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Enhancing Student Understanding of Systems Analysis & Design: A Client-Based Project Approach

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Abstract

This paper introduces a client-based experiential learning project for the System Analysis and Design (SA&D) course. We established a partnership with a local nonprofit organization center to recruit and select candidate software/system projects from nonprofit organizations. Once a suitable project was selected for a particular class, all teams worked on the same project independently and were required to deliver a functional prototype by the end of the semester, each student was expected to work about 40 hours on this project outside of the class. External judges (project sponsor and users) were invited to judge the presentation of the prototype. The client then chose one prototype or features from multiple prototypes for the actual implementation. Some students continued to work with the client, doing an internship or practicum for the final implementation. Since 2009, students from this course implemented over 15 projects successfully. This paper describes experiences about the design and execution of the project in the Spring semester of 2025. The class survey showed that students felt the project was relevant, they enjoyed working on the project, gained knowledge from the project, and were comfortable with the technologies used. In addition to learning the knowledge and enhancing skills in the domain of system analysis and design, students also learned teamwork, project management, and working with a real client. The paper also discusses the major success factors of implementing this project and tips for other instructors to adopt the project.

Keywords: Experiential learning, Project-based learning, client-base project, System Analysis and Design, nonprofit organizations, project management.

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1. INTRODUCTION

The goal of this article is to present the design and implementation of a repeatable client-based experiential learning project for a System Analysis and Design (SA&D) course. Experiential learning is "learning through reflection by doing", which bridges abstract concepts to concrete experiences (Felicia, 2011). The final deliverable for our client-based experiential learning project was a functional system prototype, and this project facilitated all six levels of learning in Bloom's Taxonomy: Remember, Understand, Apply, Analyze, Evaluate, and Create (Anderson & Krathwohl, 2001). By developing a functional system prototype, teams experienced the entire system analysis and design cycle. As a result, they not only grasped the concepts of system analysis and design, but also applied these concepts for the project by analyzing the user requirements, coming up with alternative designs, evaluating these designs, and creating a functional prototype based on a selected design.

In addition to facilitating students' learning of the concepts of system analysis and design, this client-based project also offered additional learning opportunities, such as problem solving with real organizational issues, client communication and relationship management, and delivery of a functional prototype within a semester. The project bridged the students' needs for experiential learning opportunities and the nonprofit organizations' needs for developing or upgrading some of their systems. Research shows most of the nonprofit organizations face technological challenges such as outdated software / technology, limited budgets for technology investment, and a lack of technological expertise (Fallon, 2024; Lynch, 2024). One common issue/problem with the local nonprofit organizations was that they usually have an outdated website, which needs additional features/functions with simplified navigation and more visually appealing design. Like most other nonprofit organizations, they have limited budgets and expertise to update their websites, and they are willing to collaborate with us for these projects.

Project-based learning has been widely used in system and analysis education (Cappel, 2001; Guidry & Totaro, 2013), some used case studies (Guidry & Totaro, 2011; Russell & Russell, 2015), and some used real projects from organizations (Ivancevich & Ivancevich, 2003). The approaches have their own advantages and disadvantages. Case studies usually provide a fixed set of project descriptions; therefore, instructors have more control about the planning and execution of the project, and the cases provide more structure for students to follow. The disadvantages of a case study approach include the lack of communication with clients and the concrete context such as the project scope and relationship between the proposed system and all other existing systems.

On the other hand, using real projects poses some significant challenges: difficulties in finding suitable clients, significant workload and time commitment from instructors, students, and clients (Lopez & Lee, 2005; Razzouk et al., 2003). Moreover, clients may not always be available or willing to engage fully with students, and coordinating client deadlines with academic schedules can be difficult (Tabbaa et al., 2023). Arling et al. (2010) came up with a compromise between case study approach and the real projects approach. They used a real project case from PricewaterhouseCoopers (PwC), instead of engaging a real project each term, the instructors used exactly the same project case for multiple semesters. To simulate the real project, they invited employees from PwC to talk about this project each term so that students felt the project was real, but the deliverable from the project will not be used by the PwC. The reason that PwC was willing to provide support for the project was the opportunity to recruit the top students from the class. The major drawback for this approach was that the organization will not benefit from the students' project deliverables. How can we use a suitable real project each semester and ensure the project deliverables are useful for the client?

In this paper, we describe how we established a repeatable process to recruit and select suitable clients; developed structures, guidelines, and templates to guide clients and teams to go through the project process; and ensured the client implement the system with our students' continued support after the semester is over. The contribution of this paper is to present an

approach fulfilling the dual goals of providing students with experiential learning for real organization and providing service to local communities.

The paper is structured as outlined below: section 2 presents literature review of experiential learning and project-based learning, section 3 describes the course structure, and the project set up, section 4 presents students' feedback, section 5 discusses our reflections about challenges and success factors, and lists some tips for other instructors to adopt the project.

2. LITERATURE REVIEW

Experiential Learning

Experiential learning emphasizes the role of direct experience in developing knowledge and skills. Kolb (2015) defines learning as "the process whereby knowledge is created through the transformation of experience." This perspective highlights the importance of active engagement, continuous reflection, and personal involvement in the learning process. Kolb (2015) further explains that "the aim for experiential learning theory was to create a model for explaining how individuals learn and to empower learners to trust their own experience and gain mastery over their own learning." This reinforces the idea that learning is an active and continuous process where knowledge is constructed rather than passively acquired.

While experiential learning offers many benefits, there are also some potential drawbacks to consider. de Pillis et al. (2020) identified "*four main categories of trade-offs that must be acknowledged and negotiated: (1) quality vs. cost, (2) institutional versus individual goals, (3) institutional aims for the student experience versus students' aims from participating in an experiential learning program, and (4) providing 'real-life' experiences vs. protecting vulnerable students from 'real-world' inequalities.*" Additionally, when instructors provide minimal guidance, experiential learning may be ineffective and inefficient (Kirschner et al., 2006). Experiential learning encompasses various approaches, such as practicums, internships, simulations, and role-playing. However, the type of class and its learning objectives should determine the most suitable approach. For example, a Project-Based Learning (PBL) model using instructor-designed projects may be more effective for a required Intro to Operations class that all business students must take. In contrast, a client-based form of PBL may be better suited to a Systems Analysis and Design (SA&D) class with 20–40 students, which is the focus of this paper.

Project-Based Learning (PBL) in Higher Education

According to Du and Han (2016), *"Project-Based Learning (PBL) is a student-centered model that organizes learning and studying around projects."* Similarly, PBLWorks (n.d.) defines PBL as *"a teaching method in which students gain knowledge and skills by working for an extended period to investigate and respond to an authentic, engaging, and complex question, problem, or challenge."* Together, these definitions emphasize the structured, student-centered nature of PBL and its focus on real-world problem-solving.

PBL is known to be one of the most effective pedagogical techniques that can enhance student learning. Its effectiveness has been studied across multiple disciplines, including social sciences, mathematics, technology, and engineering, through a 20-year meta-analysis of journal articles (Chen & Yang, 2019). Compared to traditional instruction, PBL has a medium to large positive effect on students' academic achievement (Chen & Yang, 2019). PBL is generally ideal for large classes and could be implemented in classes that are required for students in the entire college or school.

Client-based Projects in Higher Education

In systems analysis and design, a course offered as part of the Management Information Systems curriculum, PBL provides many benefits, including improving students' problem-solving skills, engaging them with real-world applications, and offering opportunities to work in teams. A specific subcategory of PBL used in this course is Client Based Projects (CBP), where students work directly with a business, a nonprofit, or other organizations to solve real problems or address issues. CBPs enhance the learning experience by providing hands-on exposure to real-world challenges, closely mirroring professional environments. This technique is widely recognized as a powerful pedagogical tool with numerous benefits (Lopez & Lee, 2005).

However, there are some disadvantages to this technique. Razzouk, Seitz, and Rizkallah (2003) outlined several challenges, including difficulties in finding suitable clients, grading projects that require extensive feedback, and the significant time commitment involved. Lopez and Lee (2005) cautioned that CBPs can be overwhelming for instructors, as the significant workload and time commitment required may deter many from implementing them. Another disadvantage is that

clients may not always be available or willing to engage fully with students, and coordinating client deadlines with academic schedules can be difficult (Tabbaa et al., 2023).

According to Schwering (2015), the success of client-sponsored projects depends significantly on the careful selection and socialization of the project sponsor, ensuring that they are aware of the goals and capable of supporting the learning process. When sponsors understand their role in fostering student development and are committed to the project's success, the learning outcomes for students improve.

Beyond teamwork, the SA&D client-sponsored projects also introduce an element of competition. In this course, student teams compete against one another to develop the best prototype, adding a dynamic layer to the learning experience. The next section will explore how competition enhances experiential learning.

Team Competition as a Learning Tool

Teamwork in project-based learning contributes to both academic success and professional skill development. Soia et al. (2024) highlight that integrating teamwork skills in digital and computational learning environments helps students improve their academic performance, develop both soft and hard skills, and build professional competencies. This demonstrates that collaborative, hands-on learning not only enhances students' technical abilities but also prepares them for real-world challenges by fostering essential teamwork and problem-solving skills. However, as Dong (2023) notes, if not all members of student teams demonstrate commitment and work ethic and are unable to break old habits (such as delaying work until the last minute), team performance can suffer. Razzouk et al. (2003) noted that a concern for professors in today's global classroom is students' tendency to select friends as teammates. This issue can be mitigated by having the professor assign team members. In the SA&D course, students complete a questionnaire at the beginning of the semester (Appendix A). This questionnaire assesses their skills, and students with diverse skill sets are strategically assigned to different teams.

Incorporating competition into this teamwork can further enhance student motivation and engagement. In the SA&D class, students work in teams to develop a prototype for a real-world client, usually a local non-profit. At the end of the semester, the best prototype is selected by judges. This competitive element encourages students to go beyond minimal requirements and strive for excellence. Carroll (2013) describes Competition-Based Learning as a variation of project-based learning in which student teams work on an open-ended assignment similar to a scaled-down real-world problem. The distinctive element is that projects are tested and compared against those of other teams, adding a competitive dimension. This competitive drive not only pushes students to refine their work but also benefits the client, as it increases the likelihood that the final prototype will be well-developed and aligned with their needs. By striving to outperform their peers, students are more likely to deliver a polished, functional system that exceeds basic expectations, ensuring a tangible, valuable outcome for the client.

3. PROJECT STRUCTURE & EXECUTION

Project Background & Team Setup

The study focused on a team project, which took place in a 300-level business course entitled, "Systems Analysis & Design." All undergraduate students seeking a bachelor's degree in Management Information Systems or Cybersecurity are required to pass the course. A smaller proportion of students take the course as an elective to earn a certificate in Accounting Information Systems, Data Analytics, or Digital Marketing.

The course provides a comprehensive presentation of the concepts, procedures, and tools necessary for building computer-based information systems in modern organizations. The course introduces students to the systems development lifecycle and develops project management, analysis, design, coding, testing, implementation, and documentation skills through a team project. Although the traditional waterfall approach served as a roadmap for the project, teams were encouraged to use an agile methodology during the design phase, which required several, quick iterations to arrive at the final design.

Students learned to balance project requirements with individual, team, and client constraints in real-time during the project. The scope of the project was controlled as tightly as possible, with an estimated time per student approximating 40 total hours.

Project Selection & Client Engagement

To maximize realism, teams designed and developed a prototype system for a real-world client organization. The partnership between the local branch of United Way and the College of

Business, specifically through the Systems Analysis & Design course, offers a high-impact, community-engaged learning opportunity grounded in experiential education and systems thinking. Since the partnership's inception in 2009, this collaboration has supported approximately 15 student-led projects, each designed to meet the technological needs of local nonprofit organizations while providing students with real-world, client-centered project experience.

Each academic semester, students enrolled in the course undertake a team project that applies core principles of systems analysis and design to create a customized, community-facing digital platform—such as a website, application, or database interface—for a selected nonprofit. The County Nonprofit Center facilitates the client selection process by distributing a call for proposals through its weekly newsletter, reaching approximately 120 member organizations and 400 nonprofit personnel. Nonprofits interested in participating submit project applications, which are reviewed by a selection committee based on mission alignment, organizational readiness, and project feasibility within the constraints of a single semester.

Once a nonprofit is selected, student teams work directly with the organization's leadership and stakeholders to conduct interviews, gather system requirements, and develop a comprehensive System Specification Report and Project Overview. This structured methodology ensures that the final deliverable is technically viable, user-centered, and strategically aligned with the nonprofit's goals. The process fosters authentic engagement, knowledge transfer, and the development of solutions that add lasting operational and outreach value.

At the conclusion of the semester, particularly motivated students often pursue continued collaboration through internships with the nonprofit partner. These internships—eligible for academic credit toward the MIS major—allow students to further refine web content and back-end functionality, while also supporting nonprofit staff through onboarding, training, and long-term site management. This extended engagement facilitates a smooth project handoff and ensures the sustained utility of the developed platform.

Team Setup

The project usually started in the third week. For the first two weeks, students were introduced to the Systems Development Life Cycle (SDLC), where they learned how the SDLC would be used as a roadmap for planning and executing the project. Students completed a background questionnaire (see Appendix A), which the instructor used to construct teams with diverse skillsets. Referring to Table 1, the group collaboratively decided which role each team member would take on during the project:

Role	Responsibilities
Project Manager	Client liaison, manages timeline, writes status reports
Designer	Interacts with the client to collaboratively determine design
Developer	Transforms design into a working prototype
Analyst	Determines system requirements, conducts feasibility study
Trainer	Produces system documentation

Table 1. Role for Each Team

The scope, timeline, and budget were collaboratively determined between the instructor and client. At the beginning of the semester, a project overview document (see Appendix B) containing this information was distributed to students.

The project kicked off with a class session dedicated to an introductory meeting, where the client talked about the project and students asked questions. The project was initially defined through a System Service Request (SSR), which outlined the client's needs and formed the basis for the student teams' work (see Appendix C). Following the kick-off meeting, teams created and submitted a Team Charter (see Appendix D) to the client via e-mail. The Team Charter outlines the goals of the project team and documents the roles and responsibilities of each team member. It also explains how the team will collaborate (within and outside the team) and documents a plan to resolve conflicts should the need arise.

Meeting	Objective
Introductory Meeting	Introduce teams to the client and provide an overview of the project, including time, budget, and scope.
Analysis	Determine system requirements.
Design	Determine updated website design.
Presentations	Present website prototype, submit project workbook, submit peer evaluations

Table 2: Client Interactions

Performance Assessment
Teams produced the following project deliverables:

1. Project Workbook. Formal, written documentation describing the project and its associated deliverables. (See Appendix J)
2. Website Prototype. A working model of the system, which demonstrates the structure, content, navigation, and page layout.
3. Team Presentation. A demonstration of the prototype in front of a panel of judges. The instructor provided the student teams with a presentation template to structure their presentation around (See Appendix K)
4. Peer Evaluation. Referring to Appendix L, students rated the performance of their team members. Scores were used by the instructor as a basis for adjusting individual grades.

Week	Project Deliverables & Events
1	
2	Student Background Questionnaire
3	Assigning students into teams
4	Project Introduction meeting
5	Interview Guide completed
6	Client Interviews
7	
8	Data Collection Plan completed
9	System Requirements completed
10	
11	Feasibility Study completed
12	Client Design meeting Design Document completed
13	
14	
15	User Guide completed Website Prototype completed
Final Week	Presentations and Q&A Session

Table 3: Weekly schedule for the project

Presentations and website prototype demonstrations were evaluated by a panel of judges consisting of the instructor, client sponsor, and other stakeholders involved in the project. Using a rubric developed to rate presentations and provide feedback (see Appendix M), judges recorded their opinions and overall ratings for each team. After the presentations, the judges were given a few days to review the project workbook and provide additional comments. The panel then met virtually to determine the winning team. Each team received an e-mail that announced the winner, and thanked them for their time and contributions. Teams also signed the Website Transfer Sheet to formally transfer their deliverables to the organization (see Appendix N). Please see Table 3 for the weekly schedule and documents used for the project.

4. STUDENTS' FEEDBACK

During the last week of class, students participated in a brief survey, which asked them to rate their learning experience. 38 of 44 students completed the survey., In general students reported being very satisfied with the learning experience. Students thought the project was relevant, they gained knowledge, they enjoyed working on the project, and were comfortable with the technologies used (see Appendix O). The students were very satisfied that the goals of the team project were clearly stated and consistently pursued (6.18 out of 7). There were four negatively worded questions stating the project was not relevant (2.21), they gained no new knowledge (2.24), they did not enjoy working on the project (2.97) and they were not comfortable with the technologies used in the project (2.56). All four were below 3.0, so students felt the project was relevant, they gained knowledge, they enjoyed working on the project, and were comfortable with the technologies used. The students also felt their communication tools (6.24), internet service (6.68) and personal devices (6.66) were reliable for working on the project. The students' overall level of satisfaction with the learning experience was 5.68 out of 7. These results are strong, and the students were very satisfied with the team project and the learning experience.

5. DISCUSSION

Students' Learning
Students' learning with this client-based project occurred in three aspects. First, they understood the concepts and developed / enhanced skills in the domain of system analysis and design. Second, students learned general soft skills of teamwork and project management, such as breaking down projects into manageable tasks, allocating / matching tasks to members' skills/strengths, managing schedules, coordination, and communication. Third, they learned how to interact with a real client professionally and effectively to deliver a prototype meeting the client requirements.

Benefits beyond Classroom Learning
The mutual benefits of this partnership are profound. For students, the experience offers an essential bridge between academic theory and professional practice, equipping them with the

skills to navigate the full project lifecycle, including stakeholder communication, technical design, iterative development, and client feedback. For nonprofit organizations, the program addresses a critical gap by providing professional-grade digital tools at no cost—tools that enhance visibility, operational efficiency, and community engagement. By pairing academic innovation with nonprofit capacity building, this partnership not only strengthens the local social sector but also cultivates civic responsibility and professional readiness among emerging business and technology leaders.

Important Factors for Successful Implementation of this Project

We felt the following are the success factors for this project.

We paired with our county's nonprofit organization center for candidate projects. The center called for project proposals from local nonprofit organizations and selected a suitable client for our class. This repeatable process for recruiting and selecting clients is routinized by an external party, which not only reduced the instructors' workload tremendously, but also ensured the continuity of the source of projects.

We chose to engage in only one project for an entire class during a particular term. It had three positive impacts for project management and implementation. First, it reduced the workload of the instructor, who only needs to manage one project at a time. Second, all teams worked on this project, therefore, creating a competition among teams, which drove students to perform above and beyond minimum requirements for the project. Third, clients were more motivated to participate, believing that at least one of the prototypes would be of excellent quality and potentially meet their needs.

We developed a variety of project tools to provide structures for the project such as project guidelines, team charters for communication and conflict management, data collection template, checklists for design, project feasibility evaluation sheet for alternative designs, presentation template, and checklist of project workbook. With a clear schedule posted with these guidelines and templates, students have a clear road map for the project over the term.

We encouraged students to continue to work with clients for actual implementation under an internship. This ensures that the organization has a functional system implemented for the return of their time and effort. Instructors who taught this course and previous students have established a good reputation for this project in the local community, therefore, nonprofit organizations continued to participate in this project.

Involving external professionals in assessing student projects can enhance both the learning experience and students' motivation, while also helping them connect their academic work to real-world applications (Schwering, 2015).

Tips about Adopting the Project

It took us several semesters to fully develop, refine, and streamline this client-based project to its current state. For instructors who would like to adopt this project, it might be more realistic to split the project for two semesters: for the first term, teams may engage in user requirements, analysis and design. For the second term, another class continues the project: evaluating alternative designs and choosing the top three to develop the functional prototypes. Once the instructor gets familiar with the project process and tools, then he/she can do a project in one semester.

Thoughts for Future Implementation

The client-based project started in 2009, it has been well established in the community. We are considering doing some branding/marketing for this project with some type of reward to the top winning teams, such as featuring them in school newspapers, local newspapers, career office's Linkedin announcement, or special award for community services. With more publicity for this project, we may be able to attract more students to the College of Business in general, and MIS major in particular, thus helping grow the enrollment as well as serve the local community.

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Appendix A.
Student Background Questionnaire

The purpose of this questionnaire is to collect information concerning your skills and background. All responses will be kept confidential.

Student Name: _____ **Course:** _____ **Section:** ___

The statements below ask you to indicate your level of skill in various areas. For each of the statements, please indicate your skill level. If you do not have any skills in the area, circle 0, indicating that you have "No Skill." Otherwise, indicate your skill level by circling a number between 1 and 10, where 1 indicates that you are "Not Very Skilled," 5 indicates that you are "Moderately Skilled," and 10 indicates that you are "Very Skilled."

	No Skill ⬇	Not Very Skilled ⬇				Moderately Skilled ⬇				Very Skilled ⬇	
1. Website design skills	0	1	2	3	4	5	6	7	8	9	10
2. Technical skills (e.g., programming, networking)	0	1	2	3	4	5	6	7	8	9	10
3. Management skills	0	1	2	3	4	5	6	7	8	9	10
4. Oral communication skills	0	1	2	3	4	5	6	7	8	9	10
5. Written communication skills	0	1	2	3	4	5	6	7	8	9	10
6. Analytical skills	0	1	2	3	4	5	6	7	8	9	10
7. Interpersonal skills	0	1	2	3	4	5	6	7	8	9	10
8. Graphic design skills (e.g., Photoshop,	0	1	2	3	4	5	6	7	8	9	10

1. In the space provided below, briefly describe any work experience related to information systems.

2. Client interviews, team presentations, and the Website Design Competition take place **outside of regularly scheduled class time**. Specifically, these events will take place during the following dates/time:

Event name	Date and Time
Client interviews	5th week of class (each team will be given a 45-minute time slot)
Design meeting	10th week of class (each team will be given a 45-minute time slot)
Team presentations & Q&A	15th week of class (each team will be given a 25-minute time slot)

If you have any scheduling conflicts during those times, please explain below.

3. Below, please include the name of students that you prefer to work with.

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Appendix B.
System Service Request
(Filled by the Potential Clients)

Requested By:
Date:
Department:
Location:
Contact Information:

Type of Request:

- ☐ New System
- ☐ System Enhancement
- ☐ System Error Correction

Urgency:

- ☐ Immediate – Operations are impaired or opportunity lost
- ☐ Problems exist, but can be worked around
- ☐ Business losses can be tolerated until new system installed

Problem Statement

Fill out this part by the client

System Service Request

Fill out this part by the client

---------TO BE COMPLETED BY SYSTEMS PRIORITY BOARD ----------

☐ Request Approved.

Approved by: [Instructor's name here]
Assigned to: _____
Start date: _____

- ☐ Recommend Revision
- ☐ Suggest User Development
- ☐ Reject for reason: _____

Appendix C.
Project Description

Project Overview

Give a brief description of the project in two or three paragraphs.

Project Goals

Three criteria, as indicated below, serve as the primary goals for this project. The goals of the project will be achieved if all three criteria are satisfied.

1. The project will produce the products (i.e., deliverables), as defined in the *Project Scope* portion of this document.
2. Deliverables will be completed on-time, as defined in the *Project Timeline* portion of this document.
3. The project will be completed on-budget, as defined in the *Project Budget* portion of this document.

Project Scope

The scope statement intends to facilitate a common understanding between the client and project team regarding the products that will be produced as a result of this project. The scope sets the course of action for the project team to undertake, as well as defines the boundaries of the project.

During the course of the project, the following deliverables will be provided to the client.

Deliverable	***Description***
Status Reports	On a bi-weekly basis, a status report will be delivered to the client. The status report will describe the work completed since the previous report, describe the work that will be undertaken in the current week, and explain any issues that need to be addressed to move the project forward.
Team Charter	The team charter describes the goals and structure of the project team. The charter serves to formally establish the roles and responsibilities of each team member, to explain how the team will communicate (internally amongst the team and externally with the client), to document the values, ethics, and expectations of the team, and to establish a plan to resolve conflicts within the project team.
Data Collection Plan	Data collection constitutes the primary technique through which system requirements are uncovered. The data collection plan ensures that the data gathered is both comprehensive and accurate. The data collection plan specifies the data that are needed, the rationale for collecting the data, and the insights that should be obtained by collecting the data.
Interview Guide	Interviews represent a particularly useful form of data collection, as the technique allows the interviewer to pursue in-depth information around a specific topic. The interview guide helps the interviewer direct the conversation toward the topics and issues they want to learn about.
System Requirements	A list of system requirements, which documents the features and functionality required in the new information system, will be produced. System requirements will be classified between "needs" and "wants". "Needs" represent features and functionality that must be incorporated

	into the information system before this project is completed, whereas "wants" may be implemented after this project has been completed.
Feasibility Study	A feasibility study will be conducted to determine the most appropriate information system for the client to implement. Three potential alternatives will be compared. Based on this analysis, a recommendation will be made to the client regarding which alternative to select.
Design Document	Based on the system requirements, a design document will be created. The purpose of a design document involves communicating design decisions associated with the new website. The document will clearly explain the designer's intentions and the rationale behind design decisions. The design document focuses on achieving high levels of usability, which refers to the ability of users to quickly and accurately utilize the website with high levels of satisfaction.
User Guide	The purpose of the user guide involves providing written documentation to prepare the client for maintaining, enhancing, and potentially transferring the website after the project has been completed. In addition, the user guide serves as a training manual, walking users through the features and functionality implemented in the new website.
Website prototype	A working model of the website will be designed, coded, and tested. The prototype will demonstrate the structure, content, navigation, and page layout of the website.
Presentation	At the conclusion of the project, a presentation will be made for the client. The presentation will provide a retrospective assessment of the project activities and deliverables, as well as provide a demonstration of the website prototype. Immediately after the presentation, a live Q&A session will follow.

All projects are constrained in terms of human resources, money, and time. As a result, the following items will be considered to be outside the scope of this project.

Item	***Description***
Advanced Features	Specify advanced features need to be excluded.
Advanced Project Management	In a typical project, the project manager would be responsible for assessing risks, managing quality, and devising a change management plan. Given that the project team members have not been formally trained in project management, such responsibilities lie beyond the scope of this project.

Project Schedule

The project schedule represents a timeline associated with the events and activities that will occur to produce the deliverables specified above. The schedule serves as a baseline reference point for planning, monitoring, and controlling project activities.

Based on the deliverables outlined above, the attached project timeline, in the form of a Gantt chart, has been created. The timeline illustrates the sequence and dependencies associated with all project activities, which focus on producing the desired deliverables. Based on the start and finish dates estimated in the project timeline, the project will be completed on [specify the date here].

Date	**Deliverables & Events**
Wed., Feb. 7	Project Introduction meeting
Mon., Feb. 12	Team Charter completed
Thur., Feb. 22	Interview Guide completed
Fri., Feb. 23	Client Interviews
Mon., Mar. 4	Data Collection Plan completed
Mon., Mar. 11	System Requirements completed
Mon., Mar. 25	Feasibility Study completed
Fri., Mar. 29	Client Design meeting
Fri., Mar. 29	Design Document completed
Wed., May 1	User Guide completed Website Prototype completed
Fri., May 3	Presentations and Q&A Session

Project Budget

The project budget represents a forecast of expenditures that will incur as project activities are carried out. The budget serves as a baseline reference point for managing the costs associated with this project.

Based on the project deliverables and timeline outlined above, the project will cost approximately [specify amount here], assuming a $50 per hour rate for labor.

	Hours	***Estimated Cost***
Labor Costs		
Project Initiation & Planning	[?]	[?]
Analysis	[?]	[?]
Design	[?]	[?]
Implementation	[?]	[?]
	Total Labor Costs	$[?]
IT-related Costs		
Hardware (e.g., servers)		$[?]
Software (e.g., shopping cart)		[?]
IT Services (e.g., hosting)		[?]
	Total IT-related Costs	$[?]
	Total Project Costs	**$**[?]

Appendix D.
Team Charter

Prepared by: [Insert team name here]

[Insert date here]

Team Goals

[Describe the goals of the team here. The team goals should be consistent with the goals of the project.]

Team Members

[Insert name here], [Insert title here]
[Describe the roles and responsibilities of the team member here.]
E-mail: [Insert e-mail address here]
Phone: [Insert phone number here]
[Insert name here], [Insert title here]
[Describe the roles and responsibilities of the team member here.]
E-mail: [Insert e-mail address here]
Phone: [Insert phone number here]

Communications Plan

[Explain the importance of a communication plan here.]

[Describe how the team members will communicate internally amongst themselves. Describe when the team will conduct weekly team meetings.]

[Describe how the team members will communicate externally with the client. Be sure to indicate which team member will be the primary point of contact (i.e., team liaison).]

Team Values, Ethics, and Expectations

[Explain the importance of team values, ethics, and expectations here.]

[Describe the team's values, ethics, and expectations here. A brief written summary followed by a bullet-pointed list of values, ethics, and expectations will suffice.]

Conflict Resolution Plan

[Explain the importance of a conflict resolution plan here.]

[Describe the team's conflict resolution plan here. The plan should indicate a clear course of escalation. Given that the conflict resolution plan involves a series of steps, each step should be explained in a numbered list.]

Execution and Acknowledgement

The team members hereby indicate by their signatures below that they have read and agree with the specifications of this charter.

[Insert name here]	[Insert name here]	[Insert name here]

Appendix E.
Status Report Guidelines

On a bi-weekly basis, a status report will be delivered to the client. The status report will describe the work completed since the previous report, describe the work that will be undertaken in the upcoming week, and explain any issues that need to be addressed to move the project forward.

Guidelines

- Starting Mon., Feb. 12, bi-weekly status reports are due on Monday at the beginning of class (11:00am).

All team members must be copied (cc:) on the e-mail. The e-mail must also be sent to the client: [put the client email here] and the instructor [put the instructor's email here].

- Status reports must be professionally written. Be sure to carefully proofread your message before sending it. Spelling and grammatical errors must be avoided.
- Be sure to refer to the project timeline to determine which tasks should have been completed in the previous week, as well as which tasks should be undertaken during the upcoming week.
- In terms of formatting, be sure to follow the example status report below. The areas highlighted in yellow need to be customized for your project team.
- Be sure to clearly describe deliverables in a manner that the client will understand. You can refer to the Project Overview document for deliverable descriptions.
- When specifying dates, be sure to include the day of the week (e.g., Mon., February. 12).
- Place a copy of each status report in your team's project workbook.

Appendix F
[Insert team name here]
[Insert non-profit name here]

Data Collection Plan

Data collection constitutes the primary technique through which system requirements are uncovered. The following data collection plan will ensure that the data gathered is both comprehensive and accurate. As illustrated in the table below, the data collection plan specifies the data that are needed, the rationale for collecting the data, and the insights that should be obtained by collecting the data.

Activity	**Description**	**Participants**	**Due Date**
[Enter a short description of the activity here. Activities should appear in the order in which they will be conducted.]	[Describe the activity in detail. Be sure to explain the data that are needed, the rationale for collecting the data, and the insights that should be obtained by colleting the data.]	[List the individuals who will participate in the activity here.]	[mm/dd/yyyy]

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Appendix G.
System Requirements Template

Team Name: [Insert team name here]

No.	System Requirement	Description	Priority	Comment/Question
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Appendix H.
Design Document Guideline

Prepared by: [Insert team name here]

[Insert date here]

Executive Summary

[This section provides an executive summary of the design document. This section should also introduce the concept of design in general, as well as express the importance of high-quality design. In addition, this section should describe the purpose of a design document and the process undertaken to produce the design document.]

Logical Design

[This section provides a description of the logical design of the website. The first paragraph should clearly describe the concept of logical design, as well as its purpose. This introductory paragraph should be followed by separate subsections detailing the specific aspects of logical design that need to be addressed.]

Usability

[The goal of logical design is to achieve high levels of usability. The introductory paragraph should describe the concept of usability. The introductory paragraph should be followed by separate paragraphs each describing facet of usability, as well as how the design attempts to satisfy each facet.]

Navigational Structure

[This section describes the proposed navigations structure of the website. This section should provide a visual (i.e., graphical) depiction of the manner in which pages are related to one another. For an example, visit: http://www.powermapper.com/sitemap/electrum/map.htm]

Proposed Home Page

[This section describes how the proposed home page of the website will look. This section should explain design choices, as well as provide a visual (i.e., graphical) depiction of home page.]

Proposed Subpage Example

[This section describes how one of the proposed subpages of the website will look. This section should explain design choices, as well as provide a visual (i.e., graphical) depiction of one subpage.]

Physical Design

[This section provides a description of the physical design of the website. The first paragraph should clearly describe the concept of physical design, as well as its purpose.

This introductory paragraph should be followed by separate subsections detailing the physical design associated with the server and the client. In this project, the server will be a web server, which is a powerful computer dedicated to storing the website and processing requests for web pages. Clients are workstations (e.g., PC, Mac) on which users run applications. In this project, a client will be need to access and maintain the website, which will be stored on the web server.]

Server

[This section describes the physical design of the server. The operating system, web server software, content management system, programming language (if any), and database platform (if any) should be described. An explanation of why the physical design was chosen must be provided.]

Client

[This section describes the physical design of the client. The operating system, web editor, web browser, and other applications (e.g., file transfer protocol) that are needed to access and maintain the website should be described. An explanation of why the physical design was chosen must be provided.]

Appendix I.

Feasibility Study for Alternative Solutions
[Insert team name here]
[Insert non-profit name here]

Executive Summary

[This section provides an executive summary of the feasibility study. This section should describe the purpose of a feasibility study, the process used to conduct the feasibility study, and a high-level description of the results of the study.]

Alternatives Considered

[This section provides a brief description of technological alternatives considered. At a minimum, three alternatives should be compared and contrasted. The first paragraph should clearly describe the need to consider various alternatives. This introductory paragraph should be followed by a separate subsection dedicated to each alternative. Each alternative should be clearly described.]

Feasibility Matrix

[This section provides a matrix, which ranks the different dimensions of feasibility for each alternative. Each type of feasibility should be ranked on a scale from one (1) to three (3), where one indicates the "most feasible" alternative and three indicates the "least feasible" alternative. The matrix should "point to" the optimal solution. A brief narrative should describe the matrix. Both unweighted and weighted results should be provided and explained.

The information in the matrix should be tied to the dimensions of feasibility described in the following subsections. Point the reader to the subsections below for more detailed information.]

Feasibility Matrix

		Alternative			
Type of Feasibility	*Weight*	*#1*	*#2*	*#3*	
Economic	0.00	0	0	0	
Operational	0.00	0	0	0	
Scheduling	0.00	0	0	0	
Technological	0.00	0	0	0	
Political	0.00	0	0	0	
Legal and Contractual	0.00	0	0	0	
	0.00	0	0	0	Unweighted
		0	0	0	Weighted

Feasibility Analysis

[This section should provide a brief introduction explaining why various dimensions of feasibility need to be considered.]

Economic Feasibility

[This section discusses the economic feasibility of the alternatives in narrative form. This section should first define and describe economic feasibility. A separate Cost-Benefit Analysis (e.g. tangible costs, one-time costs, recurring costs, and economic feasibility calculations) should be conducted on each alternative using the Economic Feasibility Worksheet posted in Moodle. This section should describe the purpose of the Cost-Benefit Analysis, how the analysis was conducted, and close by justifying which of the alternatives is most feasible from an economic perspective.

NOTE: When conducting your economic analyses, assume that each team member will charge $50 per hour (although your time on this project is free to the client).]

[Supplemental information and a detailed justification for the recommended solution should be provided in the form of exhibits. Exhibits 1, 1A, 1B, and 1C (economic feasibility) should be provided for every alternative examined. The exhibits should be explained in narrative form and the reader should be referred to the exhibits.]

[Exhibit 1: Economic Feasibility Analysis - this exhibit details the economic feasibility (Net Present Value, Return on Investment, Break-Even Point) associated with the alternative. The economic feasibility worksheet should be produced using the *Economic Feasibility Worksheet*, which is posted on Blackboard in the *Team Project* folder.]

[Exhibit 1A: Tangible Benefits Worksheet – this exhibit details the tangible benefits associated with the alternative. The tangible benefits worksheet should be using the *Economic Feasibility Worksheet*, which is posted on Blackboard in the *Team Project* folder.]

[Exhibit 1B: One-time Costs Worksheet – this exhibit details the one-time costs associated with the alternative. The tangible benefits worksheet should be using the *Economic Feasibility Worksheet*, which is posted on Blackboard in the *Team Project* folder.]

[Exhibit 1C: Recurring Costs Worksheet – this exhibit details the recurring costs associated with the alternative. The tangible benefits worksheet should be using the *Economic Feasibility Worksheet*, which is posted on Blackboard in the *Team Project* folder.]

Operational Feasibility

[This section discusses the operational feasibility of the alternatives in narrative form. This section should first define and describe operational feasibility. An analysis of the degree to which each alternative will satisfy system requirements should be provided. This section closes by discussing which of the alternatives is most feasible from an operational perspective.]

Scheduling Feasibility

[This section discusses the scheduling feasibility of the alternatives in narrative form. This section should first define and describe scheduling feasibility. Each alternative should be discussed in terms of its impact on the project schedule, as well as potential resources issues that may pose difficulties to the implement process. This section closes by discussing which of the alternatives is most feasible from a scheduling perspective.]

Technological Feasibility

[This section discusses the technological feasibility of the alternatives in narrative form. This section should first define and describe technological feasibility. Each alternative should be discussed in terms of the relevant technical risks associated with each alternative, including maturity of the technology, expertise issues, and the technology's ability to deliver the desired information system. This section closes by discussing which of the alternatives is most feasible from a technical perspective.]

Political Feasibility

[This section discusses the political feasibility of the alternatives in narrative form. This section should first define and describe political feasibility. Each alternative should be discussed in terms of the relevant stakeholders' perspectives and opinions (positive and negative) regarding the implementation of the alternative. This section closes by discussing which of the alternatives is most feasible from a political perspective.]

Legal & Contractual Feasibility

[This section discusses the legal and contractual feasibility of the alternatives in narrative form. Any legal and contractual risks (e.g., ownership, copyright, non-disclosure, privacy, law infringement) associated with each alternative should be discussed here. This section closes by discussing which of the alternatives is most feasible from a legal and contractual perspective.]

Recommendation

[This section provides a detailed recommendation to management. This section should clearly describe which alternative the team recommends implementing, as well as the rationale behind this decision.]

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Appendix J.
Project Workbook
List of Contents

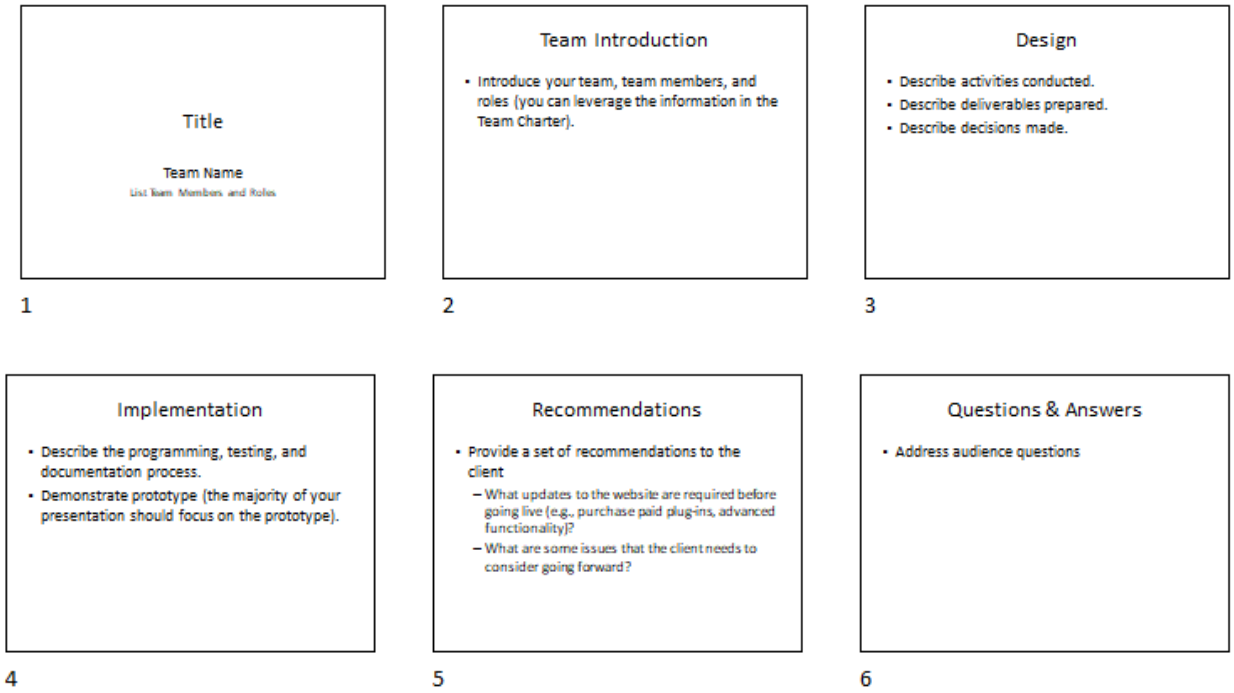
Overview

The purpose of this document is to provide a list of contents pertaining to the project workbook.

List of Contents

1. System Service Request
2. Project Overview
3. Team Charter
4. Status Reports (1 through 6)
5. Data Collection Plan
6. Interview Guide
7. System Requirements
8. Feasibility Study
9. Design Document
10. User Guide
11. Website Transfer Sheet
12. Presentation Slides

Appendix K.
Team Presentation – Template



Appendix L.
PEER EVALUATION OF TEAM MEMBERS

Please use the following format to evaluate your fellow group members for their contribution to the group **project deliverables and presentation**. You should include yourself in the evaluation.

SCALES
Meetings:
25 **=** Attended all meetings, arrived on time, stayed longer than the scheduled meeting time.
20 = Attended most group meetings, arrived on time, stayed for the length of time scheduled.
10 = Attended some group meetings, and arrived late or left early on occasion.
5 = Rarely attended meetings, and when attending arrived late or left early.
Quality and Quantity:
25 = Continuously provided valuable input into the project and facilitated discussions.
20 = Provided useful input most of the time, and was helpful in getting tasks accomplished.
10 = Ideas were weak and input limited, performed only work assigned.
5 = Contributed very little, if at all, to the paper.
Cooperation:
25 = Led the group in establishing a cooperative team environment.
20 = Sometimes led the group, provided support for other team members on occasion.
10 = Went along with whatever the rest of the group decided.
5 = Created problems and was disruptive.
Follow-through:
25 = Completed assigned work on time and error free.
20 = Completed work on time with some changes required.
10 = Required some prompting to complete assignments on time, several changes required.
5 = Rarely completed assignments, work completed was often not useful.
Grade: In the final column please provide a grade that you would give each team member based on the other four areas of evaluation. An "A" for excellent work, an "F" for failing work.

Name	Meetings	Quality and Quantity	Cooperation	Follow-through	Total Score (Add columns)	Grade

Appendix M.
Team Presentation Rubric

Overview
Each team will have 25 minutes to present, followed by a 5-minute Question & Answer period. Presentations will be scored along five (5) dimensions, as indicted in the table below.

Rubric
Scores: 1 = poor 5 = adequate 10 = excellent

Criterion	***Score/comments***
Professionalism: Each team member was introduced. The presentation was well-coordinated amongst the team members. The presenters looked and acted in a professional manner.	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ Comments:
Design: The presentation covered the activities and important decisions made during the design phase.	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ Comments:
Implementation: The presentation covered the activities and important decisions made during the implementation phase.	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ Comments:
Prototype Demonstration: The presentation demonstrated the prototype in an effective manner. The prototype addressed system requirements.	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ Comments:
Future Recommendations: The presentation offered recommendations that will benefit the client in the final system rollout.	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ Comments:

TOTAL SCORE: _____

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Appendix N.
Website Transfer Sheet

Website Transfer Sheet

The purpose of this document is to provide information to the client about the team's prototype. This information will be used to transfer accounts, domains, websites, and plug-in/widgets to the client.

Team Name:	[INSERT TEAM NAME HERE]
Website Prototype URL:	[INSERT URL HERE]
Content Management System (CMS):	[INSERT CMS NAME HERE]
CMS Account User ID:	[INSERT USER ID HERE]
CMS Account Password:	[INSERT PASSWORD HERE]
Domain Name(s):	[INSERT DOMAIN NAME(s) HERE]
Installed Plug-ins/Widgets:	[INSERT PLUG-INS HERE]
Other:	

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Appendix O.
Project Feedback Survey Results

Item	*n*	*M*	*SD*
The team project helped me understand Systems Analysis and Design concepts	37	5.73	1.539
The team project improved my understanding of business processes.	38	5.76	0.971
The team project increased my knowledge of how system development functions.	38	5.66	1.047
The team project enhanced my understanding of how Systems Analysis and Design impacts all functional areas of business	36	5.31	1.215
The team project enhanced my understanding of how Systems Analysis and Design concepts are relevant to my future career.	37	5.65	1.338
The goals of the team project were clearly stated and consistently pursued	38	6.18	1.111
The team project was not relevant to this course.*	38	2.21	1.679
I gained no new knowledge from the team project.*	38	2.24	1.635
I did not enjoy working on the team project.*	37	2.97	1.724
I was uncomfortable or unfamiliar with the required technologies or applications used in the team project.*	36	2.56	1.539
I had access to reliable communication tools (e.g., Zoom, Skype, Google Meet) during the team project.	38	6.24	0.913
I had access to reliable internet service during the team project.	38	6.68	0.662
I had access to a reliable digital device (e.g., laptop, mobile device) during the team project.	38	6.66	0.815
Rate your overall level of satisfaction with the learning experience this semester.	38	5.68	1.397
Rate your level of satisfaction with what you learned in class this semester.	37	5.62	1.299
Rate your level of satisfaction with the knowledge you gained in class this semester	38	5.55	1.329
Rate your level of satisfaction with the learning experience in this class compared to other face-to-face learning experiences	37	5.59	1.536

*Item reverse coded.