag and rank may be awarded to the same user.

# Statements

Gamification\_badges

1. Create gamification\_badges table

SET SQL\_MODE = "NO\_AUTO\_VALUE\_ON\_ZERO";

SET AUTOCOMMIT = 0;

START TRANSACTION;

SET time\_zone = "+00:00";

--

-- Table structure for table gamification\_badges

--

DROP TABLE IF EXISTS gamification\_badges;

CREATE TABLE gamification\_badges (

user\_id int(10) UNSIGNED NOT NULL,

badge\_tag varbinary(255) NOT NULL DEFAULT '',

badge\_rank varbinary(255) NOT NULL DEFAULT '',

date\_badge\_earned varbinary(14) DEFAULT NULL

) ENGINE=InnoDB DEFAULT CHARSET=binary;

--

-- RELATIONSHIPS FOR TABLE gamification\_badges:

-- user\_id

-- user -> user\_id

--

-- Indexes for table gamification\_badges

--

ALTER TABLE gamification\_badges

ADD PRIMARY KEY (user\_id,badge\_tag,badge\_rank),

ADD KEY game\_badge\_search\_idx (user\_id,badge\_tag,badge\_rank) USING BTREE,

ADD KEY gam\_badge\_user\_idx (user\_id) USING BTREE;

--

-- Constraints for table gamification\_badges

--

ALTER TABLE gamification\_badges

ADD CONSTRAINT gamification\_badges\_ibfk\_1 FOREIGN KEY (user\_id) REFERENCES `user` (user\_id) ON DELETE CASCADE ON UPDATE CASCADE;

COMMIT;

1. Populate gamification\_badges table with data from the user table for users with authenticated emails

INSERT INTO gamification\_badges (user\_id, badge\_tag, badge\_rank)

SELECT user\_id, 'gamification-badge-emailverification', 'gamification-rank-1'

FROM user

WHERE user\_email\_authenticated IS NOT NULL;

# Results

Gamification\_badges

1. Create gamification\_badges table



1. Populate gamification\_badges table with data from the user table for users with authenticated emails

