LEAP

Lightweight E-Book Access Platform

Requirements Specification

Presented by:

Revision 1.3
Date: 10/27/14

Team Members:
Amar Mian- Team Leader
Garrett Allen- Lead Programmer
Damian Crisafulli- Webmaster
Josh McDonald- Database Administrator
Justin Rousseau- Web Developer

Table of Contents

1. Project Overview and Summary

The clients, Jaimé Phiffer of Capital Region BOCES and Jen Cannell of Questar III need a simple and easy to use central login platform in order to access e-books from all vendors and publishers. All users; younger students (grades K - 6), older students (grades 7 - 12), teachers, administrators, and the super administrator can view and filter e-books available to them. To checkout e-books, all users will be directed to the third-party websites. Older students, teachers, administrators, and the super administrator can reset their passwords. Teachers can also modify student accounts and administrators can also modify teacher accounts. The super administrator can modify other administrator accounts. The goal of LEAP is to make e-book management simpler for students and faculty by providing an easy to use portal to read e-books and manage their availability.

2. Development Environment

Server:
Operating System: Cent OS 5.2 Final
Kernel: 2.6.8-92.e15
Physical Memory: 8 GB
CPU: Intel Xeon 2.66 GHz
GCC Version 4.1.2 20071124 (Red Hat 4.1.2-42)

Software Engineering Lab PC:
Operating System: Windows 7 Enterprise (x64) Service Pack 1
Physical Memory: 6 GB
CPU: Intel Core i5-3470 3.20 GHz
Hard Drive: 430 GB free space.

Mac:
Operating System: Mac OSX 10.7.5
Physical Memory: 4GB 1333MHz DDR3
Processor: 2.5 GHz Intel Core i5

3. User Case Narratives

3.1 Younger Students

A younger student will navigate to the Lightweight E-book Access Platform (LEAP) login page. The younger student will attempt to login. If the younger student fails to login, the younger student will be brought back to the login page with an error message stating a wrong username or password was entered. After the younger student successfully logs in, a list of all available e-books for the younger student will be displayed. The e-books displayed will be populated according to the school that the younger student attends, the younger student's grade level, and any additional e-books the younger student's teacher wants the younger student to have access to. The younger student can search and sort the e-books available to the younger student based on various e-book attributes such as name, grade level, publisher and genre. When the younger student clicks on the e-book, the younger student is taken to the third-party website where the e-book is located in order to checkout the e-book.

3.2 Older Students

An older student will navigate to the Lightweight E-book Access Platform (LEAP) login page. The older student will attempt to login. If the older student fails to login, the younger student will be brought back to the login page with an error message stating a wrong username or password was entered. The older student can choose to reset their password and be prompted to enter their username. Then the older student will follow the password reset process. The password reset process entails entering the student's email so that LEAP can email that student a link to reset the student's password. After the older student successfully logs in, a list of all available e-books for the older student will be displayed. The e-books displayed will be populated according to the school that the older student attends, the older student's grade level, and any additional e-books the older student's teacher wants the older student to have access to. The older student can search and sort the e-books available to the younger student based on various e-book attributes such as name, grade level, publisher and genre. When the older student clicks on the e-book, the older student is taken to the third-party website where the e-book is located in order to checkout the e-book.

3.3 Teachers

A teacher will navigate to Lightweight E-book Access Platform (LEAP) login page and attempt to login. If the teacher fails to login, the teacher will be brought back to the login page with an error message stating a wrong username or password was entered. The teacher can choose to reset their password and be prompted to enter their username. The teacher will then follow our password reset process. The password reset process entails entering the teacher's email so that LEAP can email that teacher a link to reset the teacher's password. After the teacher successfully logs in, the screen will display all the e-books the teacher has access to, including teacher-specific e-books such as instructor manuals and answer booklets. The teacher can choose to filter books based on different search criteria like appropriate grade level, genre, or subject. The teacher can choose to click on an e-book and be brought to the third-party website where the e-book is located in order to checkout the e-book. The teacher will have access to a user management area where the teacher can modify or view account settings for the teacher's

students. These settings will include the student's password and the e-books the student has access to.

3.4 Administrators

An administrator will navigate to Lightweight E-book Access Platform (LEAP) login page and attempt to login. If the administrator fails to login, the administrator will be brought back to the login page with an error message stating a wrong username or password was entered. The administrator can choose to reset their password and be prompted to enter their username. The administrator will then follow our password reset process. The password reset process entails entering the administrator's email so that LEAP can email that administrator a link to reset the administrator's password. After the administrator successfully logs in, the screen will display all the e-books the administrator has access to, including administrator-specific e-books such as instructor manuals and answer booklets. The administrator can choose to filter books based on different search criteria like appropriate grade level, genre, or subject. The administrator can choose to click on an e-book and be brought to the third-party website where the e-book is located in order to checkout the e-book. The administrator will have access to a user management area where the administrator can modify or view account settings for the administrator's students. These settings will include the student's password and the e-books the student has access to.

In addition the administrator can go into settings and choose to edit account information for both teachers and students, modify third-party website settings, and view statistics. When the administrator chooses to edit accounts, the administrator will be prompted to either create a new account or edit an existing account. If the administrator chooses to create a new account, the administrator will be directed to a form to add a new teacher or student. Once the administrator is finished filling out the form, the administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the administrator will be directed back to administrator settings. If the administrator chooses to edit an existing teacher or student account, the administrator will be directed to a search bar where the administrator can find the person and click the edit button in order to edit the account. When the administrator is editing a pre-existing user and the administrator is finished filling out the form, the administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the administrator will be directed back to administrator settings. If the administrator chooses to modify the third-party website settings, the administrator will be directed to a list of all of the current publishers and vendors. The administrator can choose to click on add a new publisher or vendor, or they can click the edit button located next to one of the publishers or vendors. If the administrator chooses to add a new publisher or vendor, they will be directed to fill out a form. When the administrator is finished filling out the form, the administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the administrator will be directed back to the modify vendors and publishers page. If the administrator chooses to edit a publisher or vendor, they will fill out an edit form. When the administrator is finished filling out the form, the administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the administrator will be directed back administrator settings. If the administrator chooses to view statistics, the

administrator will be directed to the statistics page which will show statistics such as what books was rented the most.

3.5 Super Administrator

The super administrator will navigate to Lightweight E-book Access Platform (LEAP) login page and attempt to login. If the super administrator fails to login, the super administrator will be brought back to the login page with an error message stating a wrong username or password was entered. The super administrator can choose to reset their password and be prompted to enter their username. The super administrator will then follow our password reset process. The password reset process entails entering the super administrator's email so that LEAP can email that super administrator a link to reset the super administrator's password. After the super administrator successfully logs in, the screen will display all the e-books the super administrator has access to, including super administrator-specific e-books such as instructor manuals and answer booklets. The super administrator can choose to filter books based on different search criteria like appropriate grade level, genre, or subject. The super administrator can choose to click on an e-book and be brought to the third-party website where the e-book is located in order to checkout the e-book. The super administrator will have access to a user management area where the super administrator can modify or view account settings for the super administrator's students. These settings will include the student's password and the e-books the student has access to.

In addition the super administrator can go into settings and choose to edit account information for both teachers and students, modify third-party website settings, and view statistics. When the super administrator chooses to edit accounts, the super administrator will be prompted to either create a new account or edit an existing account. If the super administrator chooses to create a new account, the super administrator will be directed to a form to add a new teacher or student. Once the super administrator is finished filling out the form, the super administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the super administrator will be directed back to super administrator settings. If the super administrator chooses to edit an existing teacher or student account, the super administrator will be directed to a search bar where the super administrator can find the person and click the edit button in order to edit the account. When the super administrator is editing a pre-existing user and the super administrator is finished filling out the form, the super administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the super administrator will be directed back to super administrator settings. If the super administrator chooses to modify the third-party website settings, the super administrator will be directed to a list of all of the current publishers and vendors. The super administrator can choose to click on add a new publisher or vendor, or they can click the edit button located next to one of the publishers or vendors. If the super administrator chooses to add a new publisher or vendor, they will be directed to fill out a form. When the super administrator is finished filling out the form, the super administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the super administrator will be directed back to the modify vendors and publishers page. If the super administrator chooses to edit a publisher or vendor, they will fill out an edit form. When the super administrator is

finished filling out the form, the super administrator can choose done or cancel. If done is chosen, the form will be uploaded to the server. If cancel is chosen the super administrator will be directed back super administrator settings. If the super administrator chooses to view statistics, the super administrator will be directed to the statistics page which will show statistics such as what books was rented the most. The super administrator with the can also add, edit and delete administrator accounts.

4. UML Use Case diagram

4.1 UML Use Case Legend

System Boundary: Represents the system where actors go on the outside and scenarios go inside the boundary.

Actor: Actors can be human or non-human. Human actors can be found on the left side of the system and non-human actors can be found on the right side of the system. Actors interact with the system through scenarios.

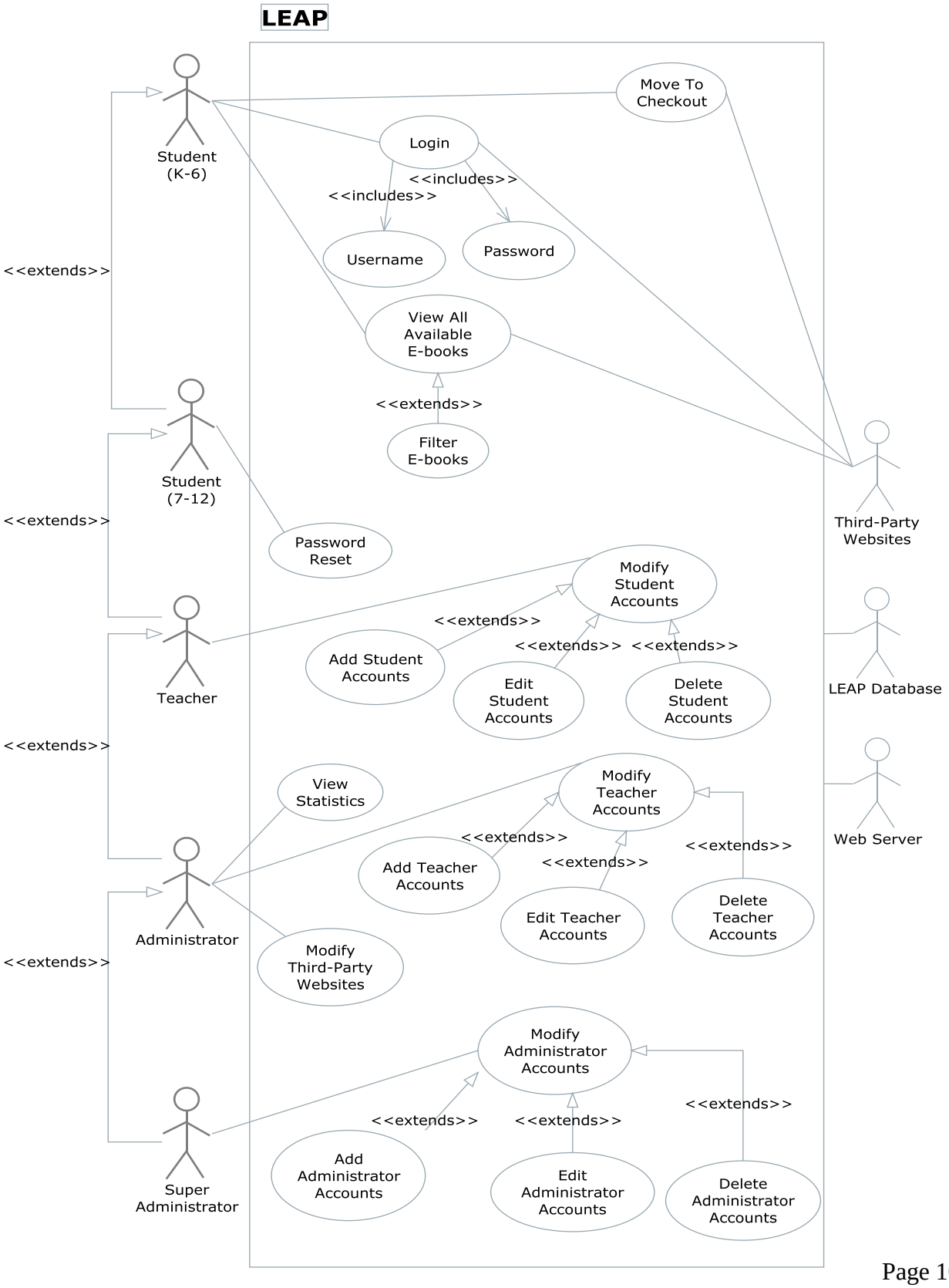
Scenario: Processes that occur within the system and interact with actors.

Participation Line: Shows what scenarios an actor can interact with.

Inclusion Arrow: An arrow that points from a scenario to another scenario to show that something must be included for the scenario.

Inheritance Arrow: An arrow that points between two scenarios showing that one scenario inherits functionality from another. The scenario being pointed at is the parent.

4.2 UML Case Diagram



5. Data Flow Diagrams

5.1 Data Flow Legend

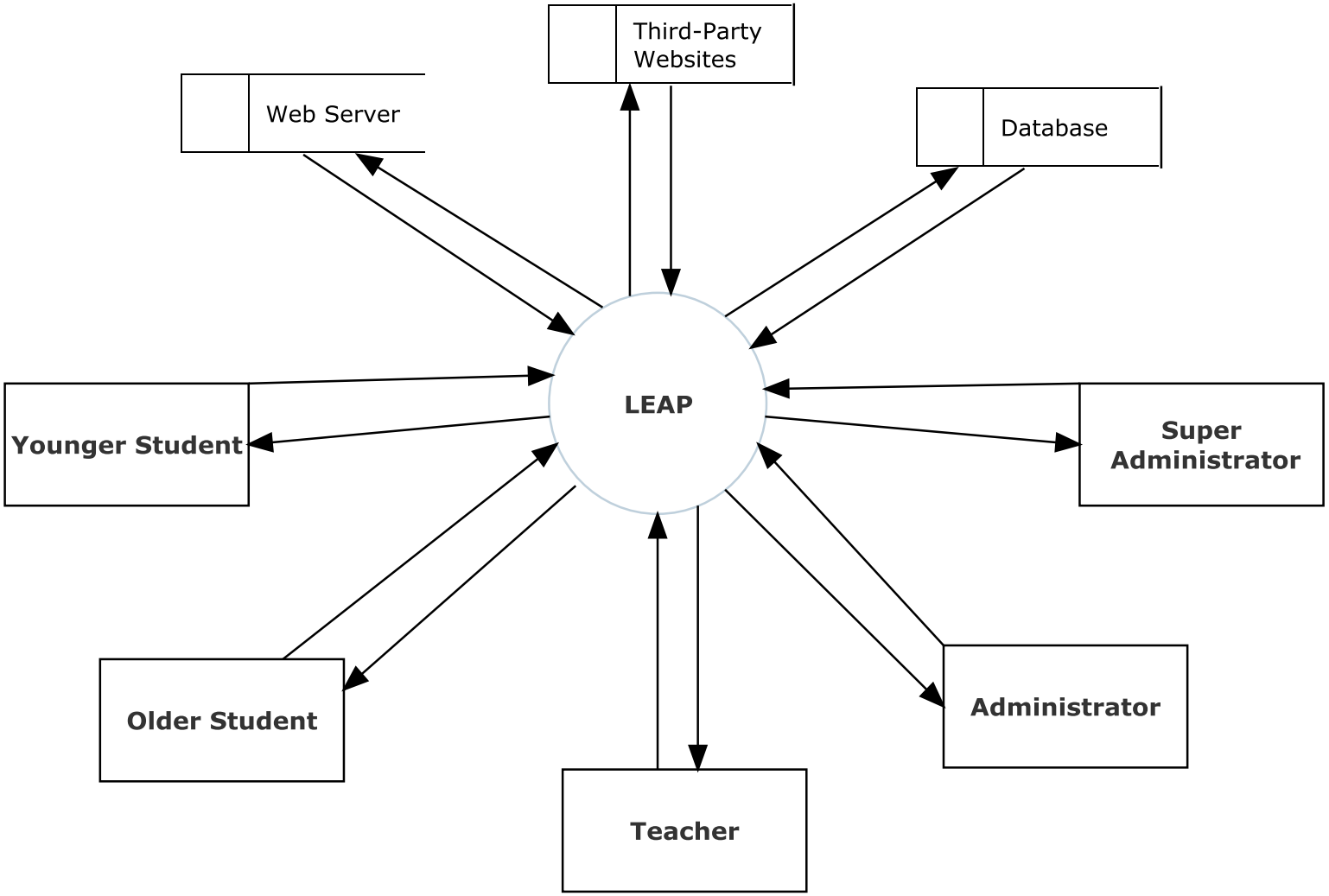
External entity: Contributes data or information to the system or which receive data from it.

Process: Transforms or manipulates data

Data Store: Location where data is held temporarily or permanently.

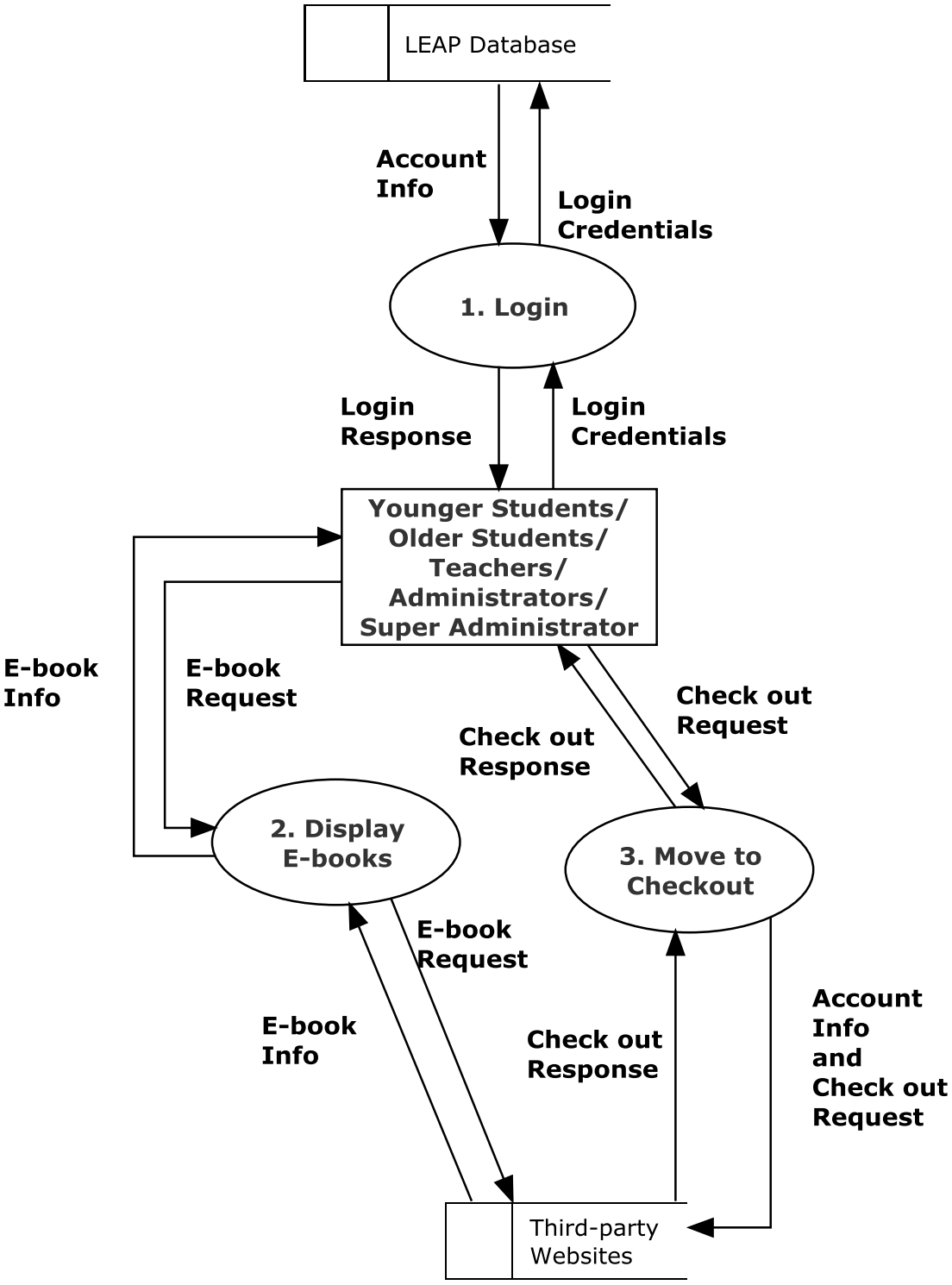
Data Flow: Data flowing to or from a process where X is the data.

5.2 Context Diagram

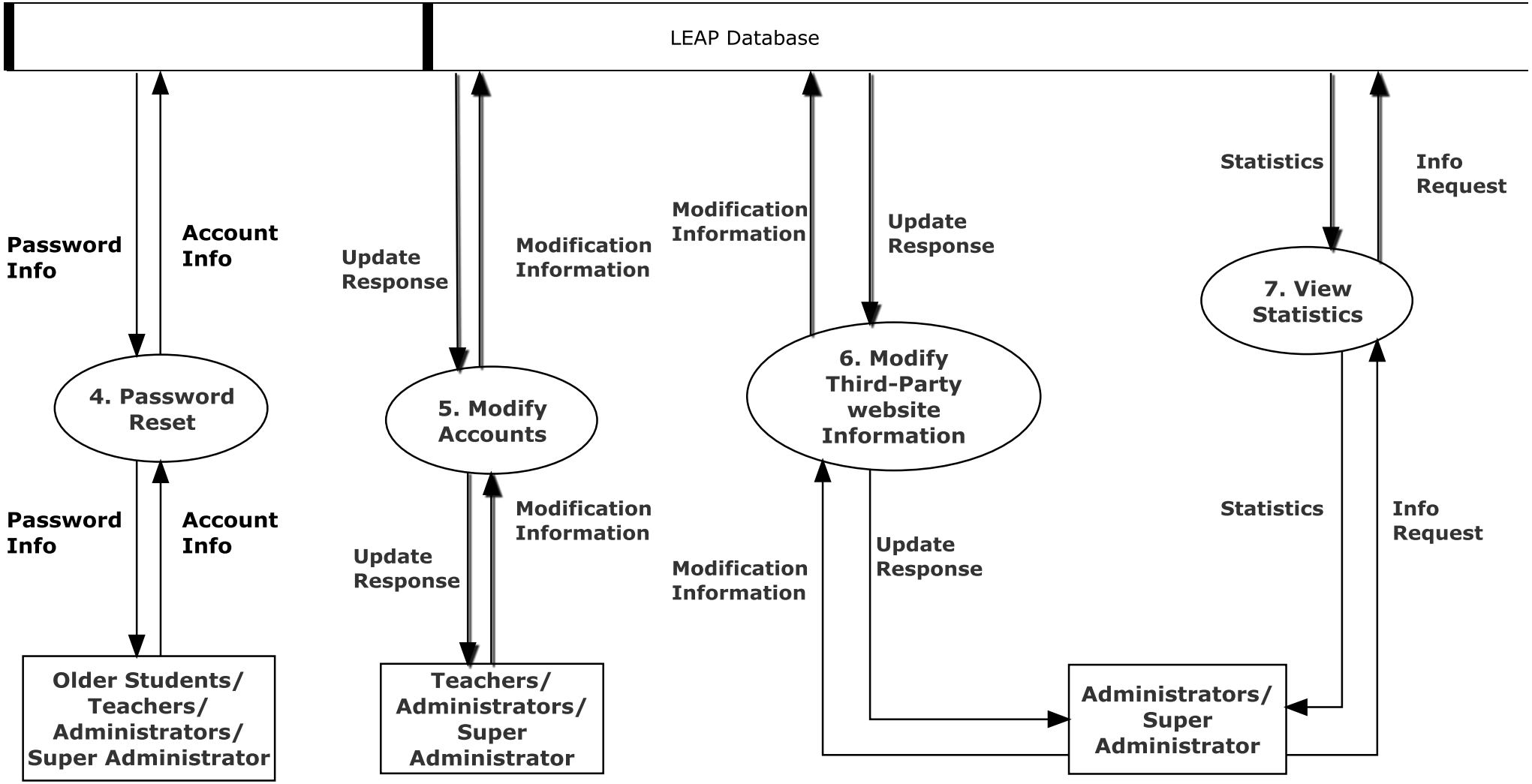


5.3 Level 0 Diagram

5.3.1 Part 1 of the Level 0 Diagram

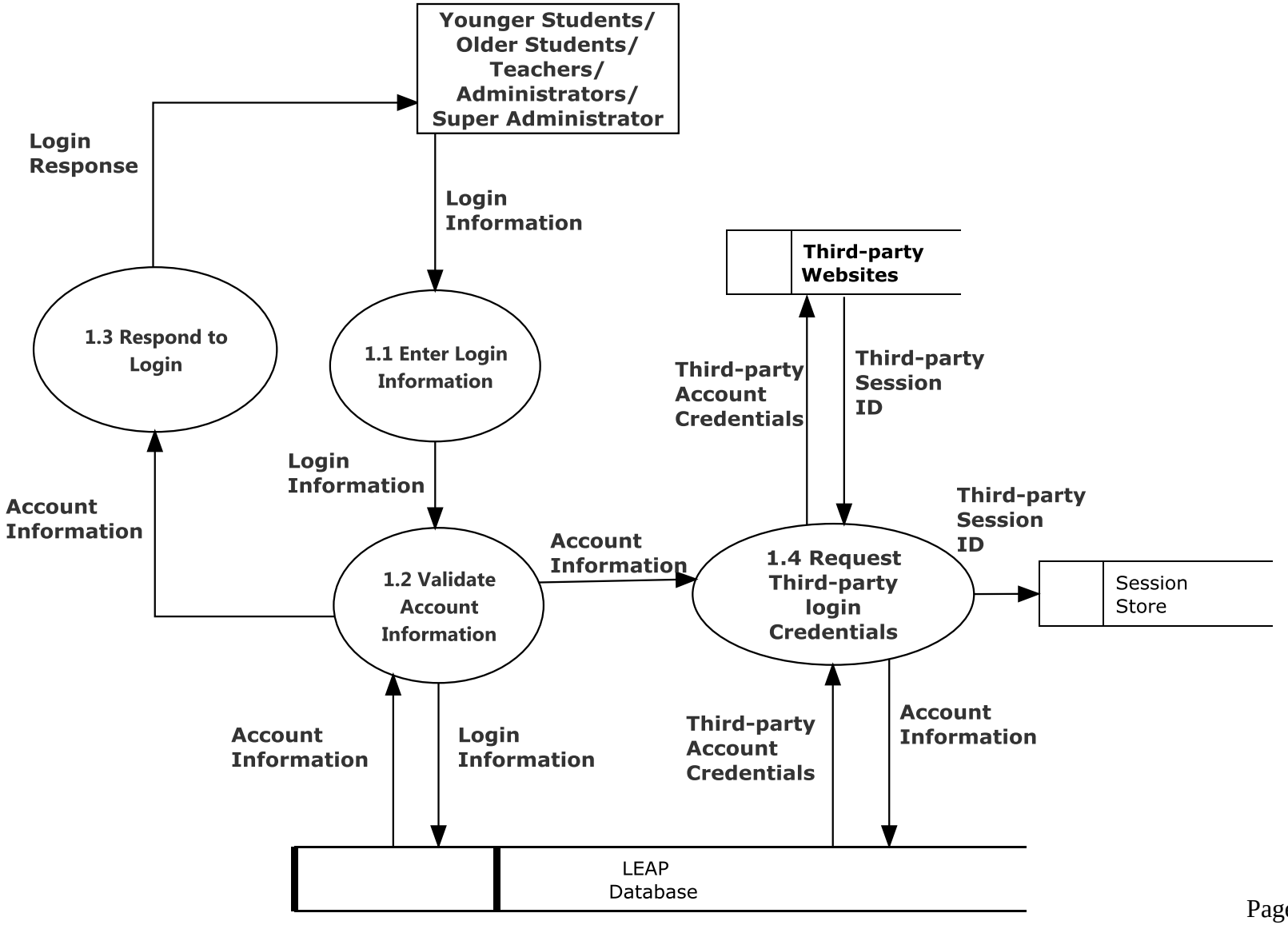


5.3.2 Part 2 of the Level 0 Diagram

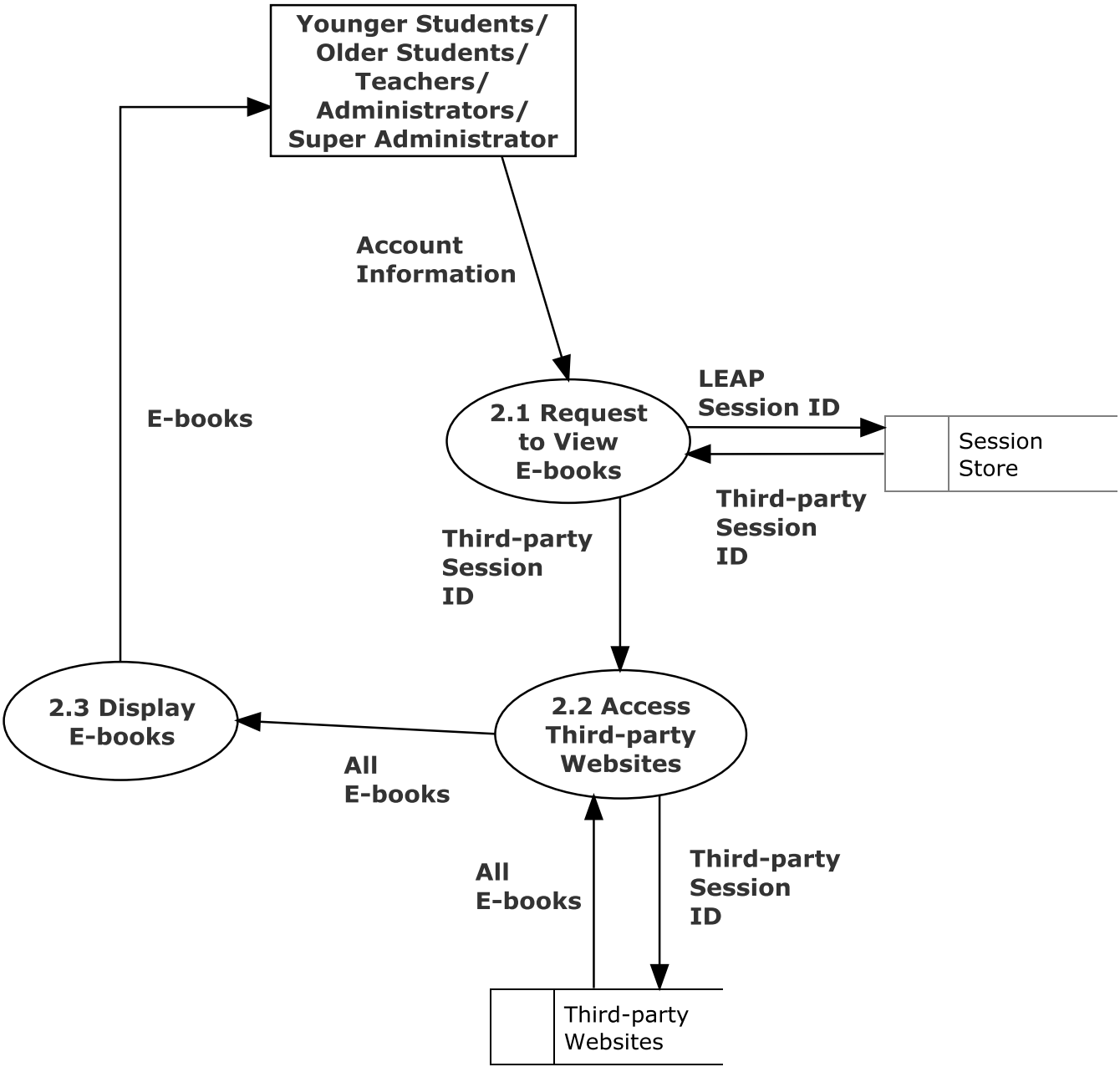


5.4 Level 1 Diagrams

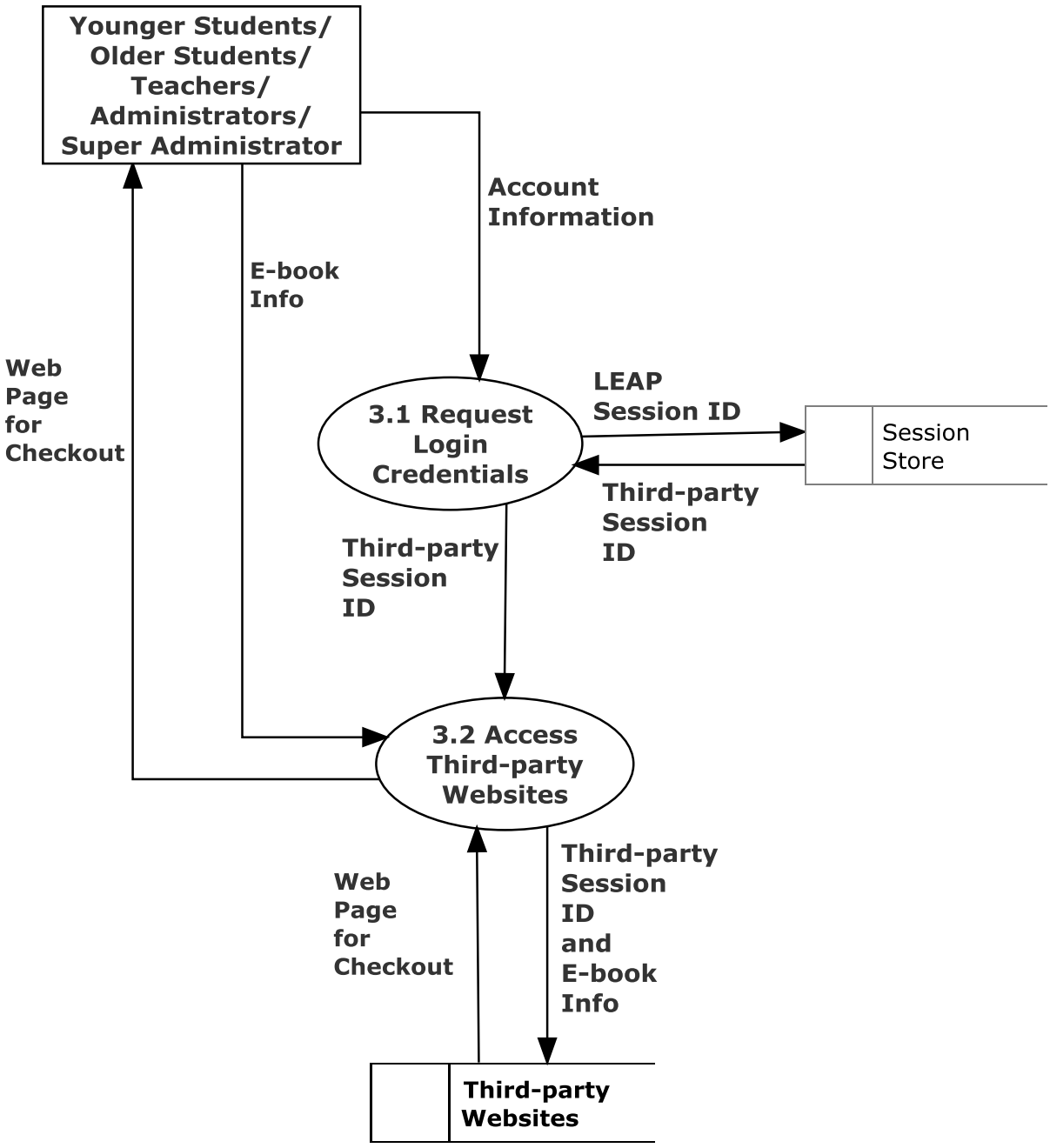
5.4.1 Login



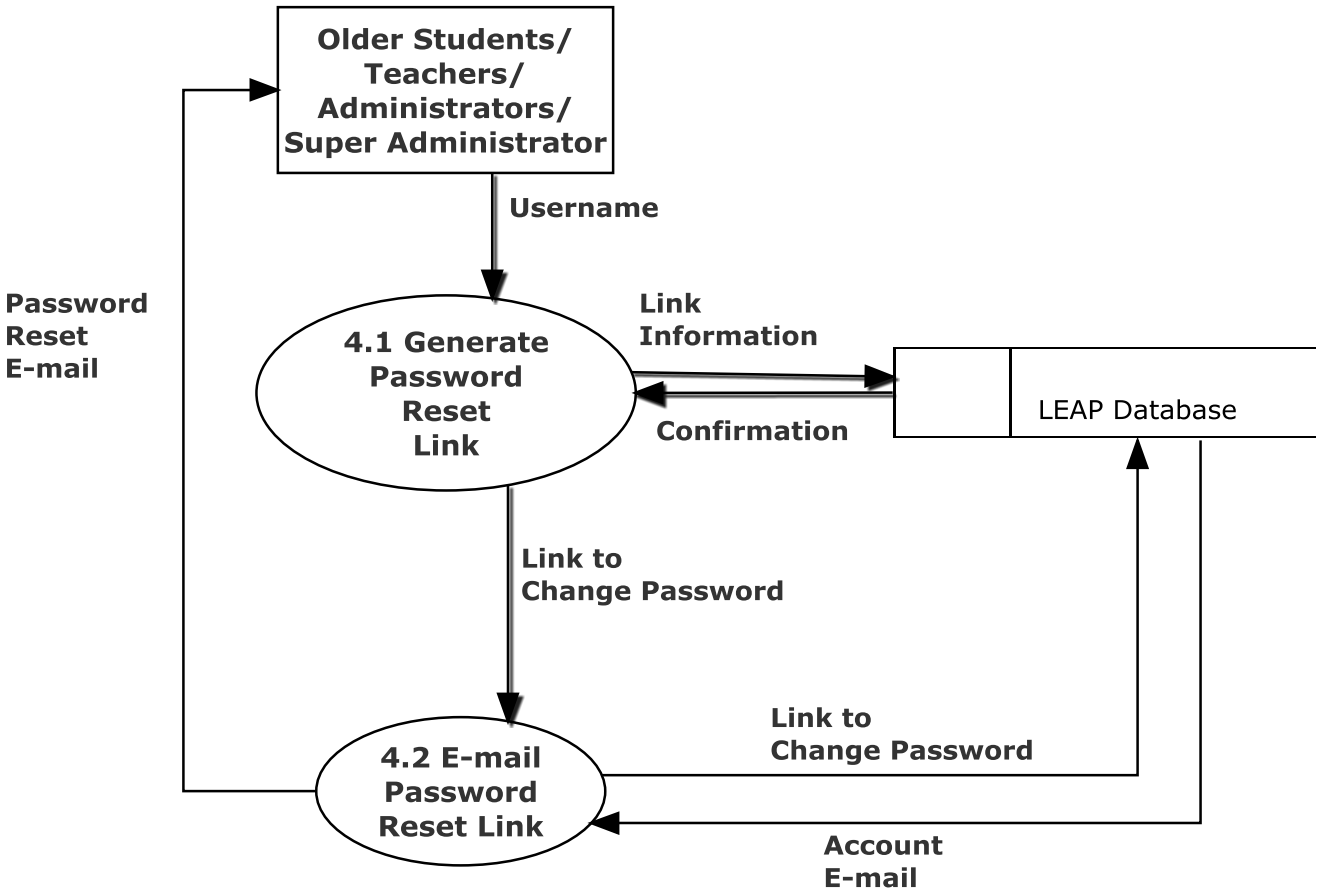
5.4.2 Display E-books



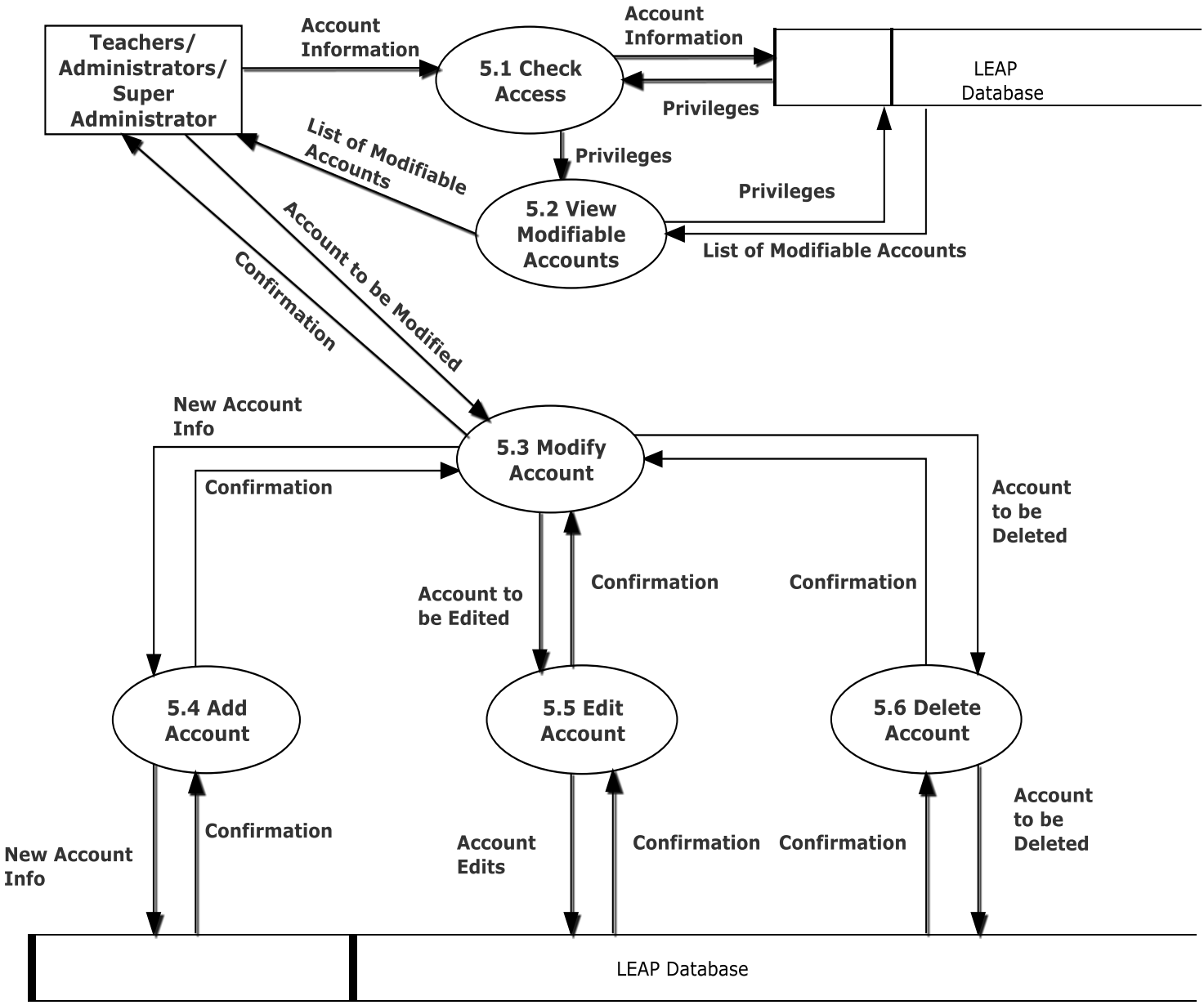
5.4.3 Move to Checkout



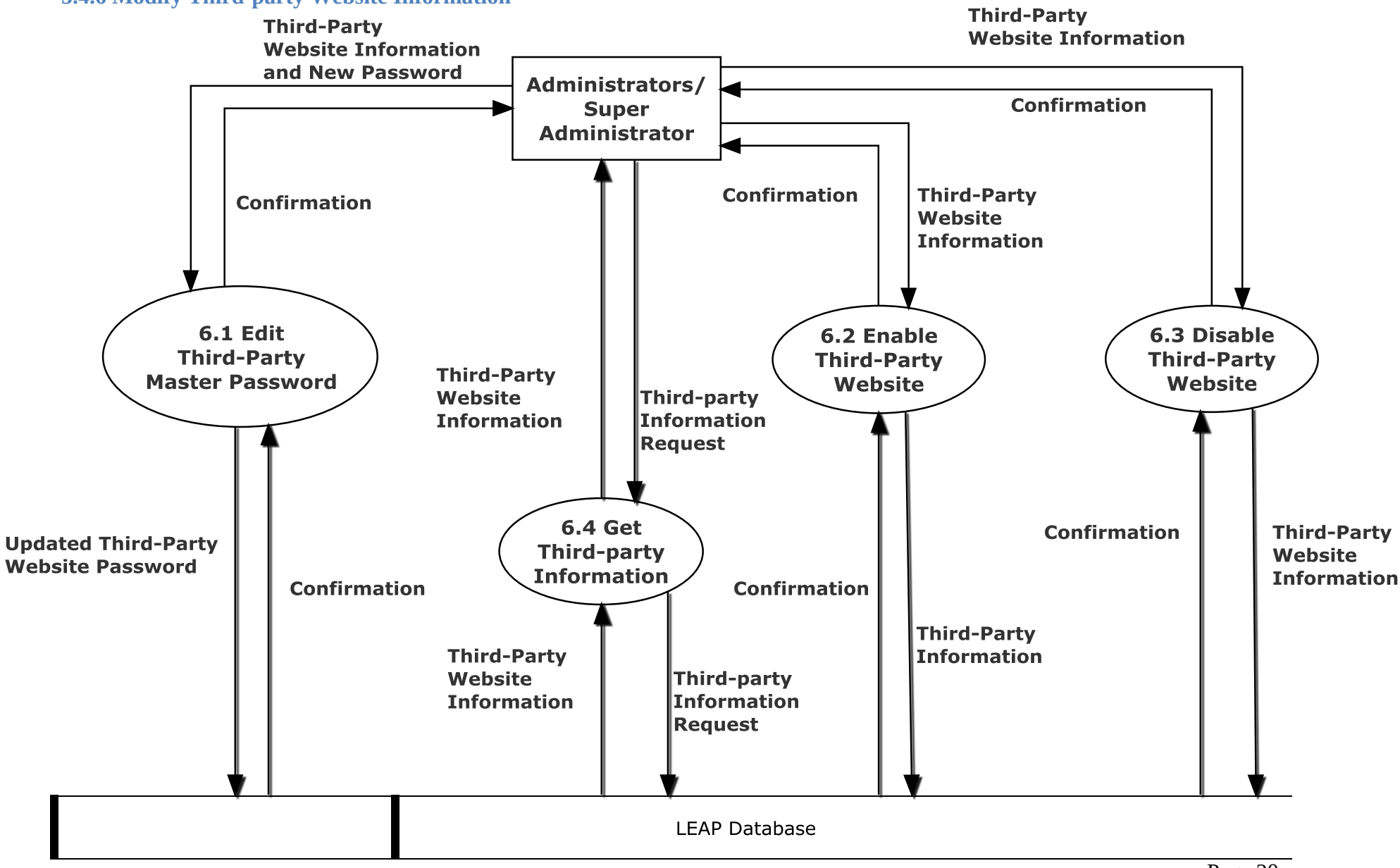
5.4.4 Password Reset



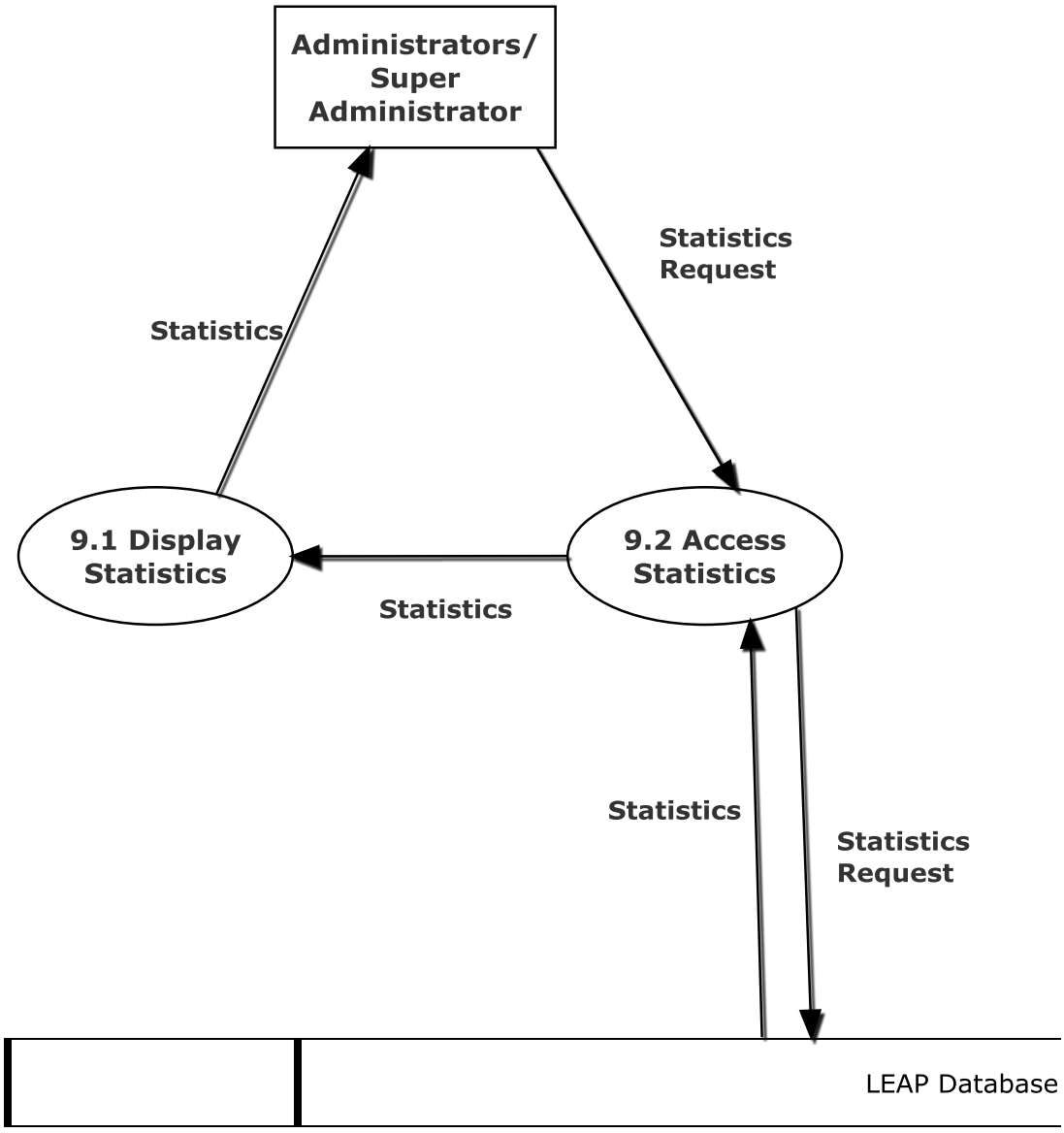
5.4.5 Modify Accounts



5.4.6 Modify Third-party Website Information

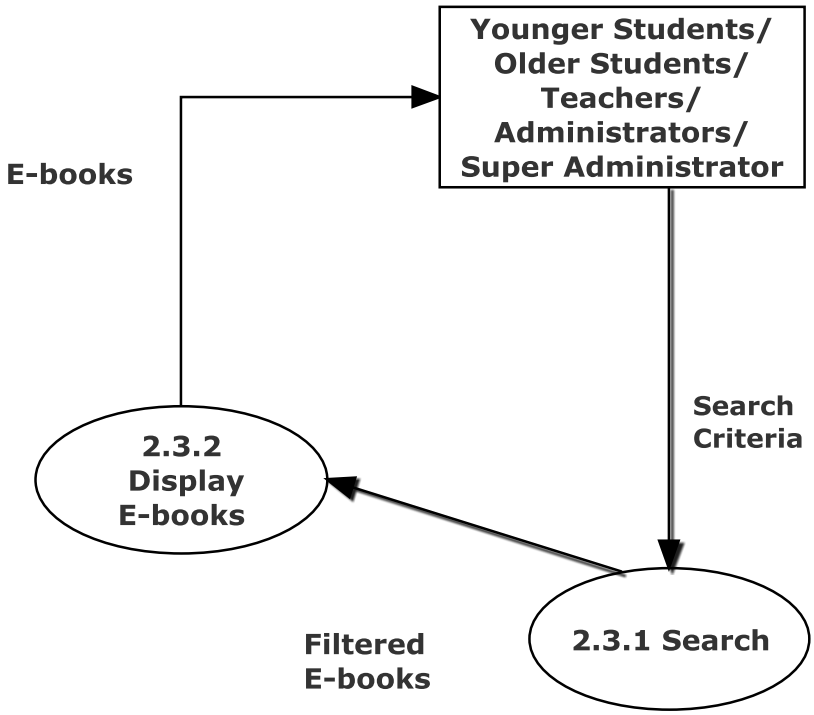


5.4.7 View Statistics

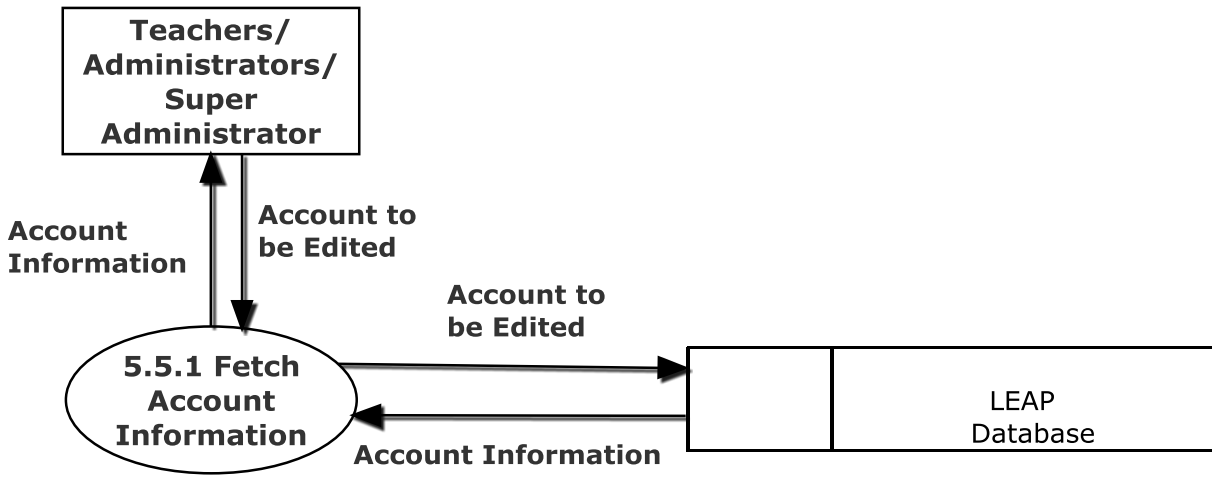


5.5 Level 2

5.5.1 Display e-books (2.3)



5.5.2 Edit Account (5.5)



6. Functional Requirements Inventory

The following list will detail the required functionality that LEAP will have once the system has been completely implemented. LEAP will be a web application viewable in all major internet browsers such as Internet Explorer, Mozilla Firefox, Google Chrome, and Safari. Compatibility with mobile devices is necessary.

6.1 Younger Students

- Will be able to login to the system
- Will be able to view e-books
- Will be able to filter e-books
- Will be able to search for e-books based on different criteria
- Will be brought to third-party websites to check out e-books

6.2 Older Students

- Will be able to login to the system
    - They can also reset their passwords
- Will be able to view e-books
- Will be able to filter e-books
- Will be able to search for e-books based on different criteria
- Will be brought to third-party websites to check out e-books

6.3 Teachers

- Will be able to login to the system
    - They can also reset their passwords
- Will be able to view e-books
    - They can view teacher specific e-books
- Will be able to filter e-books
- Will be able to search for e-books based on different criteria
- Will be brought to third-party websites to check out e-books
- Will be able to modify student accounts
    - They can add, edit and delete student accounts

6.4 Administrators

- Will be able to login to the system
    - They can also reset their passwords
- Will be able to view e-books
    - They can view teacher specific e-books
- Will be able to filter e-books
- Will be able to search for e-books based on different criteria
- Will be brought to third-party websites to check out e-books
- Will be able to modify student accounts
    - They can add, edit and delete student accounts
- Will be able to modify teacher accounts
    - They can add, edit, and delete teacher accounts
- Will be able to modify third-party websites
- Will be able to view statistics

6.5 Super Administrator

- Will be able to login to the system
    - They can also reset their passwords
- Will be able to view e-books
    - They can view teacher specific e-books
- Will be able to filter e-books
- Will be able to search for e-books based on different criteria
- Will be brought to third-party websites to check out e-books
- Will be able to modify student accounts
    - They can add, edit and delete student accounts
- Will be able to modify teacher accounts
    - They can add, edit, and delete teacher accounts
- Will be able to modify third-party websites
- Will be able to view statistics

7. Non-Functional Requirements Inventory

This list will detail the specific properties that will be implicitly defined in the LEAP software. This list does not specify explicit features of LEAP, but rather what LEAP is intended to do.

- LEAP will be designed to be efficient
- LEAP will be very user friendly, providing an easy to use and understand interface
- LEAP will be easy to access by all types of users
- LEAP will be have compatibility will multiple browsers, keeping mobile devices in mind
- LEAP will be stable
- LEAP will be a secure platform

8. Exception Handling

Throughout the development process Omega Tech will ensure that the LEAP software can handle all possible exceptions that could occur. We will strive to maintain data integrity, and validate all forms of input to the system, such as a user logging onto the system, or reading in e-book data. Invalid information, such as incorrect username and password combinations will be properly handled, and users will be directed to any solutions to their problems.

9. Implementation Priorities

Omega Tech will attempt to complete as many functional requirements as possible, but there are some clear priorities as of now. These are subject to change at the discretion of our clients, but for the most part should be unchanged.

- One central login for all users to access the system
- Display all available e-books to the user
- Allow the user to easily search and filter all available e-books
- Provide a simple way for users to move to third-party websites to checkout any e-book
- Enable the appropriate users to modify student accounts
- Enable the appropriate users to modify teacher accounts
- Enable the appropriate users to modify administrator accounts
- Enable the appropriate users to modify third-party website information
- Allow administrators to view statistics
- Allow some users to reset their password

10. Foreseeable Modifications and Enhancements

Currently, Omega Tech does not have any additional modifications or enhancements for the LEAP system. If any modifications or enhancements come up through discussion with our clients they we will be added to the bottom of the product backlog and prioritized accordingly.

11. Testing Requirements

Each functional requirement will be tested according to our software development model; the agile scrum methodology. The tests will be conducted in different operating environments, such as Mozilla Firefox, Google Chrome, Internet Explorer, and Apple Safari. Additionally, tests will conducted on mobile devices. Upon completion of an item, we will do unit testing or functional testing as needed. We will also conduct overall system testing and any necessary regression testing as more items are developed. Towards the end of our development cycle, we will be coordinating with our clients to achieve beta testing. This will include students that will use the system upon completion, enabling us to also receive feedback on any non-functional requirements.

12. Acceptance Criteria

Each individual component of the LEAP application will be tested upon completion and any further development will be done if necessary. Upon completion of development, the item will be added to the overall system. Any necessary system testing will be done once an individual item is added to the system. If these tests are successful, then we will move on to beta testing. If beta testing is done early enough, we will be able to receive valuable feedback on the system and potentially make any requested changes that we can complete within the rest of our time with the project.

13. Appendices

13.1 Appendix A: Cross Reference Index

13.2 Appendix B: Source of Information

Our clients, J'aimé Pfeiffer and Jen Cannell will serve as our primary sources of information throughout the project. We will actively communicate with them to ensure to the project meets all of their requirements and specifications. Additionally, we will also use our professors, Dr. Lim and Dr. Fryling as resources for information that cannot be provided by the client.

13.3 Appendix C: Glossary of Terms

Administrators: A user of LEAP defined in the User Case Narrative
BOCES: Boards of Cooperative Educational Services
Chrome: A web browser created by Google Inc.
Data Flow Diagram: A representation of how data will move and interact throughout a system.
Firefox: A web browser created by Mozilla Foundation.
GB: Gigabyte
GHz: Gigahertz
Internet Explorer: A web browser created by Microsoft Inc.
L.E.A.P: Lightweight E-Book Access Platform, this software project.
Safari: A web browser created by Apple Inc.
UML Use Case Diagram: A diagram created to represent users' interactions with a system.

13.4 Appendix D: Timeline

ID	Task Name	Start	Finish	Duration
1	Software Plan	9/9/2014	9/23/2014	11d
2	Software Plan Documents Due	9/19/2014	9/19/2014	1d
3	Software Plan Presentation	9/23/2014	9/23/2014	1d
4	Requirements Specification	9/25/2014	10/28/2014	24d
5	Requirements Specification Documents Due	10/27/2014	10/27/2014	1d
6	Requirements Specification Presentation	10/28/2014	10/28/2014	1d
7	Preliminary Design	11/18/2014	11/26/2014	7d
8	Preliminary Design Documents Due	11/26/2014	11/26/2014	1d
9	Preliminary Design Presentation	12/2/2014	12/2/2014	1d
10	Client Meetings	9/11/2014	12/2/2014	59d
11	Team Meetings	9/9/2014	12/2/2014	61d