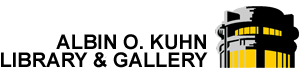
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A.O.K. Laptop System Overhaul

Course Project: IS 436 Structured Systems Analysis and Design

Deliverable 2 – “Requirement Definition Document” (D2)

10/15/2019

Team Name: Meticulous Evolution Consulting

Project Sponsor: Library Services Manager, Paula Langley.

Presented By:

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**1.Functional Requirements:**

1.1.Process:

* Requesting a laptop
  + The first thing the person does is either request a laptop online, in person, or on the mobile application. If the are not in person, they will only be able to reserve the laptop and will have to come in person at a set time to pick up the laptop. If the person misses the appointment, the reservation will be canceled. When either requesting or reserving the laptop, the person must choose one based on their needs and which is available. They must also choose whether to rent it out for 4 hours or 3 days, which also depends on availability. Their ID, the computer and charger is scanned at the desk. The person will be asked to take specific pictures of the computer, one of those being the home screen showing that the computer turns on. The pictures will be saved along with the person’s name and whomever rented out the laptop to them. The transaction is finished
* Returning a laptop
  + The person must bring back everything that was checked out(this includes the laptop, charger and the bag). The ID, laptop and charger will be scanned. The pictures saved when the laptop was checked out is referenced and charges(if need be) are applied. Everything is logged in the system.
* Reserving a laptop online or in mobile application
  + The person will pick the laptop and time available and request it.
  + They must pick an appointment time, and must be on time. 15 minutes after the appointment times, and the person does not show up, the reservation is cancelled

**1.2 Information:**

The system maintains the borrower's information including past transactions. The system must keep records of all users who access the system and any changes made by internal or external users. The system which is accessed through a web browser or mobile application must retain all the information such as FAQ, online help, laptop details, quantity, etc. in real-time to help the user accomplish their goal without hassle. For the mobile app users, the system must provide instructions for signup, request help, reserve laptop along with policies, terms, and conditions. Besides, the system must keep records of the expenses incurred due to damage or depreciation for the current year and the past years.

**2. Non-Functional Requirements:**

2.1. Operational

The system will be capable to run on any phone operating system whether it is Windows, Android, IOS and other operating systems of any other type. It will help in speeding the process of getting a laptop then doing so in person to request one to get it. This is really convenient at any time of the day or week to get a laptop from the library. The system will be integrated to the current systems that the library uses for checking out and checking in laptops.

2.2 Performance

The mobile application we will need a server for students in order to connect to reserve a laptop. The server will be able to run as many reservations all depending on the amount of requests is being processed. The capacity would practically be the same size as any server such for UMBC network. The server would be able to carry the requests for reserving the laptops but may have technical issues around certain times when the library opens and closes. Even though the library is not open twenty-four hours in the day but it is accessible for all students around the clock.

2.3. Security

The system must address security threats and issues in order to ensure data protection and unanticipated threat from a third party. In consideration for security purposes, the mobile app user must be registered with the system in order to use the services offered by the library. For login, the user must enter a unique user id and a password. The log in will be processed by verifying the user and validating the password against the system. Only library staff can access the web application that records which laptop is out and the pictures of the conditions of the laptop. The system should be able to protect personal data associated with a patron or the employee. Besides, the system will also provide basic safeguards against hacking, trojans and viruses.

2.4. Cultural/Political

The app will be compatible with different OS systems along for the need to have numerous languages for the vast population.

**3. Interview Information:**

The interview was conducted to sort out the requirement needed for the laptop loaning program. We interviewed the Library manager Paula Langley followed by the library staff and the patron.

3.1 Name of the interviewee: Paula Langley Date/Time: October 15, 3PM

Position: Library Manager

Name of the Interviewer: Omar Al-Hedari

Questions:

1.Do students usually rent in-person or online?

-Library rules require patrons to be physically present when borrowing library materials.

2.How long does the student usually rent out? And why?

-To allow for resource sharing, we loan the Dells, Macs, and ½ of the Chromebooks for 3 days (up from 1 day in previous semesters to accommodate patrons and also in response to a survey we conducted last spring where patrons who used the service commented that a longer loan period is desirable.

3. Have there been any issues with the laptops that have rented out?

-Patrons claim they are not informed of due dates.

-Patrons fail to return items when they are due.

-When technical issues are identified, DoIT fixes the issue or have the device replaced.

4.Biggest issues

-The biggest issue is that we do not have enough devices to loan to the students who need a laptop.

-Borrowing a laptop requires the patron to be present, and to present a picture ID, preferably their UMBC ID card.

-If none is available when the patron wishes to borrow a device, they now have the option of placing a hold request on the desired type of device. This allows the patron to be notified via email when one becomes available.

5.What other methods that students use to get a laptop when it is rush hour?

In previous semesters, students would solicit the aid of a friend to take turns borrowing a device rather than returning it. This made it less likely for others to have the opportunity to use the device. Now that we have allowed holds on the laptops when others are waiting for a device to become available, patrons can no longer trade the loan with a friend. They must return the laptop and join the queue if they so desire

3.2 Name of the interviewee: Beverly Conner Date/Time: October 15, 1PM

Position: Student Manager

Name of the Interviewer: Ralu Ofoche

Questions:

1.Do students usually rent in-person or online?

-It is a transition this semester. Students are just learning that they can do it online. They usually come in. the students usually find no computers in so they are starting to use the website. The 4 hour Chromebooks are sometimes in and there are 10.

2. If you use online what are your opinions of the library website?

-I think it is pretty streamlined but the first time it’s not as streamlined. After the first step of the process, people are having some issues. Usd to say how many were available, but coder left with his knowledge. Now there is only a redirect page.

3. What laptop do you usually rent out? And why?

-All of them. Some like the different properties. Personal preference. I am personally a dell person. Different students in different majors use different laptops.

4. How long does the student usually rent out and how does the late policy work?

-The time period is 3 days and 4 hours. Some are early and late. There are late fees applied. Students are usually on time and if they are late there are late fee appeal forms. Sometimes they are lucky and get the fee reduced or waived, but generally, it is a no and they have to pay.

5. How do they handle rush periods

-If there is no one is available they go one at a time.

6. What would you change about the renting out process

-The issue is that we do not have enough, and the department that pays for them say that they are expensive. As Well as the warranty. If no one is on the reservation list for a laptop, the student can rent it out again, e.g. renting out for 6 days instead of 3.

-The different reservation lists do not communicate with each other; if one person puts their name on three lists and gets a laptop they did not want, they either have to put up with it, or give back the computer and then re-add their name to another list because when you add your name to multiple lists, they remove it and leave your name on one.

-“It would be great if the website told you how many were available before you were redirected to the reservation page.”

**3.3. Summary of the Interviews:**

From what we have gathered from the interviews, the library is severely struggling with their staffing problem and the current laptop loan system makes this problem even more difficult to deal with. The librarians themselves were hesitant in disclosing certain to us making it quite vague to help have an exact solution to their problem. Hope the staffing circumstance get situated sooner for the progress of implementing the solution for the loaning process of the laptops. The transparency of the information during the interviews are questionable and would further affect the progress on resolving the situation regarding lending the laptops to students.

**4.1 Observation:**

I saw immediately that the screen that showed available devices was gone(both on the monitor and on the website). Secondly I saw how shifty the employees were about answering my questions, as if they didn’t want to say that the system was bad. The website was a bit hard to go through because neither the page that you click before the redirect link or the library database page has a clear way of stating what laptops are out. I thought I had found it when “Equipment” the problem was then I noticed it was just a redirect page to a reservation site. I would greatly prefer to know how many and what laptops are available for rent. The system does not already know your at UMBC you have to specifically chose it and make the reservation.

Part II:

First Use Case: Log in for internal use

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| **ID:** | UCX-1 |
| **Title:** | Log In for internal use |
| **Description:** | The library user enters login information. The system authenticates and validates the login information. If the user enters invalid login information, the system alerts and displays alert notification. |
| **Actor:** | Primary actor is library user, the secondary actor is patron |
| **Preconditions:** | 1.The user must have valid user ID and password.  2.The familiarity of the user to use the system.  3.The system is up to date to perform the desired tasks. |
| **Postconditions:** | 1.The system displays the relevant home page.  2.The system records the events.  3.The system authorizes the patron to receive the services.  4. The system notifies the user about in stock/out of stock laptops. |
| **Main  Success Scenario:** | 1.The user enters login id and password.  2.The user submits the user id and password.  3.The system validates the user id and password.  4. The system verifies the user id and password.  5.The system displays user’s home page. |
| **Special Requirements:** | 1.The login action is initiated when a registered user chooses to login.  2.The system prompts for username and password.  3.The registered user enters user name and password and submits them. |
| **Exception:** | E1: Missing user ID or password:   1. The system prompts for user id and password. 2. The use case resumes step 1 in main success scenario.   E2: Maximum attempts exceeded:   1. The system displays “maximum attempts exceeded, contact administrator” message. 2. The systems locks user account. 3. The use case ends.   E3: Invalid user id or password:   1. The system displays “Invalid user id or password” message. 2. The system prompts for user id and password. 3. The use case resumes step 1 in main success scenario. |
| **Frequency of Use:** | The system will be used very often. |
| **Owner:** | The system analyst. |
| **Priority:** | High |

Second Use Case: Request For Laptop

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| **ID:** | **UCX-2** |
| **Title:** | Request for Laptop |
| **Description:** | The patron will request a loanable laptop from one of the workers at the Circulation Desk. |
| **Actor:** | Primary,Patron who is requesting laptop, Secondary: Laptop Loan Mobile App |
| **Preconditions:** | The patron has no other loanable laptop in their possession and/or patron has a fine |
| **Postconditions:** | If precondition is violated, patron must return the loanable laptop and/or pay a fine. |
| **Main  Success Scenario:** | The student who needs a laptop will check on their mobile app to see if they already have a laptop loaned to them or if they have any fines. Since the Student has neither of these, they will go to the “Borrow a Laptop” tab in their mobile application and request a laptop of their choice. Then they will go to the circulation desk to proceed to checkout a laptop. |
| **Exception:** | E1: User already is borrowing a laptop   1. The system will display that “User is already borrowing a laptop” 2. The system will prompt the user to return the laptop   E2: Unpaid balance   1. The system will display that “There is an unpaid balance due” 2. The system will ask the user if it wants to pay the balance |
| **Frequency of Use:** | This would be used very often because requesting a laptop is the main interaction that the user has with the mobile application. |
| **Special Requirement:** | The patron must comply with the library policy and laptop loaning programme. |
| **Owner:** | The system analyst. |
| **Priority:** | High priority |

Third Case: Check Out

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| **ID:** | UCX-3 |
| **Title:** | Check Out |
| **Description:** | The library user scans the student id. The system validates the id and prompts the user to scan the laptop and the charger. The system records all the information and prints the checkout slip. |
| **Actor:** | Library user |
| **Preconditions:** | 1. The student must have a valid student id. 2. The library has to have a laptop for checkout. |
| **Postconditions:** | 1. The system displays “check out successful” message. 2. The system updates the actions in database. |
| **Main  Success Scenario:** | 1. The library user scans the student id. 2. The system validates and authorize the student id. 3. The library user selects the requested laptop 4. The library user scans the laptop and the charger. 5. The system records all the information and prompts the user to print out the check out slip. 6. The system displays “check out successful” message. |
| **Special requirements** | The borrower must agree to checkout terms and conditions. |
| **Exception:** | E1: Invalid Student id   1. The system prompts the user to have a valid student id.   E2: Unpaid balance/fine   1. The system displays unpaid balance or fines and prompts the user to collect unpaid balance/fines. |
| **Frequency of Use:** | It is used often as the student can checkout laptops upon availability. |
| **Owner:** | System Developer |
| **Priority:** | High |

Fourth Case: Return

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| **ID:** | UCX-4 |
| **Title:** | Return |
| **Description:** | The library user scans the student id. The system validates the id and prompts the user to scan the loaned laptop and the charger associated with it. The library staff manually perform the checks to ensure that the laptop and charger is in a good condition. If it is not in good condition, the patron will be fined according to the policy set out by the library. |
| **Actor:** | The patron who initiates the return. |
| **Preconditions:** | 1. The student is authenticated. 2. The laptop should be in good condition without internal/external damage. |
| **Postconditions:** | 1.The return is completed successfully.  2. The action is recorded in the database. |
| **Main  Success Scenario:** | 1.The library user scans the student id.  2.The system validates and authorize the student id.  3.The library user scans laptop and the charger.  4.The library staff manually checks the condition of the laptop and the charger.  5. The systems displays “return complete” message and update its database. |
| **Special Requirements:** | The system initiates the return if pre-conditions are satisfied. |
| **Exception:** | The patron damages the laptop. |
| **Frequency of Use:** | Very often. |
| **Owner:** | Developer |
| **Priority:** | High |

**Use Case Diagram**

