Check Out System for Student Resources

University of Missouri

CS3380: Database Applications and Information Systems

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05/13/16

# Introduction

The purpose of the defined project is to create a check out system that allows students to acquire items such as laptops, bikes, and other useful items. By implementing different PHP, SQL, and HTML methods to create an easy to use web app, employees will be able to track and rent out items to students by simply filling out the necessary information. All information pertaining to students and checkouts is tracked and stored within a database to allow for simple data acquisition. Additionally, items can be reviewed to see what is available for student use and what isn’t available. Different techniques are used to ensure security of the system to guarantee its integrity.

Most items, such as laptops, have barcodes on them which are scanned and define the item on the database. Most items can be checked out from two locations on campus and have different stock of items at each place. A student ID is used to acquire the student number; once the number is acquired they are able to checkout and item that is tied to that student. The same process is done to check items back in by first scanning the student id then scanning the item barcode to release the item from the student. For bike check outs, a number is recorded on the bike key and that is what is used instead of a barcode.

# Disclaimer

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# ERD

Provide an ERD that reflects the database used by your group. This is different from the one posted in the slack channel. It should be much more detailed, providing the attribute names. Take a look at the desktop application, MySQL workbench, for this. It can generate detailed ERDs for you by connecting to your database.

# Queries

All of the queries used by your system should be detailed here. Provide the SQL and a detailed description of what each queries will return.

# Analytics

What sorts of analytics are conducted by your system? Reference the specific queries used to conduct those analytics. How are these analytics useful?

# Normalization

What normal form are each of your tables in. Many will likely be in BCNF, for those you may group them together and say, “Table1, Table2, and Table3 are in BCNF.” For those that are not in BCNF, provide the NF and explain why you chose to go with a lower NF.

# Indexing

What indexes did you create for your database? Everyone’s system should have indexes other than the default indexes created by MySQL. Explain why you created those indexes and discuss the benefits.

# Security

What security measures are taken to ensure that the system isn’t vulnerable to the types of attacks that were discussed in class. (SQL injection, XSS attacks, enforcing HTTPS, etc..). Do you hash passwords? What hashing technique do you rely on? Do you encrypt any other sensitive data? This section should provide significant detail about the security measures taken.

# Other Topics

Do you use triggers? Share anything else that needs to be shared with potential users.

# User Manual

## Installation

Step by step, how do you deploy your system. What are the software dependencies (PHP, MySQL, etc..). Do you use any additional libraries (mysqlnd)? How do you install those dependencies? How do you setup the database (Create database, then import using SQL?)? How do you host the website? By reading through this section, I should be able to deploy your system on another server without any issues/questions.

## Website Usage

Create a section for each page in the site. How do you use each page. Include screenshots in each section so there is no confusion. Organize the sections (pages) so that it follows a logical order for using the site. (i.e. Login will likely be the first section). This will be especially important if some pages in your site have dependencies. For example, if one page requires you to select a category from a dropdown menu, the user would likely have been required to create that category using a different webpage first.