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Outlining Goals for a Successful User Interface

In this section, several important issues to users are outlined. A qualitative goal and a quantitative objective designed to address each issue are also given.

Issues, Goals, and Objectives

Issue: Customers currently need to either physically come to the store or phone in to see if a certain product is in stock.
Goal: Customers are able to search for items in stock no matter where they are.
Objective: A customer will be able to determine whether an item is in stock at the store within ten minutes.

Issue: Employees prefer not to spend time learning new things.
Goal: Employees learn the new interface quickly, largely because it is similar to what they are already familiar with.
Objective: Employees who have used the existing bookstore management system should become an advanced beginner of the new product within two to five uses.

Issue: The computer running the current software has no mouse and no bar code scanner (although such devices are and must continue to be supported), so the keyboard is the primary means of input.
Goal: Employees are able to use the system with their preferred mode of input and well defined shortcut keys that are as close as possible to those used in the current software.
Objective: At least 90% of the shortcuts available on the old system are supported on the new system.

Issue: Navigating the text interface of the current software is difficult for novice users.
Goal: New and current employees find it easy to locate functionality in the interface due to visual

cues including icons, colour coding, and maps.

Objective: Each main program function will have a colour and icon associated to it, and every task related to a physical artifact will display a representation of the artifact onscreen.

Issue: Employees are frustrated by the fact that external software PubStock and TitleWave must be accessed on a different computer from the main software system.

Goal: Employees will no longer need to use multiple computers to complete their tasks.

Objective: At every step of any process, employees will be able to access the functionality of the other programs. That is, all software needed by the employees will be integrated into one system.

Issue: Tech support is difficult to deal with in that it is not always available and does not always provide accurate or useful information.

Goal: Help files and tutorials are available and clearly accessible to the user on every page.

Objective: At least 85% of the program functions' steps have context-sensitive help.

Issue: Employees can only serve one customer at a time. Interrupted processes are not saved.

Goal: Users are able to perform multiple tasks without worrying about loss of data.

Objective: User is able to save the progress of a function and switch to a different function. Multiple functions can be operated at once.

Issue: New employees must learn how the bookstore runs at the same time as learning the software interface, making it more difficult for the employees to be fully trained.

Goal: Employees will find it easier to learn the program because the physical tasks to be done in the bookstore will be well represented in the software.

Objective: At least 90% of the functions in the program have exact representations of physical tasks performed in the book store.

Identifying Objects and Actions in the Design

After reviewing the task scenarios and the artifact analysis, the team gathered a collection of objects and actions represented in the text. Here is a list of the most important actions and their associated objects. Possible object attributes are listed with the object the first time that object is listed.

Action	Associated Objects
Input ID numbers into computer	Product (ID number, price, category)
Apply frequent buyer discount	Customer Profile (Name, phone number, total points, store credit)
Update customer point total	Customer profile Transaction record (Products purchased, total price)
Update inventory after sale or return	Product(s) Inventory Database
Customer pays	Customer profile Payment method Transaction record
Print customer receipt	Receipt (Transaction number) Transaction record
Input purchase order into system	Purchase Order (Products)
Submit order to supplier	Supplier (Name, contact information) Purchase order
Search for saved order on system to cross reference with shipment invoice	Shipment invoice (Supplier, books, invoice number) Purchase order

Action	Associated Objects
Print stickers for books	Purchase order Stickers (Book name, price)
Adjust schedule for employee unavailability	Schedule (Work shifts, employees) Employee Info (Availability)
Customer requests help	Customer information Product(s)
Adjust inventory for missing product	Product Inventory database
Inform customer if and when book will be available	Book Customer information
Generate reports	Purchase orders Point of Sale orders Visa/MasterCard receipts

Examining Usage in Detail

In this section, six use scenarios developed from the task scenarios are given. Four of the six use scenarios are also presented as use sequences. A use flow diagram demonstrates visually how the user navigates through the software. Finally, a use hierarchy organizes the tasks and their basic steps to show their relationships.

Use Scenarios

The six use scenarios presented here are parallel to the task scenarios described in assignment one. The first scenario, In Store Sale, is described in greater detail than the others because it is used to point out many aspects of the interface that will be consistent across all scenarios.

In Store Sale

Ronnie, a frequent customer of the book store, is ready to purchase three books and a yoga mat, and wants to rent a yoga DVD. She approaches the front counter where Paul is available to ring the sale through.

Paul approaches the computer and sees that the program is in its home state. If someone had left halfway through another of the program's functions, Paul would be able to switch to or restart the sale function, saving the progress of the previous function if necessary. Paul is able to see that no functions were interrupted because the list of program functions is not indicating that previous progress has been saved.

Paul selects the sale function from the list of options. The program changes out of its home state and into the sale mode. The sale function, like every other function, is made up of discrete steps that are most often performed in one particular order, and the first of these steps appears on the screen when the sale mode is entered. Options for moving to the next step and previous step (when there is a previous step) appear on the screen, as does indication of the sale function's progress in terms of its steps. A list of the program's function appears on the screen as well so that Paul can switch between functions if necessary.

Paul begins the first step of entering in the information about the customer's purchases. If the store had purchased an optional bar code scanner, he would simply need to scan the items in. Instead, he will manually enter the ID number of each book and the yoga mat. He enters all four ID numbers and adds them to the sale. As he does this, the titles of the books and the description of the yoga mat, entered into the inventory database sometime earlier, appear beside the items' prices on the list. The total sale amounts (before and after tax) are always shown on the screen during the sale process. These values are updated after each new item is added to the list. Once everything is entered in the list, Paul chooses to move on to the next step.

The book store also rents movies. Renting movies involves a slightly different entry process than buying merchandise, so a separate step is required for the data. Paul enters the ID number of the movie Ronnie wants to rent, and asks her how long she would like to rent it for: two days for $5.00 or five days for $10.00. Ronnie answers that she'd like to keep the movie for five days and Paul enters the number. The amount owing for rentals is reflected by this choice. The total amount owing for the sale is also updated. Paul moves on to the next step. If he had not entered any items or movie rentals, the program would not allow him to move on.

Paul now enters Ronnie's personal information so her profile can be loaded. If her profile did not yet exist, Paul could have asked Ronnie for more details and created the profile on the fly. Once the profile is loaded, Paul sees that Ronnie had previously met the minimum points required to get a discount off of her next purchase (customer appreciation plan). She decides to have the discount applied to today's purchases. Her total amount owing is updated and the profile page indicates what her new points value is. Paul moves onto the next step.

Paul enters information about how Ronnie is paying and the sale is finalized. All the information is saved to the store’s database, including new inventory levels, and Paul can no longer go back and change information about the sale. He prints a receipt for Ronnie.

Ronnie leaves happily and the program returns to its home state.

In Store Return

On the rare occasion that Nikki allows a return, she will approach the computer as the front desk and choose the return function either from the home state, or from some function somebody has left in progress (she might save the progress before switching functions).

To use this function, Nikki must enter authorization information because only she, as the owner, is allowed to process returns.

Next, Nikki will have to enter the ID number of the items being returned. In some cases, she may even allow a return for an item that no longer has its ID number. In these circumstances, she must use the in-place search function. This gives her the ability to use the program’s search engine within the return function she has already started.

Ronnie has come to the store to return one of the books she purchased last week. Nikki starts the return process and enters the ID number of the book, since it is still intact. The book’s title and the current price from the database appear on the list of returned items. Nikki has the ability to manually change the price that the book was sold at, since it may have been on sale at the time. Since Ronnie has her receipt, this is not necessary this time. Nikki continues on to the next step.

Ronnie gives Nikki her personal information so her profile can be loaded. Her points for the customer appreciation program are adjusted down for the return. Nikki chooses to go on to the next step.

In the last step, Nikki will indicate whether Ronnie's money will be refunded, or whether she will receive in store credit (which would be saved to her customer profile). In this case, Ronnie will have her credit card credited. Nikki prints a receipt for Ronnie and the program returns to its home state.

Ordering New Inventory

Nikki sits down in the platform office, ready to order new inventory for the store. The computer is running the same program as the computer at the front desk, both of which are connected to a single database. Right now, the program is in its home state.

Nikki chooses the order inventory function. She must enter authorization information because only the manager or the owner of the store may order new inventory.

This function's first step is to decide how the order will be placed. Nikki might attempt a connection directly to various publishers to order books, create an order that will be printed and mailed or just faxed to the publisher, or make a phone call to the publisher. Some of the remaining steps might differ depending on her choice, and the program will note how she will be making the order so she can check her records later.

The second step available is to search for books. Here, the supplier search function is available in place. When running within this function, the search allows Nikki to select books from the search results and add them to the order list.

The third step will depend on how Nikki chose to order the books in the first step. If she chose to make a connection directly to the publisher, the program attempts to establish the connection and if it is successful, asks her to confirm that she would like to place the order. A confirmation of the order is sent back to the program, and Nikki can save and print out the order and the confirmation for her records in the fifth and final step.

If Nikki instead chose to mail, fax, or phone in the order to the publisher, the third step involves choosing the template to be used with the order. Since she chose the publisher she is ordering from in the first step, the program can load the template associated with that publisher. Nikki has the freedom the change the template at will. The program will have come with several common formats as templates, and has a function for creating new ones. In the final step her order can be saved and then printed out to be mailed, faxed, or phoned in later. If she had chosen to phone in the order, the program will have a place for the confirmation number that will be given. Nikki can enter this now if she is making the call right away, or she can save the order as it is and record the confirmation after she makes the call.

Processing New Inventory

A new shipment arrives at the store. Tabitha takes the box to any of the store's computers (she will most likely use the computer in the platform office). She finds the program in its home state, so she selects the new inventory processing function.

The first step of this process allows Tabitha to find the original order by using the order search function in place. Once she has found the right one, she moves on to the next step.

In step two, the program displays the order in an easily read format, and prompts Tabitha to check the invoice with the delivery against the saved order on screen. Tabitha finds no discrepancies, so she indicates to the program that the orders match and moves on to the next step.

In the third step, Tabitha can set up labels that will be printed for the new merchandise. The labels will have to include a unique ID number for each item as well as the selling price of the books. The program will create an initial list for the sticker information based on the order's contents. The program will then make the necessary connections to the publishers in order to fill in the list with suggested retail prices. Tabitha will be able to modify these prices manually if necessary, and enter prices for items that are not found online. She will also have to enter where in the store the books will be shelved. She can also categorize each item as a book, movie, calendar, yoga accessory, etc, adding new categories as appropriate. These categories will be used when employees or customers are searching for items later on, so they should be given some thought.

The fourth step guides Tabitha in the printing of the labels she created in step three. When she chooses to move on the step five, the program asks her to make sure everything she has done so far has been correct. The program also indicates that upon confirmation the store's database will be updated for the new inventory. She has counted the merchandise in the box by now and can confirm that everything is correct. The database is updated and the program returns to its home state.

Scheduling Work Shifts

Paul is in charge of ensuring that all work shifts are covered each week. Although schedules don't change much from week to week, Paul occasionally has to modify the default schedule he had entered previously as the default. There are some changes to be made in the schedule for the upcoming week, so Paul goes to the platform office and finds the program in its home state. He selects the employee scheduling function where he must enter authorization information because only the owner or manager may schedule work shifts.

In step one of this function, the program allows Paul to choose from a few options. For instance, he can create/modify a default schedule, or modify the schedules for a particular week. He chooses the second option.

Step two displays a calendar and asks Paul to choose the week he would like to modify. He can select the week using the graphical calendar or he can textually enter a date for the 'week of' he wants. He chooses the third week of October and moves on to the next step.

Step three shows Paul the current schedule for the third week of October. Since he has not modified it before, it is currently identical to the default schedule. He has several ways to modify the schedule at this point. He first indicates that the store will be closed on Monday, because he and Nikki have decided that they will not open for Thanksgiving. Then, he changes the employee working Tuesday's shift because Tabitha will not be able to make it in that day.

In step four, Paul saves the new schedule and prints it so he can post it in the staff kitchen.

Searching for Books

Ronnie is interested in a particular book and wants to see if it is available at her favourite book store. Her first course of action is to look on the store's web site to see if it is in stock. She logs onto her computer from home and opens the book store's web site in her web browser.

On the front page of the web site, Ronnie sees the option to search for books. She types in the title of the book she has in mind and clicks on the search button. The web site returns is a list of exact or close matches to what she typed in. She notices that her book does not seem to be available so she follows a link that suggests she tries to reserve books she can't find. She enters her information into the form provided and then logs off. Ronnie will expect an email or a phone call after somebody at the store has processed her request.

Later that day, Ronnie goes to the bookstore to look for another book. She asks Tabitha to help her find it instead of browsing the many sections on her own. Tabitha uses the computer at the front desk to start the searching function from the program's home state. She chooses to search store inventory in the first step.

In step two of the search function, Tabitha enters the title of the book Ronnie is trying to find. Ronnie indicates which of the results is correct, and Tabitha selects that result. Now she has more information about the book, including the location it was supposed to be shelved in the store. Tabitha retrieves the book for Ronnie.

Use Sequences

In Store Sale

1. Customer brings purchases to the front counter.
2. Clerk chooses the sale function from the program's home state.
3. Clerk enters ID number of each item (other than movie rentals) into the program.
4. The program updates its display of the current sale total.
5. Clerk optionally enters information about any movie rentals.
6. The program updates the total amount owing both for rentals and the overall sale.
7. Clerk enters customer's personal information and determines whether customer is eligible for discount on current purchase.
8. If customer is eligible for discount, he decides whether he would like it applied.
9. If the discount is to be applied, the clerk applies it and the total sale amount is adjusted.
10. Customer gives payment to clerk.
11. Clerk enters payment method into the program and prints a receipt for the customer.
12. Program returns to its home state.

Processing New Inventory

1. Employee brings new delivery to any computer in the store.
2. Employee starts the inventory processing function from the program's home state.
3. Employee searches for original saved order made with the program's in place order searching function.
4. The program displays the original order in an easily read format.
5. Employee checks the invoice delivered with the new inventory against the order showing on the screen.
6. Employee confirms to the program that there are no discrepancies between the invoice and the order.

7. Program displays an initial list of the new inventory that the employee will modify.
8. Employee adjusts the descriptions, categories, and prices so the information used for the store inventory and for printing labels for the merchandise is accurate.
9. Employee prints labels for the merchandise based on this list.
10. Program asks for confirmation that all information is correct.
11. Employee confirms that everything is accurate.
12. Program updates the inventory database.
13. Program returns to its home state.

Scheduling Work Shifts

1. Manager needs to change the default schedule so he goes to any computer in the store.
2. Manager selects the schedule function from the program's home state.
3. Program requests authorization information to ensure only the manager or the owner is using this task (given, of course, that such a restriction was created earlier).
4. Program offers the option of modifying the default schedule or modifying the schedule for one particular week.
5. Manager chooses the second option.
6. Program displays a calendar from which a certain week can be selected and an input that can be used to type in a particular week.
7. Manager selects the week he wishes to modify.
8. Program displays the current schedule for that week.
9. Manager optionally selects the days for which he needs to change the store's open or closed status.
10. Manager optionally indicates whether the store will be opened or closed.
11. Program reflects changes.
12. Manager optionally selects days for which he must change the shifts.
13. Manager optionally modifies the shifts in terms of when they are and who is working them.

14. Manager indicates that he is finished modifying the shifts.
15. Program displays the new schedule in a printable format.
16. Manager optionally prints the schedule.
17. Manager indicates that he is finished with this function.
18. Program returns to its home state.

Searching for Books in Store

1. Clerk finds herself with a need to search the store's inventory.
2. Clerk goes to any computer in the store.
3. Clerk chooses the search function from the program's home state.
4. Program offers the clerk the option of searching store inventory, saved orders, publishers/suppliers, or books currently in print.
5. Clerk chooses to search store inventory.
6. Clerk enters the title, author, and/or some keywords about the merchandise she needs to find (which may or may not be a book).
7. Program displays a list of possible matches to the data the clerk entered.
8. Clerk chooses the closest match.
9. Program displays more detailed information about the match, including where it was supposedly shelved.
10. Clerk indicates that she is done searching.
11. Program returns to its home state.

Use Flow Diagram

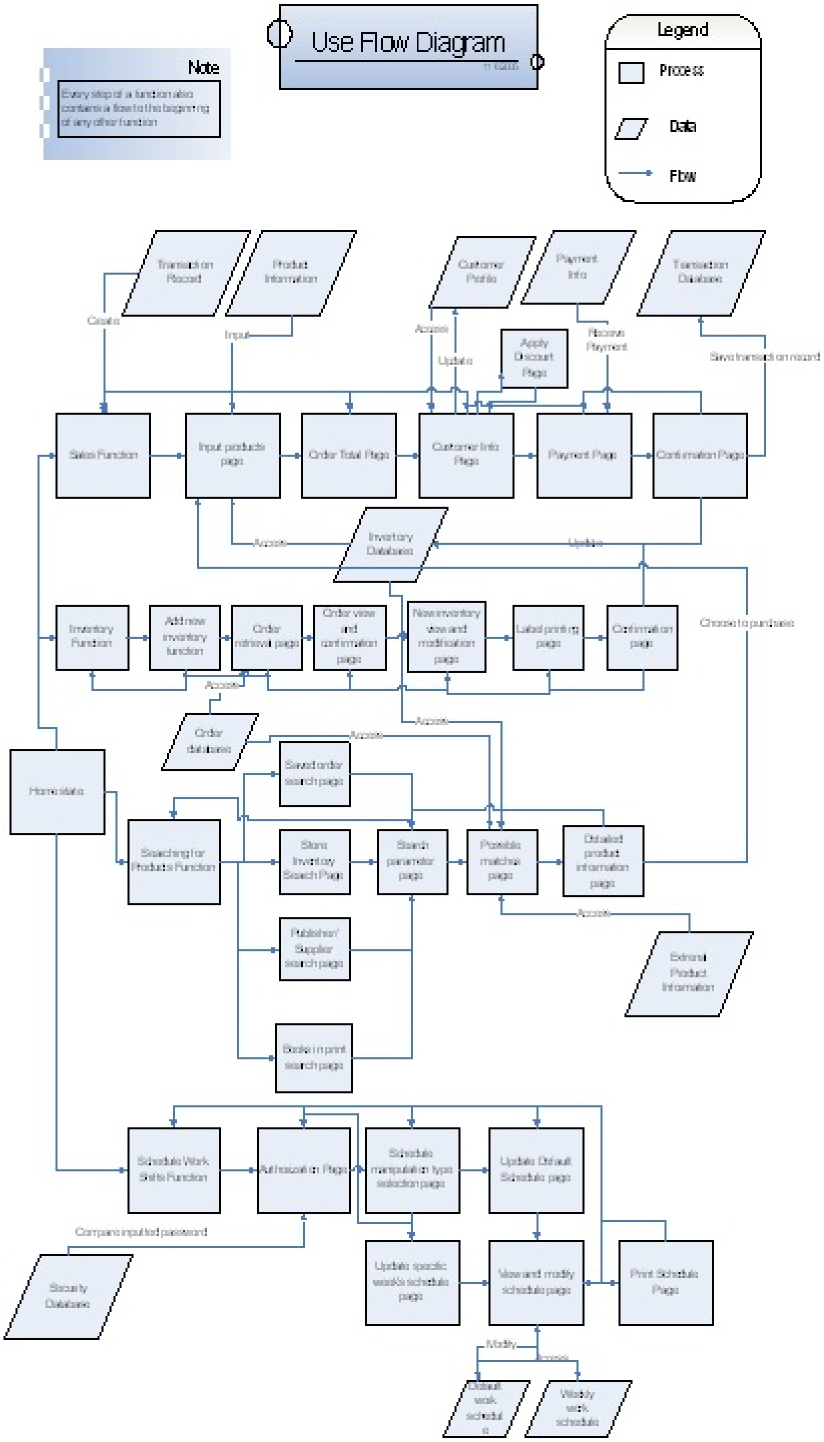

Figure 1 Use flow diagram.

Use Hierarchy

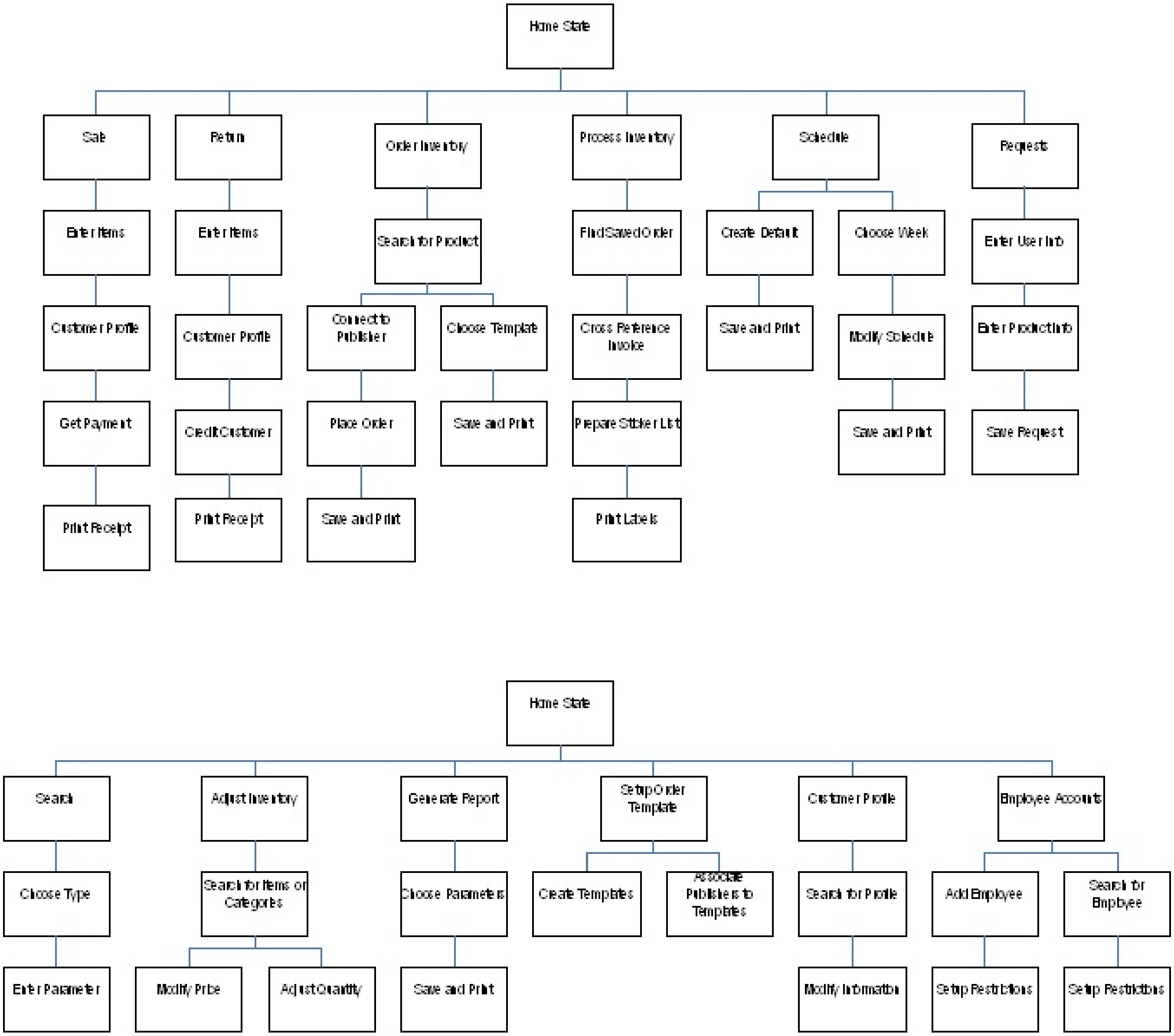

Figure 2 Use hierarchy diagram. The diagram was split into two so it could fit onto the page.

Low-Fidelity Prototype

This section will describe the paper prototype of the bookstore management system that follows this document, and indicate its chronology. Notes taken during the prototyping process are also included here.

Development Log

The prototype was developed in three distinct stages. The team's notes on each iteration are given here, and the sketches following are organized in the same way. The notes explain the reasoning behind each sketch, and when applicable, what changed from the previous iteration and why.

First Iteration

General notes:

- Think about when warnings are made or when the program will not allow the user to move onto the next step if the user has not entered the required information or the information was entered incorrectly.
- The Adjust Inventory function should include a way to modify the rental times and fees, manage sales on items, and adjust inventory levels for lost or stolen books.
- Customer profiles can be loaded using the customer's name and then, if necessary, their phone number, similar to what they do at CompuSmart.
- Functions should be limited depending on your level of access - for instance, certain tasks may only be performed by managers or the owner, and not clerks.

First sketch (function layout and first book metaphor designs):

- Functions were separated into menu items and items that would be on screen all the time. Functions that represent tasks that are rarely accessed were placed in an Admin menu, while the rest were placed into a list that will be visible at all times within any function.

- The functions in the admin menu were further separated into two groups of three. One group contained Adjust Inventory and Generate Reports, and Setup Order Templates, while the other had Schedule Employee, Manage Customer Profiles, and Manage Employee Accounts.
- The Schedule Employee function was originally an on-screen function, but after determining the best ordering of these, we decided that the Schedule Employee function should be placed in the Admin menu. It is not accessed very often, so it does not need to be on the screen all the time.
- The on-screen functions were numbered in order of importance. This helped us decide how to arrange these functions in a list. Because certain functions that seemed like they should have been together weren't (such as sales and returns), we took this ordering and came up with the final groupings of the functions.
- The final ordering of the on-screen functions is: Sale, Return, Search, Request, Order Inventory, and Process Inventory.
- Several options for visualizing the book metaphor were explored (bottom half of page).

Second sketch (icons and colour options):

- On-screen functions will have icons associated with them. Options were explored here.
- Colours are also to be used to identify individual functions. Two colouring options were explored here: in the first, only the border of the tabs and pages would be coloured, and in the second, the whole page would have a background colour. The first option was chosen for its simplicity and clarity.

Third sketch (Home page):

- This sketch helped the team lay out the book and tab metaphor. It also shows our idea for laying out the home state page.

Fourth and fifth sketches (sample program layout):

- The basic layout of the main program view. The book and its tabs will always be on screen, and all program interaction happens either through the menus (not shown here) or on interface elements laid out on the page.

- We would like to use pictures/icons to aid in quick and accurate data entry. For example, a picture of the stickers placed onto merchandise could be shown beside the entry field for ID's in the sale step.
- The admin functions have no visual GUI element associated to them. No tabs will be selected when working with an admin function.
- Tab functions will be visually identifiable with unique colour coding, while the admin functions will coloured neutrally (probably with a light gray).
- The step names that are shown above the instructions box are navigable. However, if a certain step cannot be reached because it required data from an earlier step, a dialog box would be shown explaining why the user cannot jump to that step.

Second iteration

General notes:

- Functions represented on the tabs (henceforth called 'tab functions') must also be found in a menu. Since the less commonly accessed functions are in the Admin menu, we will call the menu containing the tab functions Main.
- Undo is available but is only relevant in the context of the current step showing on the screen.
- The Generate Reports admin menu item could expand to show some of the more common reports that could be generated.
- A future feature of the system could be a to-do list.

- Icons for the tab functions:
  - Sale - cash register
  - Return - handing over a book
  - Search - magnifying glass over paper

  - Request - person scratching head
  - Order Inventory - shopping cart
  - Process Inventory - bar code

Saving progress of functions:

- The idea of allowing us to save infinite sales came up, which could have been extended to saving the progress of any function any number of times, and recall that progress later on.
  - An additional menu could have been created called Incomplete Transactions. In this menu would be a list of all the functions that could have their progress saved. These items would fly out to all the saved functions.
  - The users could set up the program to purge all the in-progress functions at every program close, or after a certain time interval (such as each day).
  - Another admin function would have been added to manage the saved functions.
  - The GUI would have been changed to better indicate the concept of multiple functions in progress.
- We decided not to add the ability to do this to our work flow.
  - The user interface would become much more complicated, and one of our biggest goals is to ensure that the program remains very simple to use, especially for those who do not use computers very often.
  - The rules about what happens when you switch between tab functions regarding what, when and how progress gets saved become very complex.
  - Small bookstores would not have the same volume of customers or purchases as larger chains such as Chapters. Therefore a feature like this would be used very rarely. The usability of the program should not suffer for the sake of such an uncommonly performed task.
- Tab functions can have their progress saved, however, in the sense that users can switch between tabs or to an admin function without losing the data they already entered in the current function.
- Tab functions that are in progress will have a special icon showing on the tab to

indicate this.

- Admin functions cannot have their progress saved. That is, the data entered at each step and the current step the user is on would not be saved between uses of the functions. However, because these functions are modifying items in the database, templates, etc, we can consider that the data we are modifying can be saved at any time, which is integral to the functions themselves.

First sketch (revised program grid)

- ❏ The box labelled ‘Input area or results from this step’ in the fourth sketch from first iteration should be subdivided into areas containing data entry (when appropriate) and results of the step.
- ❏ To ensure consistency across the design, data entry should always be placed above the results.
- ❏ The function’s title will have the same icon from the home page to its left.
- ❏ A clear or reset button should be placed in the top right, to the left of the question mark. This button will reset the entire function. If applicable, steps can have a similar button to clear data currently entered for that step.

Second sketch (Home page):

- Revision of the third sketch from the first iteration. This version uses our new common template, and shows the icons for the tab functions.

Remaining Sketches:

- There are six groups of sketches here, one for each of the use scenarios described earlier.
- These sketches show the path the characters take in the use scenarios , not every possible outcome.

Third Iteration

For this third and final iteration, the sketches showing the use scenarios were reviewed and adjusted accordingly. The following notes will cover some general discussion as well as what was changed in each scenario group from the second iteration.

General notes:

- The contents of the menus are as follows (in order):
  - File > Exit
  - Edit > Undo, Redo, Cut, Copy, Paste
  - Main > Home, Sale, Return, Search, Request, Order Inventory, Process Inventory
  - Admin > Adjust Inventory, Generate Reports, Schedule Employees, Customer Profiles, Set Up Templates, Manage Restrictions
  - Help > About, Contents
- Shortcut keys will be as follows:
  - Home tab: ALT + O
  - Sale tab: ALT + S
  - Return tab: ALT + R
  - Search tab: ALT + C
  - Request tab: ALT + Q
  - Order Inventory tab: ALT + I
  - Process Inventory tab: ALT + P
  - File menu: ALT + F
  - Edit menu: ALT + E
  - Main menu: ALT + M
  - Admin menu: ALT + A
  - Help menu: ALT + H
- Note that Manage Employee Accounts was changed to Manage Restrictions. It is not necessary to maintain accounts on the system for each employee, but rather require a generic access code to access certain functions. These access codes can be set up

here.

In Store Sale

- The Select Customer step should not have separate forms for searching for and adding customer profiles.
- Thumbtack must be used for information/instructions.
- A bar code should be used in the item entry page to help the user make the association between that data they are entering and the stickers on the merchandise.

In Store Return

- Separate the steps for searching for items / entering numbers manually.
- Searching for customers should be identical to the search found in the sale function.
- A radio button should be used to choose the return method (cash, credit card, etc).
- Authorization page should match the one in Order Inventory.

Ordering New Inventory

- The search icon was decided to be a magnifying glass over a page, not over a book.
- In the method step, a drop down combo box allows the user to select from a list of available publishers.
- Is the stuff related to publisher templates missing? No, because templates are only necessary if phoning/faxing/mailing the order. The visual representation is not important when connecting to the publisher directly.
- When searching for books, put all possible search fields on the screen at a time and note that “at least one” of them must be filled in to search. That is, don’t give one generic text field and make the user choose what it represents. Instead, have separate fields for each thing you can search by.
- In the search results, change the ADD button to a spin control that represents the quantity of the item to order. Put an update button beside the table. When a quantity is changed but not saved with the update button, a star is placed in the row and the row is highlighted.

- Remove the enter step, and add ISBN to the search text fields.
- In all tables, add the quantity and price.
- In the connect step, remove the button and tell user to confirm their order (shown below) and click next when they are ready to connect and submit it.
- Change the name of the connect step to confirm.
- In the print step, change the next button to finish, and take away the save and I'm finished buttons.
- The order will automatically be saved when the connection and submission is successful. User will be informed of this when they are told the connection was successful.

Processing New Inventory

- The table in the search step should not use radio buttons for selection, but rather regular row selection.
- In the view step, add a quantity column to the table.
- The program only handles ordering and processing books, not other merchandise.
- All mentions of "code" should be changed to "ID".
- In print step, a print setup should be added since stickers usually require special printer setup.

Scheduling Work Shifts

- The steps for this function are to first choose whether to modify the default schedule or modify a particular week, then to select the week to work on, adjust the schedule, and finally print it. The steps must be added to the sketch under the thick line and the current step must have a box around it.
- The title Schedule Employees should be placed above the line.
- Instructions or information about each step should be placed below the step names and contained in a box with a thumb tack in the top right corner.
- The format for modifying the schedule will be as follows:
  - In the second step of the function, a monthly calendar will be shown with the

current month displayed by default. The user can flip through the months at will. There is also a way to enter a date textually above or below the calendar.

  - The user will click on or type a date that belongs to the week they wish to edit the schedule for.
  - In the next step, the seven days of the week (Sunday first) are shown in a grid with hours of the day vertically. To the left of the schedule, a list beginning with All and then a list of employees is shown.
  - The list of employees can be changed when modifying the default schedule.
  - When the user clicks on one of the employee's names, their shifts are shown as blocks in the grid. These blocks can be selected, resized, or deleted. New blocks can be added.
  - When All is selected, a read only version of all the employees' shifts is displayed.
- In the last step, the user sees the schedule as it is displayed in the previous step with All selected. Here, the schedule can be printed.

Searching For Books In Store

- There are two steps to the search function: the first involves choosing what to search for, and the second involves the actual search and its results. The steps must be added to the sketch under the thick line and the current step must have a box around it.
- The magnifying glass icon must be shown in the top left corner and the title Search must be shown beside it.
- Instructions or information about each step should be placed below the step names and contained in a box with a thumb tack in the top right corner.
- The four types of searches that can be chosen in the first step are: Search Store Inventory, Search Saved Orders, Search Suppliers/Publishers, and Search Books in Print.
- In the second step where we are demonstrating the inventory search, put all possible search fields on the screen at a time and note that "at least one" of them must be filled in to search. That is, don't give one generic text field and make the user choose what it

represents. Instead, have separate fields for each thing you can search by.

- The results list should have these columns in this order: ISBN, Title, Author.   A fourth column will contain a link or button that will bring up more detailed information about a particular item.

List of Sketches

First Iteration

1 - Function layout and first book metaphor designs
2 - Icons and colour options
3 - Home page
4 - Sample program grid
5 - Concrete grid sample

Second Iteration

6 - Second program grid
6b - Home page

In Store Sale

7 - Sales Items
8 - Rental Items
9 - Select Customer
10 - Discounts
11 - Confirmation

In Store Return

12 - Authorization
13 - Enter Items

Ordering New Inventory

14 - Authorize
15 - Method
16 - Search
17 - Enter
18 - Connect
19 - Print

Processing New Inventory

20 - Search
21 - View
22 - Edit
23 - Print

Scheduling Work Shifts

24 - Schedule

Searching for Books

25 - Search

Third Iteration

In Store Sale

26 - Sales Items
27 - Rental Items
28 - Select Customer
29 - Discounts
30 - Confirmation

In Store Return

31 - Authorization
32 - Search Items
33 - Enter Items
34 - Select Customer
35 - Return Type
36 - Confirmation

Ordering New Inventory

37 - Authorize
38 - Method
39 - Search
40 - Confirm
41 - Print

42 - (does not exist)

Processing New Inventory

43 - Search
44 - View
45 - Edit
46 - Print

Schedule Employees

47 - Modify
48 - Calendar
49 - Schedule

Search

50 - Type
51 - Search

Home

52 - Home page with colour