

Ourtown Public Library

Systems Analysis and Design

Planning
Analysis
Design

*Spring 2009
L&I SCI 340*

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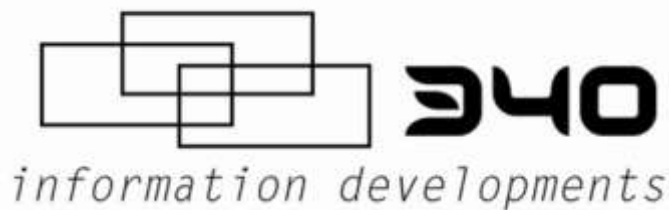
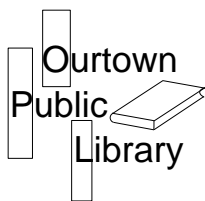


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Ourtown Public Library

Mission Statement

The Ourtown Public Library is committed to providing information in a variety of formats to meet the personal, educational, and professional needs of our community. Through the resources OPL provides, we will foster a lifelong enjoyment of reading and learning. The Ourtown Public Library is dedicated to delivering opportunities for exhilaration, happiness, relaxation, and growth for all of our stakeholders. In work and in leisure, OPL uses information to encourage the achievement of excellence, allowing the best in our patrons, our employees, and our community to rise to the surface and shine.

We value the world around us. We value books and newspapers. We value the internet and academic journals. We value each other and ourselves. We value you.

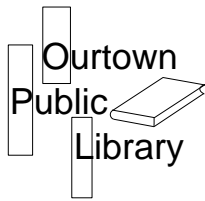
It is our mission for you to value us.

Goals

- Attract new patrons and retain current patrons
- Establish an environment conducive to reading and research
- Increase our database subscriptions and technological development

Objectives

- Add up-to-date and cutting edge sources to the collection while maintaining the availability of older sources
- Keep up with emerging technology to empower patrons with the latest methods of meeting their information needs
- Achieve a deep understanding of our patrons' information needs



Ourtown Public Library

Background and Preliminary Investigation

Ourtown Public Library is the sole library in small city of 60,000. The library has been suffering from decreased usage. In an effort to boost patronage, a coffee and snack counter was introduced a few years back. Library usage is still below the desired level. The root cause has been determined to be a perceived poor image because of the library's aging technology.

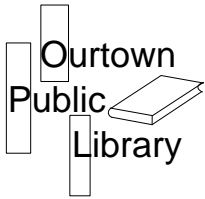
Ourtown Public Library has recognized a need for a new information management system and has approached us to design and implement that new system for their library. The motivation for the request was due to a deterioration of their current system which had been in place since 1997. It has become clear to those at Ourtown Public Library that their current system had become inadequate, unable to efficiently manage a growing data processing requirements and increased demand. Their current system is unable to support new media that the library wishes to acquire, such as digital media and internet based documents. In addition, the library has identified a need to improve their management of patron registration in order or limit losses due to the patron's irresponsibility. In order to continue to grow their brand and streamline expenses, Ourtown Public Libraries deemed it necessary to fully re-design their current information system in order to provide them with the scalability and versatility that their expansion requires. 340 Information Developments, the leader in local information initiatives, has put together a proposal for an information system that will not only satisfy the Ourtown Public Library needs currently, but also be easily adaptable to new requirements in the future.

A new information management system will be created which will allow the Ourtown Public Library to operate more efficiently. In addition, this system will be sustainable and meet the needs of the library as it continues to grow. It will be able to catalog all the items contained in the library and allow patrons to locate information on these items quickly. Available

information about the items will include the category of media the item falls under (such as a book or DVD), the item's location, the topic of the work, a short description, and its availability, along with other attributes. This information will give patrons all the information they need to determine if a source will provide the information they desire, if that source is currently available, and if so, where to find it.

A major goal of the library is to attempt to keep patrons coming back. To help accomplish this, the system will retain information on which items the patron has checked out and allow the patron to issue ratings for these items. The system can then make recommendations for different items the patron might enjoy. The patron will also be able to access this information online outside of the library and provide the patron with information on which new arrivals he/she might enjoy. The system will identify patrons using a library ID number which they will receive when they register for a library card. This number, along with the patron's chosen password, will grant the patron access to their account through the Library's website. Through this site, the Patron will be able to view details of their account, including which items they currently have checked out, their due date, any overdue items, and any charges incurred on the account. If a patron has abused their library privileges and been restricted or banned from use of the library, their last name and birth date will be entered into a database which will prevent this person from registering for another library card. This will prevent wasted resources due to patrons not returning items or refusing to pay late fees.

An important feature of this new system is the ability to access online documents and resources. From the library website, patrons will be able to select and search online databases which the library is registered to use and search these databases. A database will store access information and allow the patron to easily use these resources. Patrons will then be directed to the online resource's site and logged in as an Ourtown library patron. From here, patrons can search the outside database to find a variety of items such as newspaper and journal articles. This new feature will greatly expand the capacity of the library while at the same time controlling investment costs.



Ourtown Public Library SWOT Analysis

STRENGTHS

- Extensive resources
- Existing data management framework
- Face-to-face patron support

WEAKNESSES

- Poor Image
- Lack of new technologies
- Difficulty attracting new and returning patrons

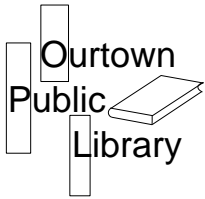
OPPORTUNITIES

- Online resources
- Personalized accounts
- At home access

THREATS

- Lack of interest
- At home internet resources
- Digital catalogs

Figure 1 SWOT Analysis



Ourtown Public Library

PEST Analysis

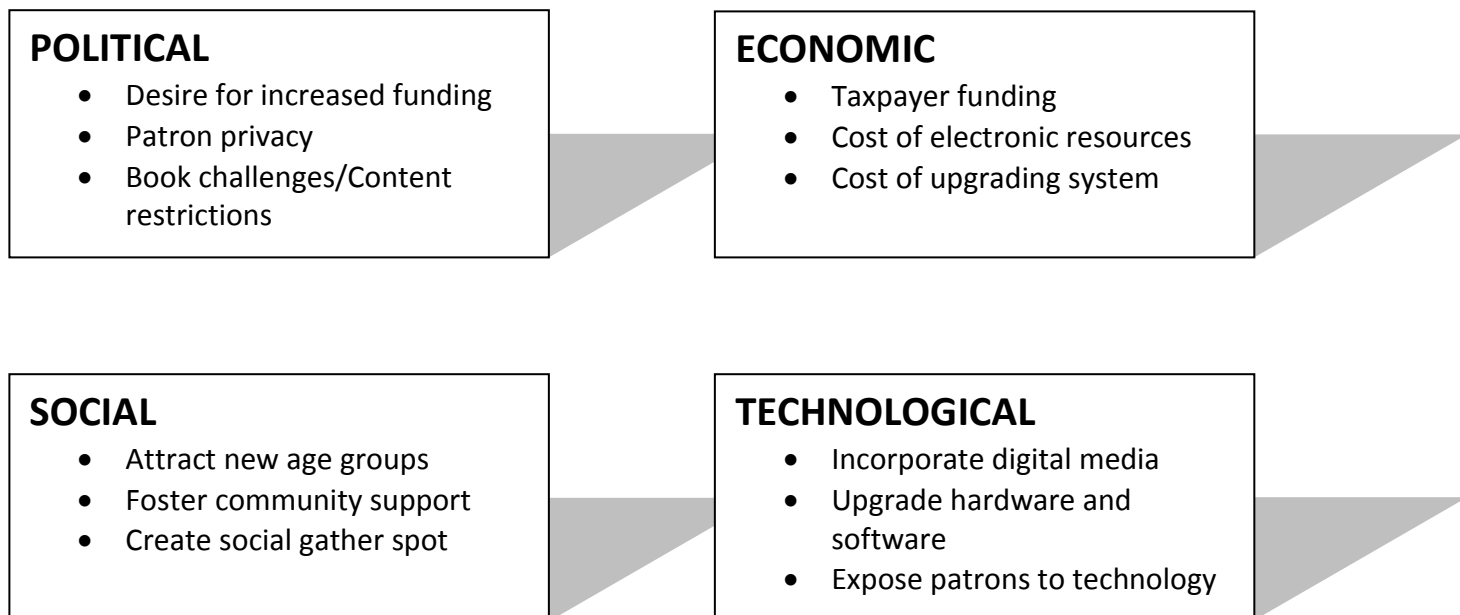
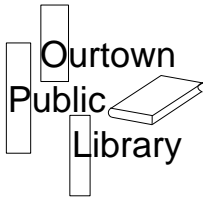


Figure 2 PEST Analysis



Ourtown Public Library

System Requirements

Output

- The system must report data on the patron, including items checked out, due dates, past items rented, and any charges on the account
- Generate search results for searches based on keyword, author, subject, title, year, call number, ect.
- Report statistics of which items are most popular among patrons
- Produce navigation to outside document databases
- Provide notification if a patron has been banished from the library

Input

- Patrons must have their library card to access library content
- Online patrons must enter library identification number and password to access online content
- Item information is entered by an employee upon receipt of item
- Items must be scanned out and scanned back in by employee when a patron checks out or returns an item
- Employees must sign in to the system using employee identification number

Process

- Must calculate the due date of items when they are checked out
- Sign a patron into the online document database as a patron of the library automatically when a database is selected
- Calculate the overdue fees when an item is returned past its due date
- Check during patron registration to determine if a patron has been banished

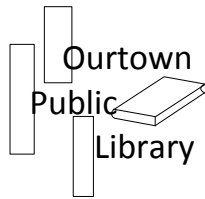
Performance

- Must be able to support 50 users simultaneously
- Search times must not exceed 10 seconds
- System must be operational at all times with the exception of a weekly maintenance period
- Produce a list weekly of all overdue items
- Produce a record of all manual changes made to item records or user accounts by employees, printed daily

Control

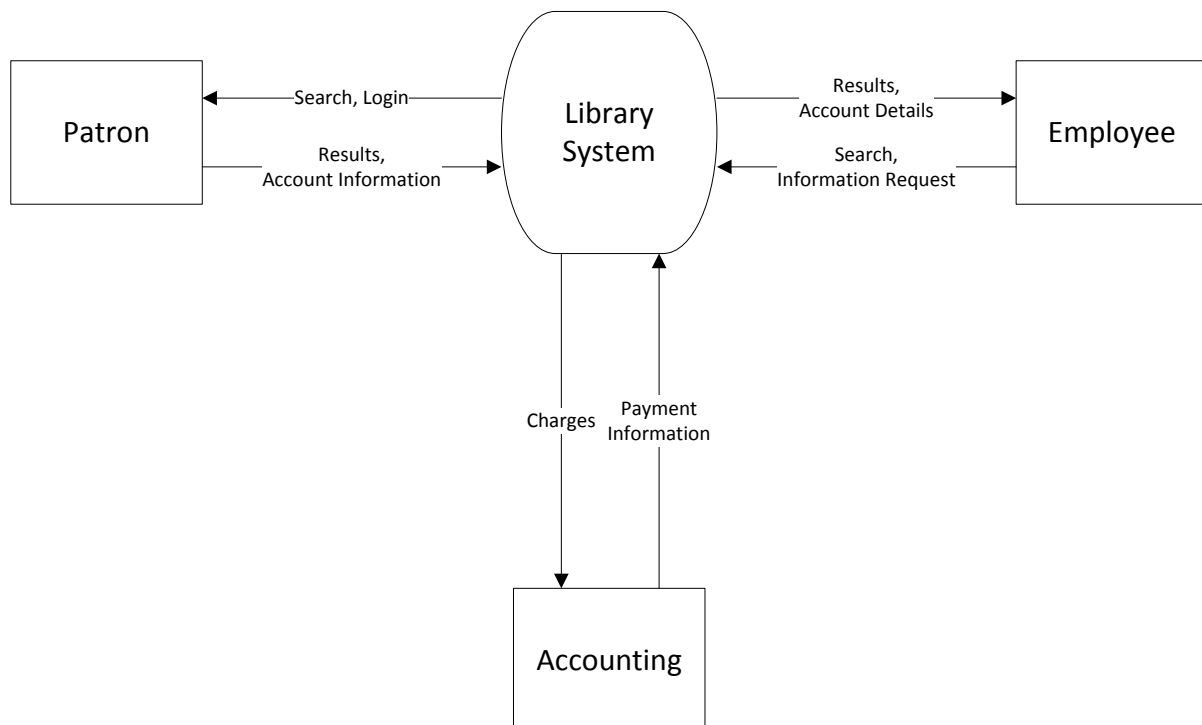
- Must have secure log-on for patrons and employees
- Item records can only be changed by an employee
- Separate levels of access and security for users and employees
- Banished patrons are unable to access system

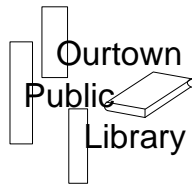
Figure 3 Context Diagram



Data Flow Diagram

Context Diagram





Data Flow Diagram

Diagram 0

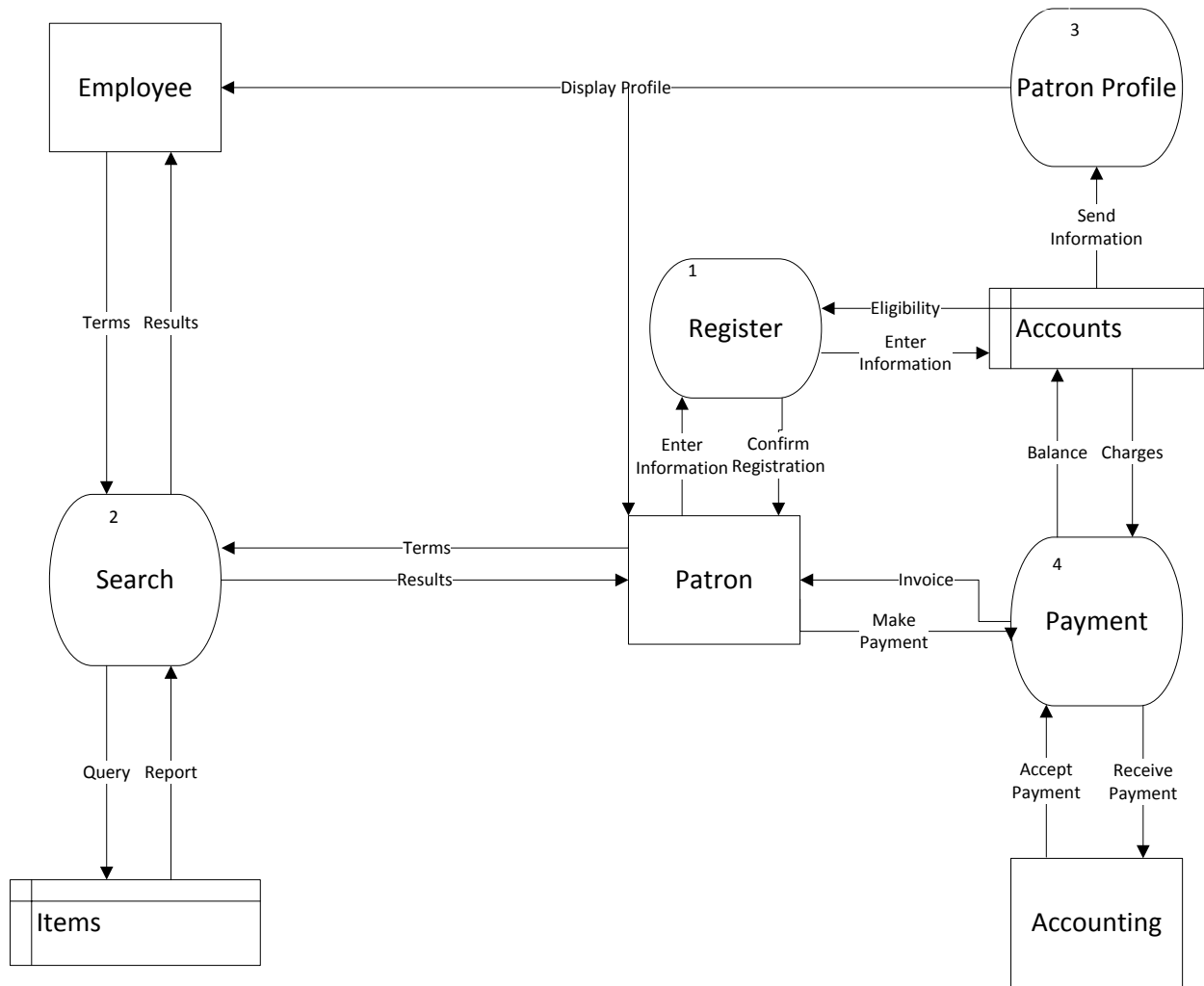
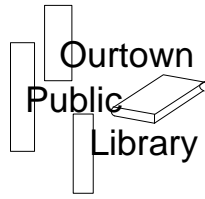


Figure 4 Diagram 0



Data Flow Diagram

Diagram 1 Register

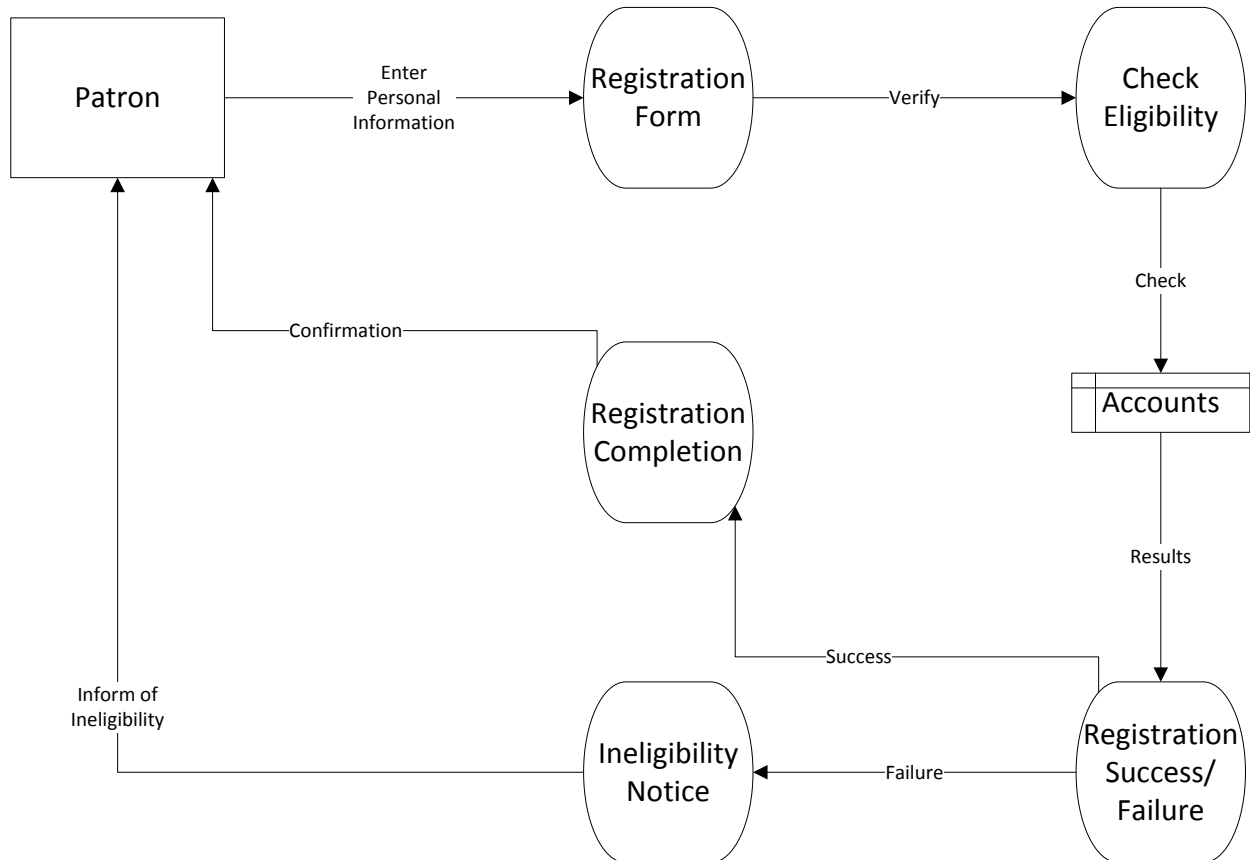
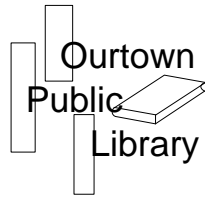


Figure 5 Diagram 1 Register



Data Flow Diagram

Diagram 1 Search

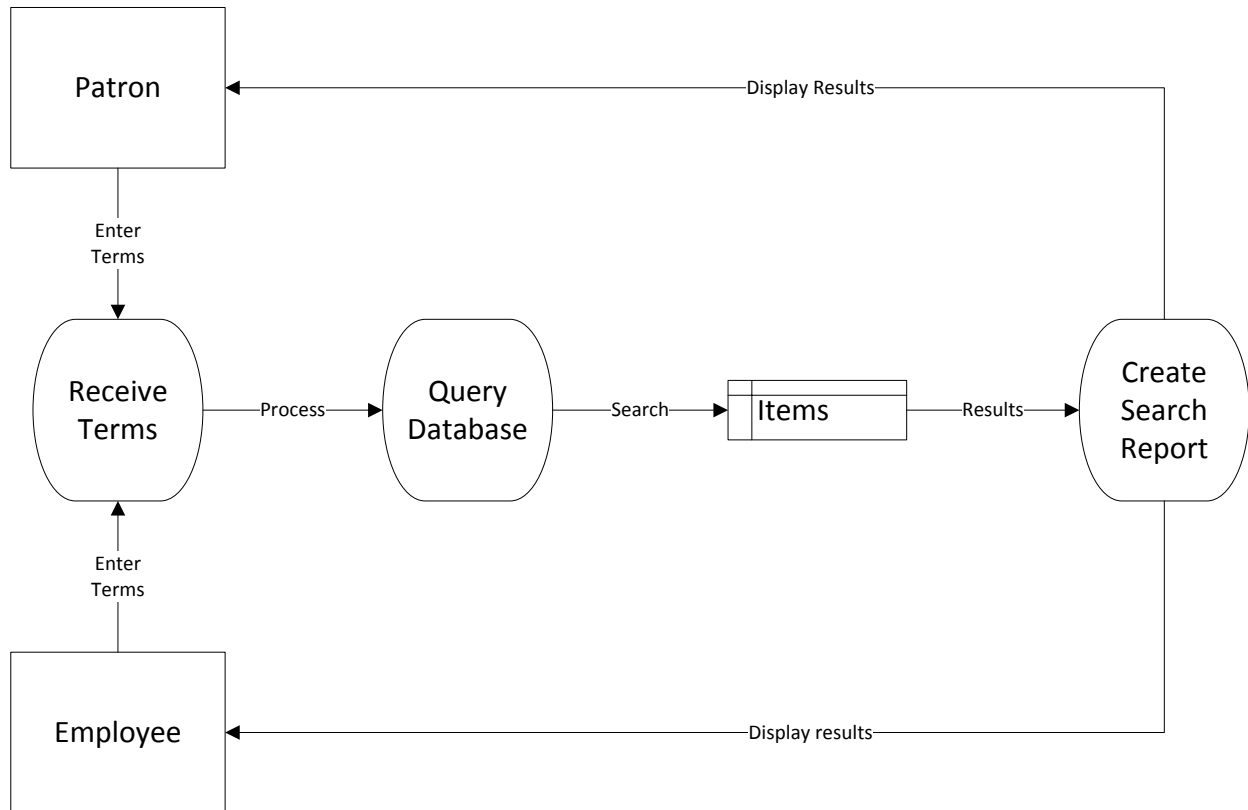
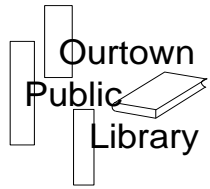
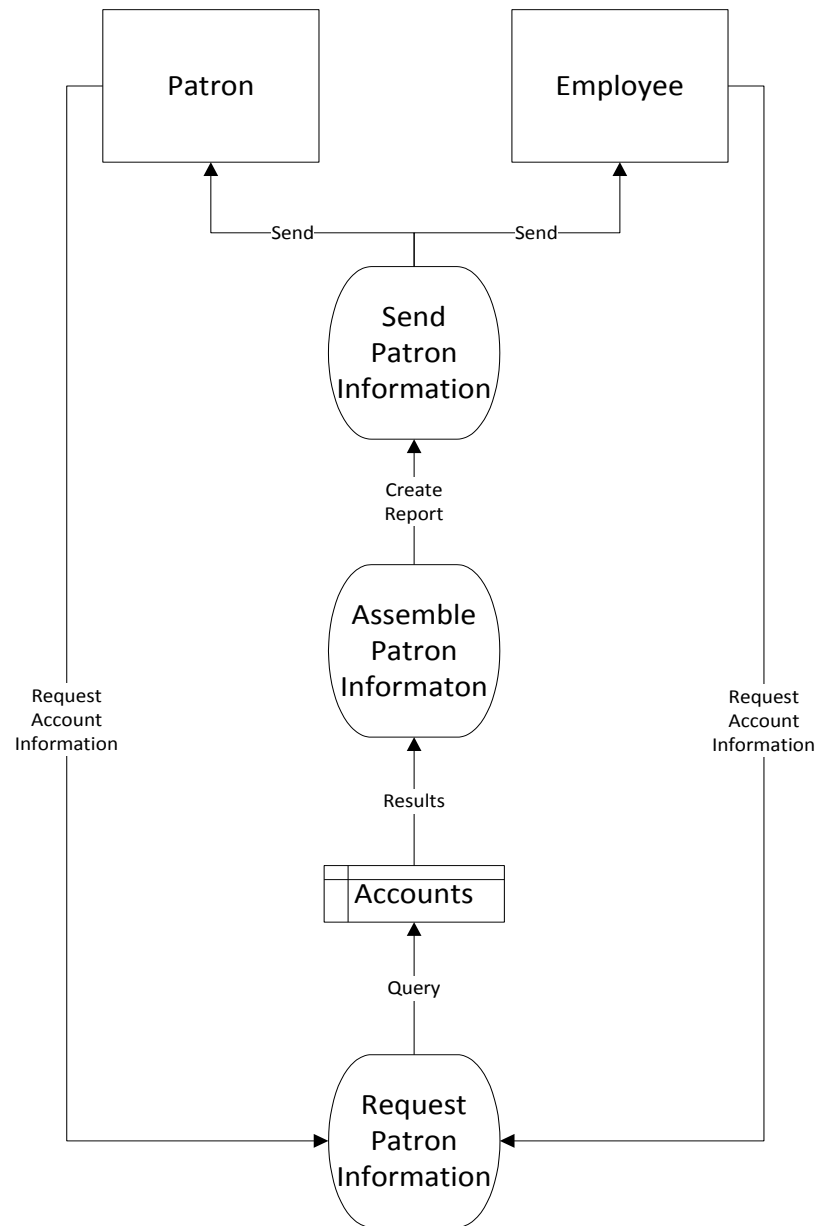


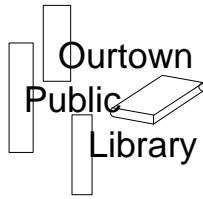
Figure 6 Diagram 1 Search



Data Flow Diagram

Diagram 1
Patron Profile





Data Flow Diagram

Diagram 1 Payment

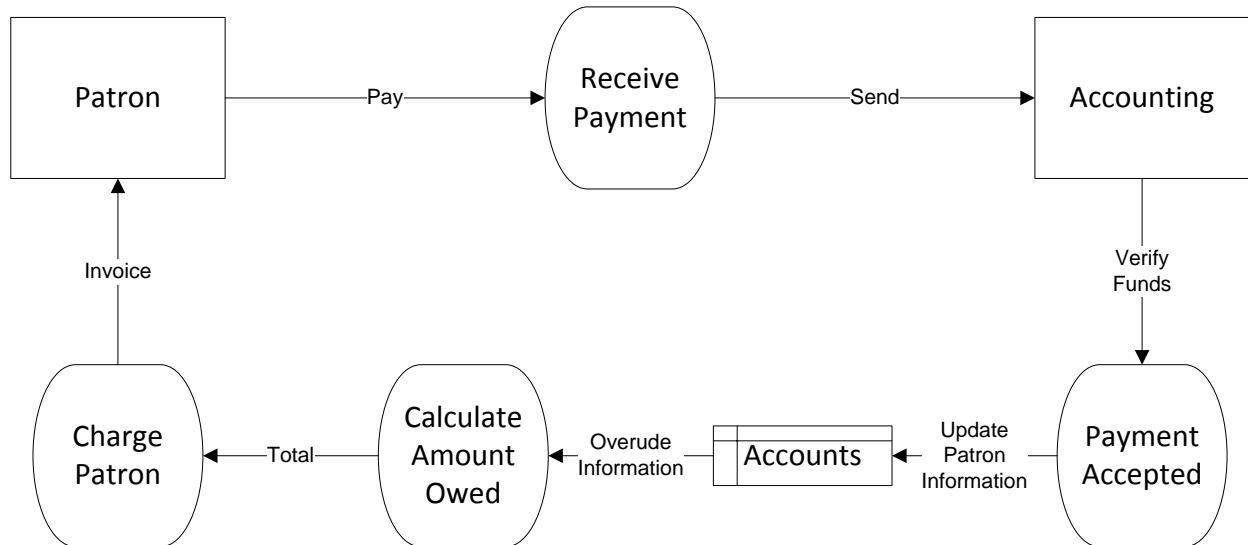
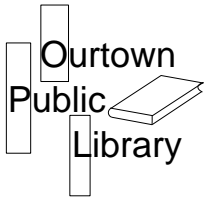


Figure 8 Diagram 1Payment



Ourtown Public Library

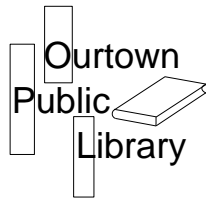
Development Strategy

In order to meet the information and business goals at Ourtown Public Library we need to determine the best possible way to implement the new system. The main emphasis of this project is to attract new and returning patrons to the library and increase the overall traffic at the library. One major issue that must be considered with this project is the limited budget available. While the library is in dire need of a new information system, it will not be receiving any additional funds to implement one. Resources will need to be secured creatively and considerations must be made as far as cost is concerned. Fortunately, this will not be a system that will be forced to support a great deal of users, nor will it require top of the line hardware to implement. For these reasons, it would be in the library's best interest to purchase a software package which will meet its needs.


Advantages of purchasing a package include a very low initial cost, which will allow us to stay within our budget. Also, the package will be quick to implement as we will not have to wait for the system to be developed so the library can begin using the new system very soon and begin attracting new patrons. Packaged software does not require the commitment of development staff and puts less maintenance demands on the library, both helping to keep costs down and focus the little budget available on providing top notch content. One drawback of this system when compared to in house development is its lack of customization, as it will not be tailored specifically for Ourtown Public Libraries situation. This negative is outweighed, however, by the many advantages states above. When Ourtown Public Library reaches the point where another upgrade is required, it is easy to use new releases of the package to keep the system fresh. Because of these advantages, an information system software package would be the best choice for the library.

In order to make the upgrade to this new system, there will be a need for an initial investment, but our goal is to limit that cost as much as possible. An estimated total cost of ownership for this system will be in the area of \$75,000. This may appear to be a considerable investment, but it is much lower than other development options. In addition, the return on

investment on this option is quite high, around 115%. This means that for that 15,000 dollar investment, it can be estimated that the library will bring in over \$86,000. The quality of the investment can also be seen in the net present value, which comes in at an estimated 0.163. These values mean that the system will be creating revenue for the library. In addition, increased activity and interest in the library could potentially result in a raise in the amount of government funds being provided to the library. This new information system will improve the value of the library and both attract new patrons and new revenue.



Ourtown Public Library



Online Public Access Catalog

HELP

[Frequently Asked Questions](#)
[Patron Record](#)
[Library Hours](#)
[New Materials](#)

[By Date](#)
[By Subject](#)
[By Title](#)
[By Author](#)

KEYWORD

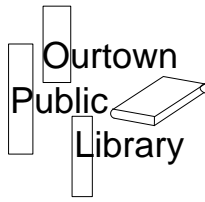
TITLE

AUTHOR


SUBJECT

SEARCH

Figure 9 OPAC User Interface



Ourtown Public Library



Patron Registration

HELP

First Name

Last Name

Date of Birth

Address

City

State

WI

ZIP Code

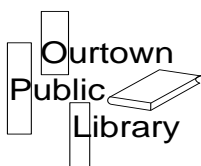
Home Phone

Email

SUBMIT

CANCEL

Figure 10 Patron Registration UI



Ourtown Public Library



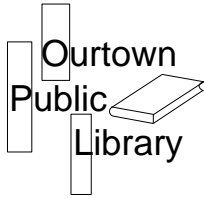
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Circulation Summary Report

Week Ending: 4/25/09

PATRONS SERVED	544
ITEMS BORROWED	1699
AVG ITEMS PER PATRON	3.12
ITEMS RETURNED ON-TIME	1550
ITEMS RETURNED LATE	149
PERCENTAGE OF PATRONS LATE	9.12%

Figure 11 Circulation Summary Report



Ourtown Public Library Report Analysis Form

Circulation Summary Report

Frequency: Weekly

Data Fields:

Patrons Served	number
Items Borrows	number
Average Items per Patron	calculated number
Items Returned On-Time	number
Items Returned Late	number
Percentage of Patrons Late	calculated number

Distribution List: All librarians

Figure 12 Circulation Report Analysis Form

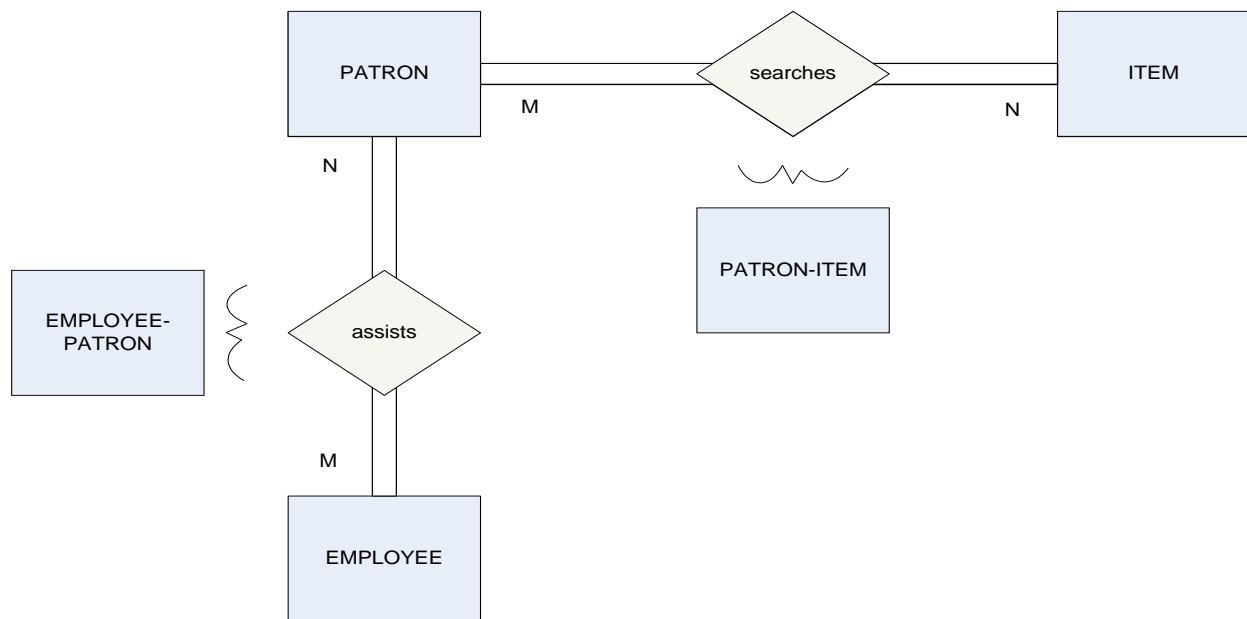
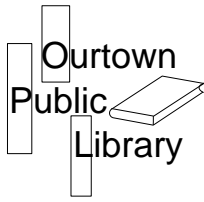


Figure 13 Entity Relationship Diagram



Ourtown Public Library

Data Control and Security

All users of the system must logon using a user name and password. Users should be told about the importance of not sharing this information with anyone. All users should understand no one will ever ask for their password and should report to a librarian if anyone ever does.

Files should automatically timestamp whenever files are created, modified, or destroyed. All data should be regularly backed up. A disaster recovery plan must be put in place to deal with such an unfortunate instance.

Appendix.

When approaching the project with a group of 3 people, and seeing that it contained three parts, it was fairly obvious as to how to split up the workload. Titi was responsible for part one, Eric was in charge of part 2 and Joel was assigned part 3. Because of the nature of the project we were not able to work on all the phases at once, but instead had to wait until the previous phases were completed before moving on. Because of this, we completed two copies of phase one. Titi and Eric both put together a version of the first phase. We were able to take the best features of each document and combine them to create a very complete introduction to the system. Phase 2 was completed by Eric and reviewed and critiqued by the other group members as it was completed. While one group member completed most of the legwork for this phase, all three participated and were able to contribute to the quality of the information. Phase 3 was created much the same way as Phase 2. Joel completed Phase 3 and it was then reviewed and improvements were suggested by the other group members. Packaging and assembling was a joint effort, and the enormity of this task could really be called Phase 4.

It is obvious the value that is contained in an SDLC. The documents help to highlight all the various aspects that go into the design of an information system. This wealth of information helps a company or organization to make the most well informed choice possible. An information manager with a well crafted SDLC is able to make a choice that has a much greater chance to be a success. Not only that, it helps to explain the workings of the information system to all those who are involved in a way which could be easily understood by a non-information professional.

Working on this group project taught us exactly how large scale a redesign of an information system can be. Often times these systems are taken for granted and it is underestimated how extensive a system is. For example, when a student logs in to check his or her email, they don't take into account the data stores and processes involved.

If we had more time on the project, we would have done more investigation on the requirements necessary to have a system put fully online. We implemented that into our system, but we are unclear as to what doing that actually pertains. We would also like to have further investigated the potential for outsourcing the services. We decided rather quickly to use packaged software, but outsourcing could have been a potential option for the Library.