CSI 3335 Database Design Project

Due: November 17, 2017

1 Introduction

The semester project is to design and implement a new (and improved!) LampQuest to be used in future database classes. The game is to be a web-database app using the Linux/Apache/MySQL/PHP stack.

LampQuest has been the example database for my sections of CSI 3335 for many years. It has changed drastically over time, and restarted several times. The current game requires players to buy, create and sell items, which is a common mechanic in many online games. However, the game is overly simplistic. In particular, it is missing the ability for objects to be created without the player’s direct involvement. The project for this semester is a complete redesign of Lampquest to allow the manufacture of items without the players involvement. In fact, the player’s role will be to manage a (hopefully) growing collection of items.

2 Game Mechanic

The game consists of workers and shops. A worker is able to produce raw materials (e.g., wheat, wood, clay, etc.) and can build shops (with the right materials). Shops produce more advanced goods from raw materials and other goods. For example, a woodworking shop might consume wood and produce planks. A shipyard might consume planks and cloth and create ships.

Both workers and shops should be programmable, with a minimum functionality of being active or inactive and being assigned different tasks (such as a worker being assigned to grow wheat or chop wood). Any additional game mechanics are left to you. However, it should be understood that in order for a project to receive an A, substantially more is required.

3 Project Requirements

3.1 Team Selection

This is a team project. A team is to consist of exactly 4 members. However, since the number of students in the class may not be a multiple of 4, I will evenly distribute the 1-3 students not on a team. Your name should be on exactly one team member form. If you are not on a team, your name should be on a form by itself.
Teams are allowed to use one of two platforms for project development. I would encourage you to use the Cloud9 online development environment (https://c9.io). This environment provides a ready-built LAMP architecture. However, since this environment is hosted off of Baylor University, each team member must agree to use the Cloud9 site. Signing the team member form indicates agreement with using Cloud9 for this project.

If any team member does not agree to use Cloud9, or if your team would prefer, we will provide a virtual machine LAMP architecture. Your team must turn in the entire virtual machine on a flash drive (it is your responsibility to make sure the system will fit on the drive).

The team selection form also indicates your team name (it must be Baylor suitable) and your team leader. The team selection form is due Friday, October 20 at the beginning of class.

3.2 Project Design
The project design is due Friday, November 3 at the beginning of class. The design should consist of a 1-2 page high-level description of your project. Included is the description of how you intend the game to be played and how you support extension to the game (e.g., how new shop types are added). The project design should also include an ER diagram of your database and the schema based on the ER diagram. An analysis of each table should indicate the table’s highest normal form.

3.3 Project Implementation
The project is limited to a LAMP architecture for the back end implementation. However, you may use a graphical front end or a simple javascript with CSS as you wish. Users should login to the system and the system should be secure in that users should not be able to access any other accounts. Furthermore, the system should be secure from SQL injection and cross-site scripting attacks.

The website should be a collection of web pages (not a single page). You are free to have multiple auxiliary pages as needed. Each web page must be documented with a description of its function and the user interface. All PHP functions must be documented and all queries must meet the standards for homework problems.

4 Evaluation
Each team member must have a specific responsibility of the project. At the end of the project, each team member will provide an evaluation of the total team contribution. The total team contribution is 100% divided between the members, including themselves. If everyone contributed equally, each member of a team of four would receive 25%. If someone contributed more, they would get a greater percentage.

A working, well-designed project meeting the requirements will receive a grade of B. Fair contribution will receive the team grade. In order to receive a better grade, the project must be extended in some direction, such as with better graphics, extended game mechanics or robust implementation.
# Team Member Form

**Team Name:**

**Leader email:**

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<thead>
<tr>
<th>Team Member 1</th>
<th>I accept using Cloud 9</th>
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<td>Team Member 2</td>
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<td>Team Member 3</td>
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