Group #1

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BUS4-110B: System Analysis and Design

17 November 2022

Final Report

In this milestone, we will prepare a Request for System Services, which is the trigger for the Preliminary Investigation Phase. We have reviewed a transcript from an interview between Mr. Jack Mills of A-1 Information Systems and Kira Webster, who has just started with A-1 Information Systems as a systems analyst. The goal of this interview is to obtain information about the problems and opportunities that triggered the project request, plus other general information that could be used to prepare a solution.

A-1 Information Systems is headquartered in Orlando, Florida, and approximately has 4,100 employees in the United States, alone. The company is a leading technology distributor, as well as computing, mainframe, micro, communication, and consulting services to its parent company, which is headquartered in Bethesda, Maryland. Furthermore, A-1 Information Systems is responsible for the development and support of all the internal systems that support their day-to-day business processes and operations. Currently, A-1 Information systems operates in

five states across the nation which include Orlando, Denver, Sunnyvale, Marietta, and Valley Forge. A-1 is a company that provides cutting-edge technological solutions to prestigious and renowned enterprises, going as far as to be a lead technical provider to the U.S. government. A-1 is split into two groups of providers, an adult corporate-based company in Bethesda, Maryland, and a backend support-oriented subsidiary in Orlando, Florida, known as A-1 Information Systems. With 4,100 employees strong, A-1 Information Systems is able to provide concierge-level support and industrial solutions to their parent company, from 5 different states. Furthermore, A-1 IS plays the pivotal role of verifying the integrity of their internal systems during their daily modus operandi. According to recent statistics, A-1 IS has received a 15% increase in employees during a two-year period, and is heavily anticipating an upwards trend of a consistent internal growth for the upcoming 3 years of operation.

A-1 Information Systems provides state-of-the-art technology to its parent company, A-1 Corporation, as well as third-party customers, such as the U.S. government. Furthermore, A-1 Information Systems takes on the mantle of being a lead developer and supporter for the backend structure in the business' routine standard operating procedure. By providing solutions to consumers intrinsically and extrinsically, A-1 IS is able to secure both parties from any type of incidents regarding identity theft or data loss/data breaches. The company's vision for the future is to be able to provide a backbone to the business in order to provide consistent concierge service towards their internal and external customers. In order to do so, the company must reinvest in itself by creating identical systems across all of their subsidiaries in order to promote a consistent business practice. In the text, we can see that Jack visualizes a new system, one that is not only user-friendly, but visceral, all accommodated by a visually appealing GUI. All in all, the VP of A-1's HR team wishes for the system to present ease of access for all employees.

SWOT Analysis

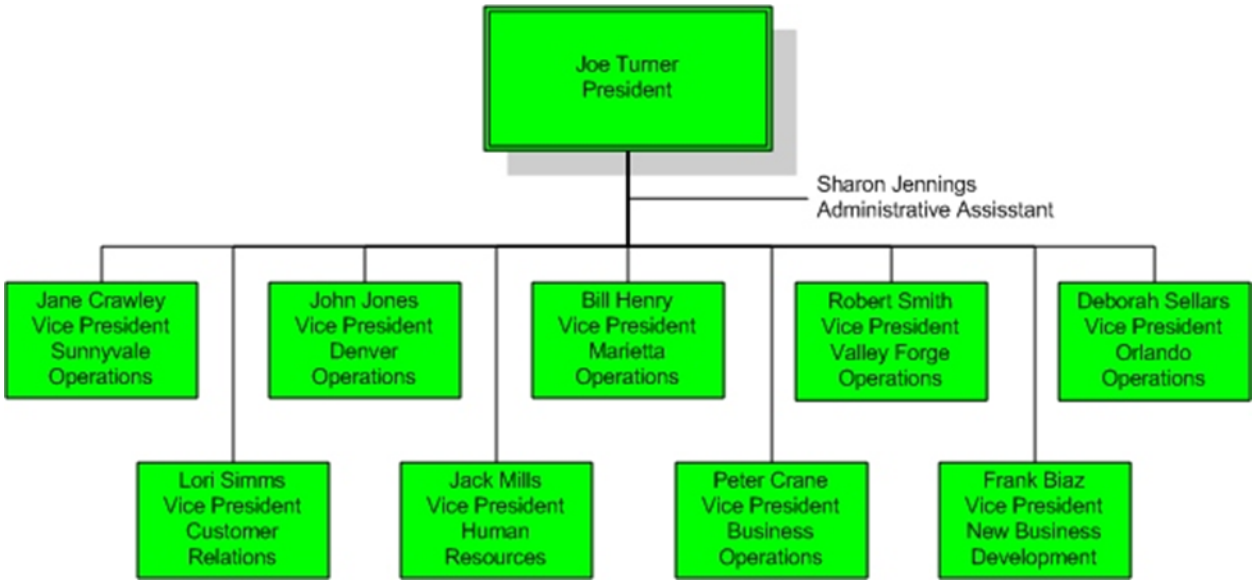
Strengths	Weaknesses
• A-1 IS a large and growing company with sites all over the nation. • Has the latest and greatest personal computers that come with the standard word processor, spreadsheet, and database	• Current system has lots of inefficiencies and its operating costs are exorbitant. • Currently concentrating on reengineering the current employee information systems to meet company's needs. • The mainframe system doesn't have all of the necessary employee information to produce the listing. This is why the micro system is being used.
Opportunities	**Threats**
• Being able to change the system so that employees can access it as well, not just Human Resources. • Envision that the system will be easy to use, intuitive, with a graphical user interface. • System should be accessible from every desktop in the company, and from home using the internet. • The interface should be consistent no matter what platform you are using.	• A-1 IS currently produces 5,000 copies of an employee telephone listing which costs about $27,000 a year. The problem is that the book is probably out of date the day that it is published. • By the end of the year the company needs to reduce its organization by five administrative positions because of pending overhead reductions.

At A-1 IS, service is the main goal of the company. Whether it be an internally based employee, or an upcoming client, A-1 IS pledges themselves to upholding the concierge service that they so greatly sanction. With the five best-in-class subsidiaries bringing about the greatest solutions to fruition, A-1 Information Systems has you covered!

In order to carry out the goals of a world-class concierge service to all employees and clients, A-1 fixates their assets to realizing a unionized system, one that is easily accessible by employees without regard to their location on the globe. All in the meanwhile, by pushing forth these operations, the company will concurrently be able to uphold a secure and define a solution to their clients. Stakeholders of A-1 will range from people invested into politics, technology,

and business-to-business enterprises. The company's story revolves around the usage of technology as a foundation of support for their clients, with one of them being the U.S. government themselves. Furthermore, the company seems to provide profound security for other parties, which strongly pertains to the business to serve other businesses through this model. As a result, we can see that the company's stakeholders will be those invested into the U.S. government affairs, technology for security-proof and IT-related solutions, and other businesses hoping to learn more about the standard operating procedures that A-1 endorses.

Joe Turner is the chairman of the executive board of A-1 Information System Corporation. The steering committee, which is led by him, is composed of 5 Operation and 4 Division Vice Presidents. The Operation Vice Presidents include Jane Crawley, John Jones, Bill Henry, Robert Smith, and Deborah Sellars. Respectively, they are responsible for managing and operating the sites in Sunnyvale, Denver, Marietta, Valley Forge, and Orlando. Other members of the Executive Board are Peter Crane, the head of the business operation department; Lori Simms, the customer relations vice president; Jack Mills, Human resources vice president ; and Frank Biaz who oversees the new enterprises development. Together, they oversee the business, which has over 4000 employees and provides cutting-edge consulting services across the US.



In this case, the end users are the people from the Human Resources department and also every employee in the company who needs to get information about employee information, time and attendance, and payroll to make certain decisions or tasks in their daily jobs. The employee's information is manually collected from the employee's onboarding period. Currently, this data is stored in a COBOL-based system using obsolete database technology. The problem at hand is that the data takes several days to modify due to many manual procedures such as a lack of intuitive information flow in modifying existing data. Simple tasks are locked behind repetitive forms. In one particular case, employee information is typically outdated because their information travels from a micro system then onto telephone books which undergoes an extensive publishing process. Due to this, simple information such as employee phone numbers and work locations are currently unreliable.

The problem from the end users perspective is that if employees need to change any of their personal information that is on file, they would need to fill out a form and submit it in order for the company to input the information. The problem about this is that this process can take up to weeks before the changes are made and updated throughout the system. This then leads to

other problems where employees don't receive their payroll checks due to the fact that the information in the system has not been updated in real time. The current information system creates inefficiencies for the end users because it stores potentially outdated employee information. This results in unreliable information for the end users where they cannot utilize the company's telecommunications to contact one another as potentially outdated data may be given.

SYSTEMS REQUEST FORM	
Date: **09/10/2022**	
System enhancement: **COBOL database**	Title: **HR Improvement**
Department: **Human Resource**	Location: **A-1 Information Systems**
New system: **Improved HR Info Systems**	E-mail:
REQUEST FOR: **Developing a new system to house employee information**	**URGENCY:** **The first phase of the project is to be completed in six months**
[X] Correction of system error [X] System enhancement [X] New system	[X] Immediate attention required [X] Handle in normal priority sequence [ ] Defer until new system is developed

DESCRIPTION OF REQUESTED SYSTEMS SERVICES:
(ATTACH ADDITIONAL DOCUMENTS AS NECESSARY)

- **Better Performance:** *Have a new mainframe system that has all the necessary employee information to produce a listing. As well as have the functionality to produce reports*
- **Better Performance:** *Automated interface between the mainframe system and micro system*
- **Stronger Controls:** *Allow employees to have access to the system and not just the Human Resource employees*

- **Improved Service:** *Employee's being able to access and change their information from home using the internet*
- **Improved Service / Stronger Controls:** *Include a state-of-the-art for security like a biometric device that is cheap and easily used at home and the office to reduce the chances of information being leaked*
- **Improved Service:** *The new system should be easy to use, intuitive, with a graphical user interface*
- **Improved Service / More Information:** *From an employees perspective, have easy access to folders containing certain types of information. For example: emergency information, deductions, etc…*
- **Stronger Controls:** *Only HR admins and employees managers should be able to access the employee's info besides the employee themselves.*
- **More Information / Support:** *System should include a telephone book of every employer's phone number and work location to make it easy for the employers to reach out to others.*
- **More Information:** *The system should also allow managers to view organization structure data, meaning, the system contains information about who the employee's manager is and shows other employers who report to the same manager.*

(To be completed by the Information Technology Department)	
[] Approved	Assigned to IT contact person:
	User:
	Urgency code (1 low to 5 high):
[] Modified (see attached notes)	
[] Rejected (see attached notes)	
Date:	Action:

Project Roles:

Project Manager: Michael Gonzalez

- Play the lead role of planning, executing, monitoring, controlling, and closing out the project.
- In charge of taking care of every possible parameter, as well as laying out the foundation of a project and getting a team to work together toward a shared goal.
- Find the quickest and easiest pathway toward accomplishing whatever it is that the client or the stakeholder wants to get to.
- The responsibility of a project manager is to make sure that the organization stays in business by offering efficient solutions that teams need. This process will involve taking care of the team, checking in with the expectations of the clients, and handling the overall management of tasks as well as the schedule.
- Responsible for implementing the new system with a budget of $200,000 in a timeframe of 18 months.

Business Analyst: Vy Nguyen

- Communicate with the client to determine the client's requirements, goals, and budgets.
- Research the client's business model and existing system to analyze and get the general idea for the new system.
- Interpret the client’s idea and requirements to the team to get the project brief following the client’s business goal and information needs.

- Identify company's issues that need to be modified and fixed. Come up with potential solutions and discuss with relevant stakeholders to develop a project plan.
- Conduct an analysis on the system and discuss the outcomes with project manager, clients, IT team to conduct short and long-term planning.

System Analyst: Trung Le

- Analyze business process issues and/or problems and provide consulting assistance to system users.
- Conduct research on possible solutions and make recommendations based on findings.
- Provide technical end-user support, including researching user complaints, researching issues, answers technical questions, and assists with application revisions.
- Optimize the efficiency of technology by tweaking systems and introducing new alternatives into the workspace, without compromising short downtime.

Backend Lead Analyst: Jacky Chan

- Analyze functional and system requirements, develop application and database architecture and design.
- Troubleshoot core business applications and design techniques to solve business problems using information technology with a budget of $100,000.
- Identify the organizational improvements needed and design systems to implement those changes as well as train and motivate others to use the system within a six month timeline.

- Responsible for Web backend/API, database technical design, development, enhancement, and maintenance.
- Using Figma to create potential user experience flows before implementing approved designs.

Frontend Analyst: Mikhail Ocampo

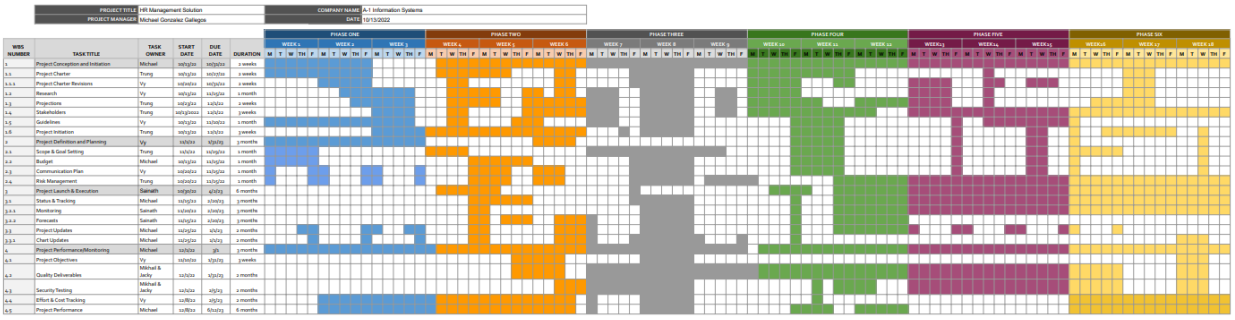
- Responsible for identifying gaps and opportunities between current performance and desired performance through available business data. Within the span of two weeks, data should be stored within an accessible xlsx file and include data about employees' information, salary, roles, and more in order to provide context for back-end analytics.
- Provide metrics, during retrospective analysis within the scrum process, of the team's progress towards the project's goals according to business opportunities.
- Design and implement FEA (front-end analysis) for the team which includes project scope, ideal performance, project objectives, and potential alternatives to the given requirements.
- Creating, pushing, and analyzing user experience using Qualtrics. Work with human resources to collect data from employee's through the company's emailing service before, during, and after project launch (+/- one week of each milestone).

Implementation Analyst: Sainath Subramanian

- Facilitate the deployment of new systems, business functions, and software.
- Track and report new systems and their effectiveness.
- Test products and use customer information and feedback to implement improvements.

- Guide the company through new updates and developments, including testing and teaching new users.
- Interact with users to ensure product understanding and overall satisfaction.
- Maintain status reports, records, and other relevant documentation.

Gantt Chart:



Group #1 ESSS Training Plan

Training Phases	Training Tasks	Required Roles	Training Activities	Timeframe
Business Research and Analysis	Identify the audience	Human Resources Department, Company's, Board of Executive members, Managers, and Employees all serve as the stakeholders in the training program.	People of the Human Resources Department,Company's, Board of Executive members, Managers, and Employees.	September 1 - September 8
	Identify the scope of training	Executives and Managers will identify the successful factors	Each group will have different training materials that will help them identify the basic functions and	September 9 - September 16

		of the training program.	features of the new system.	
	Identify needed materials and content of training program	Project Lead Analysts are responsible for the outline/fundamental integrity of the training program. For instance, they would dictate the media used (videos, slides, assessment programs, etc) on top of the identification of key principles that end-users must understand upon completion of the training program.	Different groups of trainees will have different training materials depending on their titles. They will be participating in the program through assessment quizzes and videos that provide information regarding the new system changes. The information provided will be carefully assembled through a collaboration between the project lead and the project manager. The information will be verified through the research analysts and IT SWE/QA departments.	September 17- September 24
	Identify the trainers/ instructors	Project Managers would be delegating the task of guiding new users to experienced employees that have the competency to communicate in both technical and non-technical practices	The employees will go through the process of navigating and working with the system. This allows for the employees to get familiar with the new updates. The project manager will demonstrate what to expect and what to execute.	September 25 - October 1
Training Course Design	Identify new system features breakdown	Collaboration between Project Lead Analyst and IT Department	New system has different features for different users. Therefore, in this stage, we need to	October 1 - November 15 2022

		(Security, SWE, QA Team)	determine the training content for different groups of users.	
	Identify training goals	Collaboration between Project Lead Analyst, Project Manager, assistant team leaders	Identifying the training goals allows for trainees to be provided direction, leading to a more persistent and committing mentality to learning the new system. By the end of the program, all employees will understand how	November 16 - November 30 2022
	Design courses' outlines and duration.	Project designers (ideally employees with a background in UI & UX alike (requires both functionality and visual appearance interactions skillsets). This role will require outsourced contracting.	The course outline are resources to help the users understand the course. The outline help breaks down the criteria with the learning goals & objectives, sections with dates and requirements.	December 1 - December 15

Background Research: Vy (One month)

- Research the customer's information needs and requirements to come up with a report as the guide for further development.
- Report about the existing information system and what needs to be fixed, changed, or modified based on client's requirements.
- Determine project's scope, constraints, and approaches.
- Collect relevant databases needed for the new project's input.
- Conduct market research on price to performance along with scheduling times to determine project feasibility and constraints

- Initiation: Trung (Two months)
    - Pave the way for exceptional project establishment (identifying audience/common goal, ensuring deliverables are of benefit to the organization and executives, ended by a well-defined presentation that reminds the audience of the risks and scope objectives of the project)
    - Create a system/standard operating procedure regarding the documentation of project goals and deliverables to the company
    - Propose the project idea (benefits and cost alike) to determine whether or not the project is needed by the company/requires additional resources.
    - Identify the milestones required to bring the project to fruition.
    - Create a system/backend resource that verifies the integrity of project progression (a support service that "checks off" the project's goals and overall advancement)

    - Ensure a smooth transition from initiation into software development through fulfillment of above duties
- Design and Development: Mikhail/Jacky (11 months)
    - Identify existing and potential problems before, during, and after project release
    - Create UI/UX designs to match project requirements and presenting prototypes with workflows, links, and collaboration
    - Connect back-end and front-end elements in order to achieve project requirements according to initial design
    - Using a tech stack to build and run an application that consist of the programming languages and frameworks
    - Develop training programs so employees can have access and exceed their potentials

- Quality Assurance: Sainath/Mikhail & Jacky (Three months)
    - Touch base with software developers on both ends in order to verify the integrity of the solution
    - Carry out duties listed on standard operating procedures (sourced from background researcher)
    - Application has a feature to request and retrieve information from the database
    - Ensure that software development paves the way for future development (quality assurance and quality testing)
- Deployment/Project Execution: Mikhail (One month)

- Process of checking designs in terms of requirements and context.
- This will include functional tests, end-to-end testing, and performance testing
- Edge cases and unit testing
- Stress testing for system performance

Who are the stakeholders for this project?
Internal workers - Project Manager, HR Staff, Software Engineers, UX R&D Team, IT Infrastructure & Data Management, & Support departments
Team Members, Project Manager, Customers, Users (HR staff and employees), Internal IT staff
What information does each stakeholder need?
Each individual needs to know the objective of the overall project, along with their respective role in order to reach that same, mutual goal. This would include steps such as initiation, execution, planning, closure, and overall quality control of the project in its entirety. To be more specific, these steps should all ensure that the project is able to be completed within its scope, meaning that it provides deliverables that fulfill all prerequisites, are within budget, and satisfy its end-user stakeholders in a timely manner.

When, and at what interval, does this information need to be produced?
Information needs to be driven to the audience members/concerned parties on a weekly basis.
What sources will be used to gather and generate this information?
Sources that are used to gather and generate information are observing the usage of data from the end users' perspective. By analyzing the usage of data, it can help determine what information is useful and other aspects that need more modification.
Who will collect, store, and verify the accuracy of this information?
Verifying the accuracy of the information falls upon the shoulders of the project lead research analyst. Their role is to touch base with the software developers in order to fully understand the new implementations of the system. With that information, they collaborate with the project

manager in order to verify the integrity of the information before proceeding further with any meetings.

Who will organize and package this information into a document?

There will be designated note takers who will be responsible for the organization, packaging, and delivery of all information found from all meetings and turned into a document.

Who will be the contact person for each stakeholder, should any questions arise?

Internal team members, depending on their role, should either report to HR or the Project Manager with any questions/concerns regarding the project's scope, deliverables, or constraints.

What format will be used to package this information?

In terms of the format, designated notetakers will fulfill the role of organizing all information from the meetings into a PDF file, as it is more secure than other document types and serves commonplace as a standard.

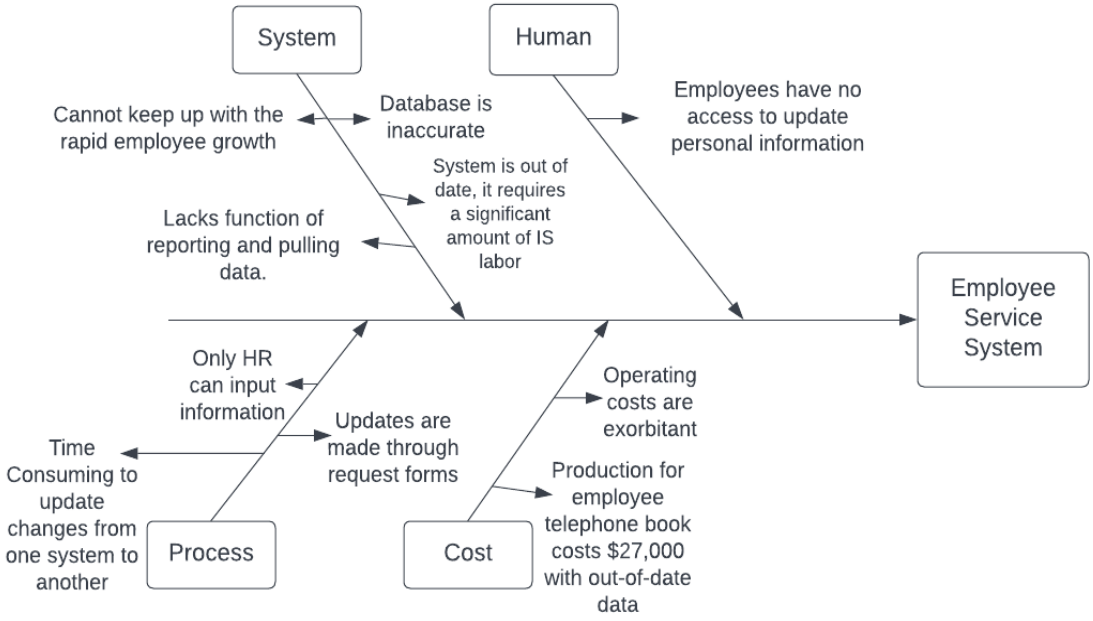
What communication medium will be the most effective for delivering this information to the stakeholder?

Email can be used as the most effective method to deliver information to the stakeholder. By using email, the process of delivering immediate information to each of the stakeholders makes the communication process a lot easier on both ends.

The PIECES Framework	**Explanation**
Performance	● Update the Employee Information System and have it integrated with the company's Email system. This will allow everyone to have access to the system via the Web from any location. ● Create a new mainframe system that has all the necessary employee information to produce a listing. Not only that but to have the functionality to produce reports as well as have an automated interface between the mainframe and micro system.
Information	● The new system should be easy to use, and intuitive with a graphical user interface. Also, from an employee's perspective, have easy access to

	folders containing certain types of information. For example: emergency information, deductions, etc. ● Providing a mechanism that can allow the employees to update their own data would help cut down the amount of time needed to input into the system. By entering the data into one system, it should update the changes to the rest of the system to provide accurate real-time data.
Economy	● Due to the current mainframe system being too costly to operate and maintain, it is best to have new servers and softwares. This improvement can help cut operating costs since it requires lots of work in information system labor to support it in terms of enhancement, bugs, fixes, backups, and more. Not only that, but it is significantly cheaper for the information system support to maintain a high-quality service. ● By adding new servers and softwares, it can help significantly cut the operating cost especially because the cost is 300 times less than maintaining and operating mainframe systems. If the development of the new system with its features are done correctly where it is easy to adapt to the changes, then there is a possibility of being able to save 50% of the operating cost.
Control	● Allow employees to have access to the system and not just the Human Resource department. Employees should only be able to see their own data except for the online directory. ● Including a state-of-the-art biometric device for security is cheap and can easily be used from home and the office to prevent data being leaked.

Efficiency	● Allow the employees to have access and control to update their own personal information into the data system, it reduces the time spent updating the employees data. Instead of spending 12 hours a week it can be reduced to one to two hours a week. ● By adding an ad-hoc query to the system, it makes the process of requesting for a new report more convenient. This process will help maximize the amount of time for both the user and the information system when needing to access their report.
Service	● The system should also allow managers to view organization structure data, meaning that the system contains information about who the employees manager is and show other employers who report to the same manager. ● Provide managers with features on the system with tools to help monitor employee participation as well as provide encouragement.



Functional Requirements

- Software that allows for employees to change their personal information, such as tax/payroll options. This is to lessen overhead within the company and ultimately to drive down labor costs.
- Systems in place that allow employees to send in time-off requests digitally. These requests can then be approved or denied by management using the same system.
- Maintain and upgrade current servers and other hardware within the workplace. Additionally, software will be maintained and upgraded which will allow more efficient workflows to be utilized.
- Verify hardware and software are performing optimally by using advanced software to remotely monitor the health and status of systems within the workplace.

Non-Functional Requirements

- Provide an online platform that is accessible worldwide to employees.
- Technology that is able to secure consumers intrinsically and extrinsically from any type of incidents regarding identity theft, data loss, and data breaches. Some of the functional nature consist of multi-factor authentication (MFA) and single sign-on (SSO).
- Ease of access for all employees.
- Upgrade current personal computers to meet the everyday needs of employees.
- Upgrade to a high-quality new system that is cheaper yet more secure than the Mainframe system.

Constraints:

- Costly powerful hardwares to run the system efficiently, store and secure data.
- Cost of updating new software/ fixing software errors
- Require sufficient amount of staff to maintain system's efficiency
- Labor cost for Information technology staff.
- Cost potentially includes the cost for multiple layers of information security systems and Information Technology staffs working on it

Project Scope:

- The new system must be able to retrieve the following information using a search screen: First name, Last name, Employee Office Location, Department, Job Title, and Supervisor. This search will also use combinations of the data listed above to find the user.
- The new system should be able to verify employee's identification to provide secure or unsecure information of employees depending on the title of employees.
- The system should be able to support many users at a time without system shutdown or interruption.
- This system must be secured in order to prevent information leaking or access from externals.
- Set up a safe information storage system that is a user-friendly interface.

Problem #1: Employees currently cannot find the information of other employees and update personal unsecured information.

- **Cause:**
    1. Employee's information is manually collected and inputted by a staff which is time consuming and outdated.
    2. Data is currently inputted and stored in different systems. Therefore, whenever any user needs information about an employee, they have to wait for the paper to be sent which may or may not be in sync after a long time of processing.
    3. Information is not efficiently kept tracked.
- **Objective**
    1. Setup an interface for employees to find relevant employee information.
    2. This information can be narrowed through using the parsed information (below) or through department/group search to narrow data requests.
    3. Non-secure information can be inputted and updated by employees, managers, or Human Resources executives.

Problem #2: Not having the features of ad-hoc query and reporting functionality

- **Cause:**

1. Managers require more information than what is currently readily available in the employee directory. Managers need an updated system that is all-inclusive in terms of functionality.
2. Require a request to the Information System department to get the report which takes a long time because the Information System department is usually overwhelmed with the heavy workload.

- **Objective:**
    1. The system has features that creates reports and pulls data from the Database.
    2. Reports can be requested through the system instead of filling out paperworks for a report.
    3. Distinguish data types to save time for people from different departments on searching and working on it.

Problem #3: Employees can not access and modify their United Way contribution.

- **Cause:**
    1. Manual information inputting and request discourage employees to sign up and modify their payroll deduction.
    2. The whole process depends only on Human Resources staff and Information System staff that makes it unnecessary time consuming.
- **Objective:**
    1. The secure data can be accessed and updated by the Human Resources department.
    2. The payroll deduction can be easily viewed by employees. Human Resources executives can access and update by payroll deduction and United Way contribution.
    3. The new system must be specifically designed for a user-friendly interface. The typical user, a manager, cannot be expected to know SQL database language, thus the new system must either have customized software to accommodate for this necessity or to have the task delegated to a team of programmers that understand SQL databases.

System Requirements

Outputs

1. Company employees can search for employees' information through any keyword input. In turn, the system will return results that match the criteria.
2. System should show employees that information was updated successfully.
3. System should output reports requested by manager

Inputs

1. Database tables should have columns of labeled data which may specify data type such as First_Name, Last_Name, Address, Phone_Number, Payroll_Deduction, Tax_Contributions
2. System should allow employees to input personal information, payroll deduction, and tax contributions.

Processes

1. Databases should be able to have multiple tables of data which can be created, dropped, or modified.
2. Database tables should allow the creation and modification based on the needs of the company after a successful login indirect managers to view or make any edits such as promotions
3. Database tables should allow commands via a DML such as SQL's SELECT, JOIN, and EXCLUDE records across multiple tables in order to return desired records.

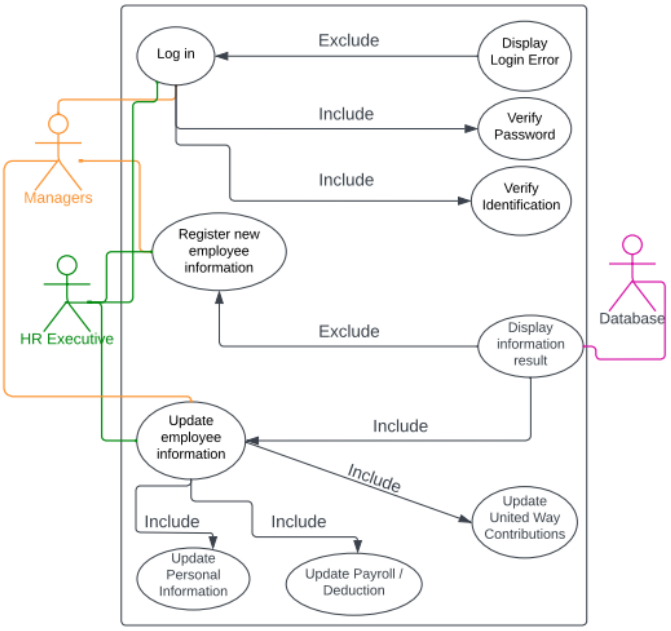
Performance

1. Database should be able to expand storage based on needs of the company as employee's grow in number. To begin, it should handle more than 500 users
2. System should have quick response time <5ms
3. System should have little to zero downtime (99.9% uptime)

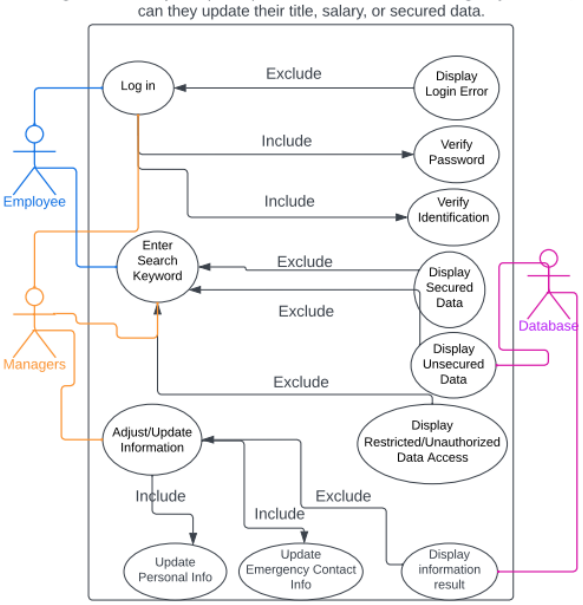
Controls

1. Database should require secure login onto the database manager in order to manipulate existing production.
2. Databases should be able to export tables to files and duplicate current production for developers to either modify externally or create backups without affecting production.
3. Database managers may then accept authorized users to upload and rewrite production.
4. Database managers should allow authorized users to write commands to modify tables.
5. System will allow employees and their direct or indirect managers to view or to make any modification to their information, payroll deduction, and tax contributions.
6. System will hide managers and executives' secured information from other managers and employees.

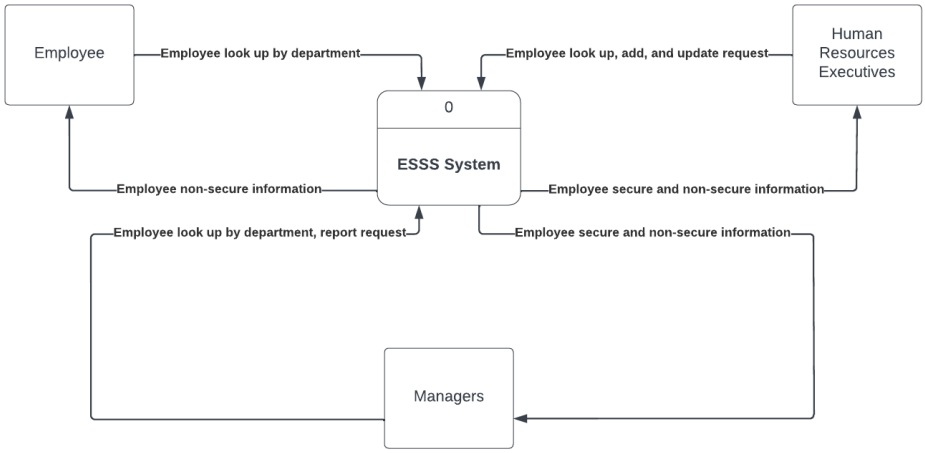
Use Case: Human Resources Executives are the only authority that can register new employees to the system. This action will be processed after successful log-in followed by an identification verification. The system will determine what action the person can perform upon identity verification. Both Human Resources Executives and Managers can update employees' personal information such as salary, payroll deduction, and United Way contribution.



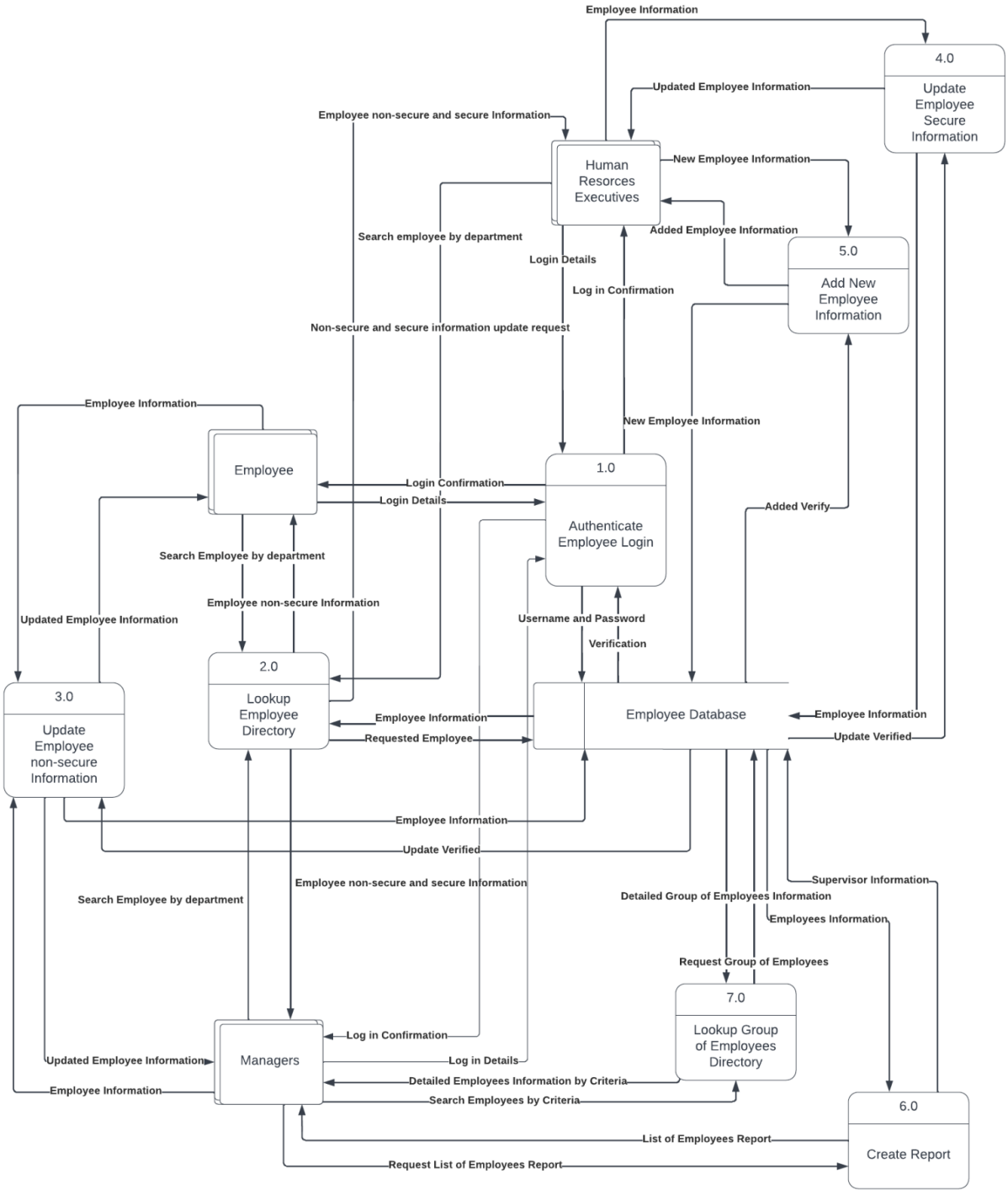
Use Case: Employees and managers alike can both search for the general unsecured information of other employees, as well as their own, through keyword inputs. This action can only be processed after successful logon. The system will verify their identification as a prerequisite for what type of data that person can view. After doing so, the system will display results that match the criteria of the keyboard and user authority status. Only managers can view secured information of their employees that are under their direct management. Employees and managers cannot adjust/ update personal information and emergency contacts, nor can they update their title, salary, or secured data.



Employment Self Service System Context Diagram



Employment Self Service System DFD - 0



Group #1 ESSS Communication Plan

Communication Goal	Communication Tool	Team Contact	Audience	Frequency
Review web application and development plan	In-person meeting	Senior software developer	Project Team, Sponsors, Project Manager	Biweekly
Team Standup	In-person team-inclusive meeting	Project Manager	Project Team, Sponsors, Project Manager	Daily
Project Review	In-person meeting	Project Manager	Project Team, Project Manager, Clients, Stakeholders	Monthly
Project Completion	In-person meeting	Project Manager	Project Developers, Project Manager, Clients, Stakeholders	December 15th

Key Risks

- Key risks include company's costs, overhead and direct/indirect costs alike, along with the scheduling of the project itself along with how able the employees are in terms of performance. Although scheduling itself seems like no issue, it could be trivial when the team assigned to a certain aspect of the project fails to deliver due to unforeseen circumstances.
- Other key risks include having data breached
- One prominent risk in the project's scope is data migration and integration as a whole. If A-1 IS utilizes servers that lack data redundancy, there is an indefinitely high risk when transferring data to a new system. Thinking about data redundancy as a whole, it could even be said that there is fear to worry about downtime during the creation of the new system if there was a lack of redundancy within the system's current data.

Alternative Solutions

- Some alternative solutions would include the purchase of another software package. By purchasing software from another company, a lot of liability and stress is alleviated from the company. Some things that A-1 would worry less about are the cost, guidance for

maintenance, and implementation as a whole. By purchasing a pre-acknowledged software package, it would be very seamless to implement into the company.
- The key risk with purchasing software is the type of support that they offer, along with how often they push updates and their integrity as a company to fix bugs that come about.

- The other alternative is to customize a current vendor's software in order to better fit A1's needs. Although this would cost higher, it would save the company a lot of money and headaches due to not having to worry about lack of implementation for one of their needs.
- The key risk with software customization is the scope of the software. Humans aren't perfect, and thus, it is very difficult to ensure that any type of customization in regards to software will come out pitch-perfect. That being said, it will also bring about stress on whoever has to plan out the scope of the company's software requirements and would require a bigger group of people to configure a solution to their problem before proceeding further. With that being said, the biggest issue with software customization is the lack of scope and time required to tailor a solution to their needs.

Recommendation:

The new system resolves every complication that exists in the current system. By creating a user-friendly interface where employees can access their profiles, they're able to achieve a peace of mind knowing that they need not worry about requesting assistance from a higher-up to modify their personal information, or even submitting a ticket request to HR for modifications such as direct deposit. Before, a phone book would run a company around $27,000 a year, and would lack efficiency in its entirety due to how sluggish the entire operating procedure was. After discussion with our fellow consultants, we agree that, with a budget of $230,000 and 18 months of runtime, solving these issues in the form of a new, intuitive system will allow employees to function effortlessly.

Appendix - Glossary of Terms

DML - Data manipulation language, a family of computer languages including commands permitting users to manipulate data in a database.

SQL - Structured query language, a DML used in programming for managing data in a relational database management system.

DFD - Data Flow diagram, a diagram used to represent how to process nodes connected with externalities and the flow of information.

Gantt Chart - A Gantt chart is a type of bar chart that illustrates a project schedule

User Experience (UX) Design - The process design teams use to create products that provide meaningful and relevant experiences to users.

User Interface (UI) Design - The design of user interfaces for machines and software, such as computers, home appliances, mobile devices, and other electronic devices, with the focus on maximizing usability and the user experience.