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CSC 380

**Restaurant Management System**

* (1) Project description: a narrative in English, written by a potential client or user of your software product
* (2) a list of system requirements, together with priorities, as described in class
* (3) the same list in the form of user stories, together with a size estimate, as described in class

**1. Project Description:**

Restaurant Management System key features

* Login Screen w/ Password/Time Management
* Ordering Service/Food Menu Buttons
* Inventory Management
* Tables/Customers Management

A restaurant is in many ways a machine with multiple moving moving parts. All must work simultaneously and do its individual function for the machine to work properly. Often times this process can become hectic and even to this day, many non-franchised restaurants have a difficult time with tasks such as staying organized, keeping track of inventory, and managing employee hours. The development of a software geared towards smaller restaurants would help owners, managers, and all parties involved operate a successful restaurant.

The software will be a restaurant management system. It should allow for the tracking and processing of multiple restaurant functions such as allowing an employee to sign in to the terminal and clocking in for the day. Upon clocking in, the employee should be assigned a section of tables to work and be able to place orders for the given table. The software will then track the time from the moment the order is placed until the order is received for efficiency and to ensure customer satisfaction. It should also allow for the tracking of inventory so that when an employee places an order the inventory is updated automatically to represent the usage of materials. The software should also allow for the generation of a bill for each table when requested. Upon command, the software should generate a report for the day that includes sales totals as well as inventory use. Finally, the employee should be able to clock out at the end of the workday. The employee should be able to sign out of the terminal at any time allowing someone else to sign in while maintaining their table information.

All of the software should be used through a graphic user interface that allows for using a mouse for input. The menus displayed should appropriately separate the functions by category such as sign in/sign out, place order, and generate the bill.

**2. System Requirements:**

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| Identifier: | Priority (1(Low) – 5(High): | Requirement: |
| REQ1 | 5 | The system shall keep itself password locked, unless unlocked by an authorized user. An authorized login made up of a username and key-code will bring the system to the next interactive page. 5 invalid logins will lock the system unless overridden by an administrator. |
| REQ2 | 3 | The system shall return to its locked state when commanded by pressing a designated button. |
| REQ3 | 5 | The system shall have a home screen to navigate through different pages/screens. |
| REQ4 | 3 | The system should shall maintain a log of employee hours from the time of login until the time of logout. |
| REQ5 | 4 | The system shall maintain a log of all available inventory and alert the user when an item’s inventory is 0. An authorized user should be able to restock empty inventory. |
| REQ6 | 3 | The system should allow users to add, manage, and remove customers from a table. |
| REQ7 | 4 | The system should allow the user to select and deduct customer orders from the inventory when commanded by pressing a designated menu item button for a specific table. |
| REQ8 | 1 | The system shall display a waiting time for each table from order time until food is delivered. |
| REQ9 | 3 | The system should include a checkout function for each designated table and generate the table bill. |
| REQ10 | 1 | The system should maintain a log of all bills. |

**3. User Stories:**

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| Identifier: | User Story: | Size: |
| ST-1 | As an authorized user I can securely log on the system. | 5 points |
| ST-2 | As an authorized user, I can log off the system when commanded. | 3 points |
| ST-3 | As an authorized user, I can easily access the system page I need. | 9 points |
| ST-4 | As an authorized user, I can log and track how long I’ve been working. | 6 points |
| ST-5 | As an authorized user, I can track how much inventory is available. | 7 points |
| ST-6 | As an authorized user, I can view and manage customer orders and transactions. | 9 points |
| ST-7 | As an authorized user, I can select from menu items to take customer orders. | 5 points |
| ST-8 | As an authorized user, I can keep track of how long a customer has been waiting since ordering to ensure customer satisfaction. | 3 points |
| ST-9 | As an authorized user, I can generate the bill for a customer. | 6 points |
| ST-10 | As an authorized user, I can access a history of previous customers. | 5 points |

**USE CASES**

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| **Use Case UC-1:** | | | | **LOGIN** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **LOGOUT** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **PLACE AN ORDER/ ADD TABLE** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **GET BILL/CLEAR TABLE** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **ADMIN ONLY FUNCTION: ADD USER** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **ADMIN ONLY FUNCTION: DELETE USER** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **ADMIN ONLY FUNCTION: UPDATE MENU** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **EMPLOYEE SIGN IN** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **EMPLOYEE SIGN OUT** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |

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| **Use Case UC-1:** | | | | **ADMIN ONLY FUNCTION: ADD INVENTORY** |
| **Related Requirem’ts:** | | | REQ1, REQ3, REQ4, and REQ5 stated in Table 2-1 | |
| **Initiating Actor:** | | | Any of: Tenant, Landlord | |
| **Actor’s Goal:** | | | To disarm the lock and enter, and get space lighted up automatically. | |
| **Participating Actors:** | | | LockDevice, LightSwitch, Timer | |
| **Preconditions:** | | | • The set of valid keys stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.” | |
| **Postconditions:** | | | The auto-lock timer has started countdown from autoLockInterval. | |
| **Flow of Events for Main Success Scenario:** | | | | |
| → | 1. | **Tenant**/**Landlord** arrives at the door and selects the menu item “Unlock” | | |
|  | 2. | include::*AuthenticateUser* (UC-7) | | |
| ← | 3. | **System** (a) signals to the **Tenant**/**Landlord** the lock status, e.g., “disarmed,” (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn the light on | | |
| ← | 4. | **System** signals to the **Timer** to start the auto-lock timer countdown | | |
| → | 5. | **Tenant**/**Landlord** opens the door, enters the home [and shuts the door and locks] | | |