

**FEASIBILITY REPORT**

**<LIBRARY MANAGEMENT SYSTEM >**

**<submitted by>**

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# Section – 1

# 1.1 Project Identification

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**EXECUTIVE SUMMARY**

The following proposed system is intended for the reference staff of library management system. The reference staff clients will be represented by reference specialist (primary client) and reference librarian developed the original client proposal and is very knowledgeable about the library’s needs and will be our primary client .Additionally, Skipper will be included in our communications with the client as an ex-officiolmember. The basic goal of the development team is to implement a computer-based system to replace the Library’s current paper records of reference statistics. The new system will allow staff from multiple service points to input data simultaneously and will provide automated reporting of aggregated data to produce hourly, daily, monthly, or yearly reports, cross-tabulated as necessary. The new system will keep the basic functionality of the current paper version, including information on the number of reference questions and their individual durations at various stations in Olin and Uris during a specific period of time. The overall goal of the new system is to streamline and automate this process of gathering data. Successful implementation of the system will enable flexible data output and analysis, which will enhance the ability to make effective management decisions concerning staffing needs, based upon library patron trends and service-need patterns.

**PRELIMINARY REQUIREMENTS ANALYSIS**

Part I – Application Overview

Objectives

The basic functionality of the system will be to collect reference statistics from different service points in the libraries in real time and store the information. Queries can be performed on this data to generate reports based on the statistics for staff allocations.

Business Objectives

The project aims to reduce costs, optimize staff levels, improve customer service, store data more efficiently and in more meaningful categories, and determine “traffic patterns” in Olin and Uris Library. It will keep track of when the reference desks in the library are the busiest. The Library’s current paper method will be replaced by a more efficient online system with a user-friendly web interface

Current Business Process and Rules Currently,

the client operates a paper spreadsheet at different reference desk locations, using hash-marks to denote individual reference transactions, according to a set of criteria. The criteria are: the time (on an hour range), the date, the nature of the question (technical, reference, directional), the staff level of the assistant (librarians, reference assistants, student assistants), the reference location (library management department), and the medium of the interaction (phone, chat, email, in-person, etc.). In addition, there is an optional comment field for assistants to enter useful keywords or information that they can use when generating reports or trying to understand patterns of use. The time when the queries are made are recorded on an hourly basis by the reference desk agents. This data is then compiled and entered into a central data repository from which reports are generated. The current system is cumbersome and requires manual tabulation of hash-marks to generate aggregate statistics reports using separate spreadsheet software (MicrosoftExcel).

User Roles and Responsibilities

Administrator Role: The ability to enter, record, edit, and update data, and exclusive abilities to make limited changes such as adding more users, staff levels, categories, etc

Other Users’ Role: The ability to enter, edit, and store data.

Interactions with Other Systems

The system will be built from scratch using standardized web packages, replacing an existing paper system. Reports generated using this system may be combined with reports being generated by a different system in the library at a future date.

Production Rollout Considerations:

The central data repository design and development, the design layouts, and generation of reports are expected to be carried out in a phased manner over three months before the system is tested and put into production .Users are expected to use this system after undergoing a short period of training.

**SUGGESTED DELIVERABLES**

To satisfy the client’s need for a digital and (semi-) automated solution to their current system, the following set of work-products will be delivered to the client:

(1 )Periodic Status:

Reports Throughout the software development process, periodic reports will be written and presented to the client to maintain process visibility and enhance the team’s responsiveness to the client’s needs. The team understands that the client will wish to comment and respond to the development progress. In turn, the team will strive to continually adjust and target processes and progress to the client’s needs. Periodic status reports will detail the feasibility of the project, its exact requirements, its design, and ultimately , its final form and implementation. These will be written documents that are presented to the client and any other individuals the client identifies.

2) Periodic Presentations:

Accompanying requirements, design, and final reports will be periodic presentations where the team will demonstrate different aspects of the software system in development. The team’s iterative approach to software design means that different presentations may concentrate on specific areas of the client’s need. For example, the user interface may dominate particular presentations. These presentations are designed to give the client maximum understanding of how their needs are being addressed in the actual product. Feedback will be critical to these presentations, so that the team may use the client’s comments to understand completely how the system meets the client’s needs.

3) Computerized, Web-based System for Reference Statistics

This system will be the core deliverable for the client. It will consist of a coded, web-based tool. The

client has identified four major functionalities that this system will need to deliver:

(a)Retroactive Editability –

The system will allow certain users to edit features of the reference statistics, and allow delayed statistics entry. In some cases, statistics may be entered after thework day ends. In addition, privileged users should be able to remove or edit entries, and normal users should have a limited ability to delete their own entries.

(b)System Backups –

The system will automatically back itself up and allow privileged users to restore backups in case of failure. Additionally, back-doors to the system will be provided for future maintenance.

The deliverable system will consist of a graphical user interface front-end for assistants to utilize the system’s functions and a centralized back-end central data repository component where the actual data and program the user interacts with will be stored. Therefore, the system will span web-based interactions and code running on the library server.

**PROCESS TO BE FOLLOWED**

For this project, the team has decided to follow an iterative refinement approach that involves beginning with a user interface mockup and gradually adding functionality until all of the client’s requirements are met. The team chose this particular method due to the client’s concern over having a user interface that is easy to use and less cumbersome than the current paper method. The interface is required to be intuitive and simplistic in order to easily collect the reference statistics from the librarians and other assistants. Another version is also required to act as an administrative interface to manipulate the data and perform any necessary administrative functions including report preparation and the modification of data categories. By using an iterative method, the team can quickly prototype a mockup user interface for the client to evaluate. If necessary and time permitting, redesign of the interface will occur based on client feedback. While the interface is being revised at each step of the iterative process detailed below, the team will be adding in the necessary software modules that will handle the central data repository, report generation, and other functionalities.

Below is the proposed outline of the iteration stages and milestones including what the team expects to have completed at each stage.

Process Outline:

User testing throughout: At each milestone, the team will present the most current version of the software to the clients for their testing and evaluation. Although the software will not initially be fully complete during the early presentations, it will give the clients an approximation of the functionality of the final product.

1st iteration

Requirements Document The team will prepare a formal document that will detail the client’s requirements for the software. The client will categorize these requirements into required, desired, and optional features. After the document is approved by the client, the team will design the initial user interface for the client’s evaluation.

Mockups: Simple User and Administrator Interfaces :

To ensure that the interface designs meet with the client’s specifications, the team will develop a user level and an administrative level interface that will have all of the required data entry fields, but will be otherwise non-functional. User level interfaces will contain the proper entry fields to add reference statistics. Initially, these interfaces will be simplistic in nature and may not contain all of the intended fields and functions that the clients propose.

2nd iteration

Design Document and Presentation A formal document will be prepared that details both the design of the system and the code behind it. In describing the design of the system, the hardware and software needed from the client will be specified. Details about the program design will cover internal functionality so that the client can maintain and modify the end product in the future.

Revised User and Administrator

Interfaces Based on feedback from the client concerning the first iteration deliverables, the team will modify the design of the user and administrator interfaces as needed. This modification will include more planned features and advanced abilities that will aid in diagnosing users’ interaction with the system. Again, during this iteration, the interface may not have all planned features, but will have all those required for this stage of development.

3rd iteration

Final Testing Period The team plans to reserve two weeks before the final presentation so that the client can test the product in its intended environment with real users and data. All functional requirements will have been met before this point; any changes hereafter will only cover small details, such as aspects of the user interface.

Final Documentation and Presentation:

Documentation for the final version of the product will be presented to the client so that the end product can be maintained and extended. This will include information on all required features, which will be fully implemented. The documentation will also cover any desired and optional features that have also been implemented. The team will also provide a demonstration of the system and training so that the client can understand how the user interface is intended to be used.

Final System

The final system will include all features that the team and the client have agreed are required, such as allowing data input and storage, sorting data, and producing reports based on previous data. Based on development progress heretofore, the final system may also include any functionality that the client has also determined as desired and/or optional.

**BUSINESS CONSIDERATIONS**

There are several business considerations that must be taken into account when determining the feasibility of the Olin Library project, including but not limited to: disclosure of trade secrets and sensitive information, copy right and trademark issues, and considerations with regards to patents.

Trade Secrets and Sensitive Information:

As far as the team could gather from discussions with representatives from the Olin Library, there are no trade secrets or sensitive information that will be dealt with in the implementation of our system. Since much of the information deals with user question types and usage numbers in the Cornell campus libraries, the information is not of a sensitive nature that will have to be heavily guarded through several security measures. Even in ligh of this situation, the system will be designed with password protected pages to prevent malicious users from accessing and corrupting this valuable data.

Copyrights and Trademark:

Since this project is being completed for the library management system team, the team intends to give O library a limited license to use and modify the system. A preliminary agreement is as follows: The team consists of the following members: hereafter referred to as “the team.” The team will give a limited license to Cornell University, Library management system librarians, and related staff, hereafter referred to as “the client”. This limited license will allow the client to use and modify the software system for an unlimited period of time. The team will not be responsible for any modifications after the software system is delivered, but will help with any questions or concerns of the client as time and circumstances permit. The team reserves the right to be able to demo the software system to prospective employers and showcase the software system as a work created by each team member.

Patents:

No part of the system is foreseen to be eligible for any patent applications. However, if upon a later date, a part of the system is found to be patentable, the team reserves the rights to the uncontested patent and any derivative works based therein, while the client will automatically gain non-exclusive rights to use the system, and will have full rights to the use and modification of the system regardless of any patent rights held by the team

**RISK ANALYSIS :**

As with any project, this undertaking is not entirely risk-free. Three major risk categories have been identified: time, resource, and functionality.

Time Risks:

As course requirements specify that the project must be completed within one academic semester, any extensions are not possible. This introduces the risk that the system may not be completed with the full functionality the client wants within the given timeframe of a semester. In this case, there is also a second risk of delayed implementation of the system if the client chooses to wait until the system is fully functional.

Resource Risks:

Resource risks involve technologies the team has available for their use. Due to costs and other external constraints, the team may not be able to obtain the needed or best resources to complete parts of the system. For example, one identified resource is that team members will need laptops running a Windows operating system. Computer Science department has supplied this resource to those team members in need of laptops.

In addition, there are inherent risks in the resources, such as the software and hardware the team decides to use. Currently, to keep costs at a minimum, the team is considering open-source software, which is available with out charge. Hardware for actual system implementation is also dependent on the hardware the library has available .Risks that stem from resources include hardware failures, system crashes, bugs in the code, etc., which may cause accidental data loss. Changes in the computer system of the library in the future that largely cannot be foreseen may also cause the system to malfunction. Since part of the system is web-based, slight variations in display of the user interface may also occur due to different internet browsers.

Functionality Risks:

Functionality risks have to do with how the system works. Issues that fall under this category include

developing a user interface that is not user-friendly or not well-liked by the client, or producing functions that have limited sustainability. The biggest risk comes from developing a system that does not do what the client wants it to do.

Out of the three risk categories, functionality risks are the easiest to reduce since functionality constraints are more flexible than time or resource constraints. However, minimizing functionality risk is usually accomplished by omitting specific parts and/or functions of the system, as decreasing functionality naturally decreases its associated risks. The team would like to avoid doing this as much as possible. The clients must be aware that it is possibile that this must be done in order to deliver the system by the due date at the end of the semester.

Risk Management/Minimization:

Having outlined the basic risks associated with this project above, the team is prepared to take precautionary actions to minimize these risks. The principle plan is to develop and practice good management strategies. The team intends to divide the project into a series of iterative phases that have concrete milestones as discussed in previous sections. These milestones will provide project visibility and allow the client to see the team’s progress at each stage. Multiple mockups will allow the client to evaluate usability, increase familiarity with the system, and shorten the learning curve.

Frequent communication and feedback from the client are also essential for client satisfaction with the user interface and functionality. The team will also constantly review their progress and modify goals if necessary to deliver a satisfactory system on time to the client.

**TECHNICAL REQURIMENT:**

The feasibility of the technical requirements can be judged by identifying and outlining at least one technicalmethod that will satisfy the client’s needs. Since any technical solution must embody the client’s requirements,it is useful to identify them:

Requirements:

Data sorting by different fields (time, date, etc.)

Each digital “hash-mark” will need to include different fields of information since it will be desirable tobe able to sort and organize the data in different ways depending on the user’s preference.

Centralized data repository:

Since many locations will be operating at once and more locations may be added, a centralized data repository is needed to coordinate all of the information. Since different locations may be active at different times, stations should be completely independent of the functioning of the total system.

Multiple levels of access to the system:

Users include librarians, reference assistants, and student assistants, and the allocation of staff is one ofthe important goals of the system. Therefore, different levels of staff need to be identified by thesystem, instead of using separate data sheets

Retroactive editing of input data

Data may need to be inputted much later, especially if the library is busy, or it will need to be correctedor deleted.

Administrative interface:

In the future, an administrator will be needed to add new access levels, change categorical descriptions ,or make certain modifications to the central data repository or reporting system.

Security :

Security needs to be maintained to ensure the integrity of the data, although no maliciousor advantageous editing is expected. Password-protection and a login system (based on access-level or user-type) are sufficient.