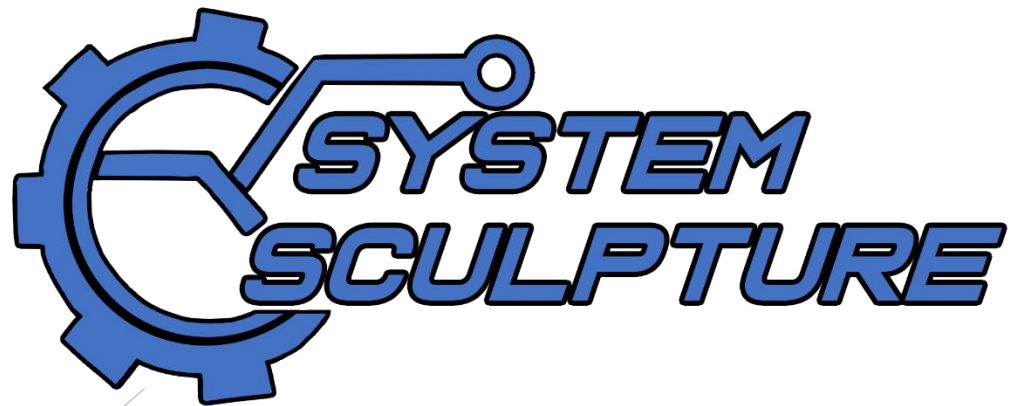


4/7/2024

Payroll System



Michael Monroe, Cara Morris, Joseph Neveu, Alec
Nguyen, John Nguyen, Ronald Nguyen, Mariano Ramirez



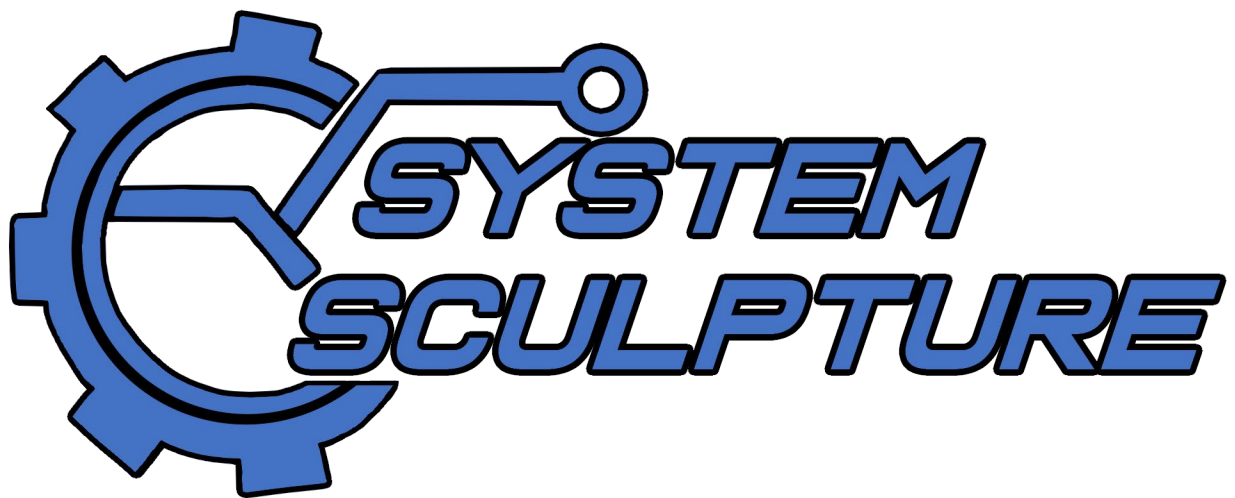
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Team Name

System Sculpture

Team Logo



Team Communication Plan

Communication	Frequency	Goal
Team Progress Report	Wednesdays after class	Set weekly goals, expectations, and meeting time
Group Work	Fridays 10a.m - 12: 00p.m	Work on individual and/or group work
Microsoft TEAMS Chat	Anytime	Facilitate official communications (posting deliverables, etc.)
Text Group chat	Anytime (Emergencies)	Communicate potential last-minute changes and/or expectations
Email	Fridays 10a.m - 12: 00p.m or Anytime	Set weekly meeting reminders and mass communications.
Individual Phone Numbers	Anytime (Emergencies)	Notify specific group members regarding responsibilities & updates.

All members are an audience, and all documents are shared in the TEAMS Group 4 Files.

Storage Location: Microsoft Teams Group 4 File Folder, OneDrive

Contact Information		
Contact Name	Phone Number	Email
Alec Nguyen	REDACTED	REDACTED@cougarnet.uh.edu
Cara Morris	REDACTED	REDACTED@cougarnet.uh.edu
John Nguyen	REDACTED	REDACTED@cougarnet.uh.edu
Joseph Neveu	REDACTED	REDACTED@cougarnet.uh.edu
Mariano Ramirez	REDACTED	REDACTED@cougarnet.uh.edu
Michael Monroe	REDACTED	REDACTED@cougarnet.uh.edu
Ronald Nguyen	REDACTED	REDACTED@cougarnet.uh.edu

Team Responsibility Matrix

S.No.	Project Deliverables	Project Manager	Assistant Project Manager	System Analyst	Tester/Assistant	Developer	Developer	Communication Manager
		Cara	Mariano	Joseph	Alec	Michael	John	Ronald
1	Submission Files	X						
2	Overall Document Format	X	X	X	X	X	X	X
3	Identification of Team Members	X	X	X	X	X	X	X
4	Team Name	X	X	X	X	X	X	X
5	Team Logo	X	X	X	X			
6	Team Communication Plan		X					X
7	Team Roles/Responsibility Matrix			X				
8	Case Study + Problem Statement			X				
9	Initial Project Work Break Down / Gantt Chart	X	X	X				
10	PERT Diagram	X	X	X				
11	Complete Requirements List	X	X	X	X	X	X	X
12	System DFD Data Flow	X	X	X	X	X	X	X
13	System Proposal		X	X				
14	System Proposal Presentation	X	X	X	X	X	X	X
15	Complete List of References	X	X	X	X	X	X	X

Problem Statement

Automation of Payroll Process

Manual Payroll Process:

- Tedious manual payroll calculations
- Large time and effort required for larger organization
- Higher risk of human error in calculations

Inefficiency of Manual Record Keeping:

- Difficult to track employee hours worked
- Time consuming to maintain accurate records for pay, allowances, deductions, taxes, and 401k contributions
- No streamlining to track employee related data

Need for automation:

- Realize benefits of automated payroll process
- Recognize that automation can improve efficiency of salary calculations
- Desire for system to allow for authorized users to access data with allocated username and passwords

Security:

- Lack of Security for data
- No credentials needed to access files or data

Documentation:

- Data redundancy
- Validity of manual data is compromised

Initial Project Work Breakdown Structure

	Task Name ▼	Duration ▼	Start ▼	Finish ▼	Precedes ▼	Resource Names
1	Submission File	3 days	Wed 1/24/24	Fri 1/26/24		Cara
2	Overall Document Format	3 days	Wed 1/24/24	Fri 1/26/24		Cara,Alec,John,Joseph,Mariano,Michael,Ronald
3	Identification of Team Members	6 days	Wed 1/24/24	Wed 1/31/24		Cara,John,Alec,Joseph,Mariano,Michael,Ronald
4	Team Name	3 days	Wed 1/24/24	Fri 1/26/24		Alec,Cara,John,Joseph,Mariano,Michael,Ronald
5	Team Logo	4 days	Mon 1/29/24	Thu 2/1/24	4	Cara,Joseph,Mariano
6	Team Communication Plan	6 days	Wed 1/31/24	Wed 2/7/24		Mariano,Ronald
7	Team Roles/Responsibility Matrix	6 days	Wed 1/31/24	Wed 2/7/24		Joseph
8	Case Study + Problem Statement	6 days	Wed 1/31/24	Wed 2/7/24		Cara,Joseph
9	Initial Project WBS & Gantt Chart	2 days	Fri 2/9/24	Sun 2/11/24		Cara,Joseph,Mariano
10	Pert Diagram	3 days	Mon 2/12/24	Wed 2/14/24	9	Alec,John,Michael
11	Complete Requirements List	3 days	Wed 2/14/24	Fri 2/16/24		Alec,Cara,John,Joseph,Mariano,Michael,Ronald
12	System DFD	3 days	Mon 2/19/24	Wed 2/21/24	11	Cara,Joseph,Mariano,Ronald
13	Systems Proposal	12 days	Mon 2/19/24	Tue 3/5/24	11	Cara,Joseph,Mariano,Michael
14	Systems Proposal Presentation	26 days	Wed 3/6/24	Wed 4/10/24	13	Cara,Mariano,Ronald
15	Complete List of References	6 days	Thu 4/11/24	Thu 4/18/24	14	Alec,Cara,John,Joseph,Mariano,Michael,Ronald

Figure 1. Work Breakdown Structure

Gantt Chart

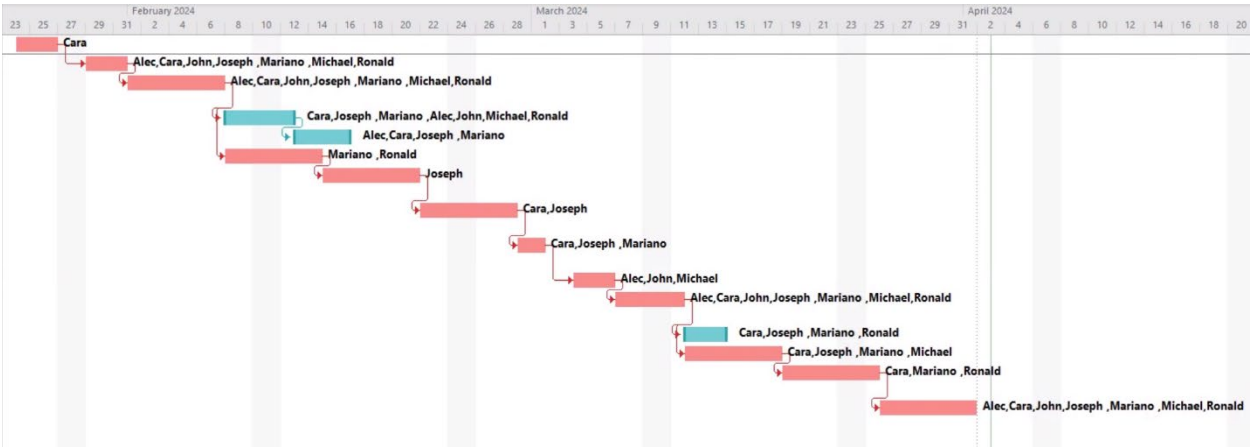


Figure 2. Gantt Chart

PERT Diagram

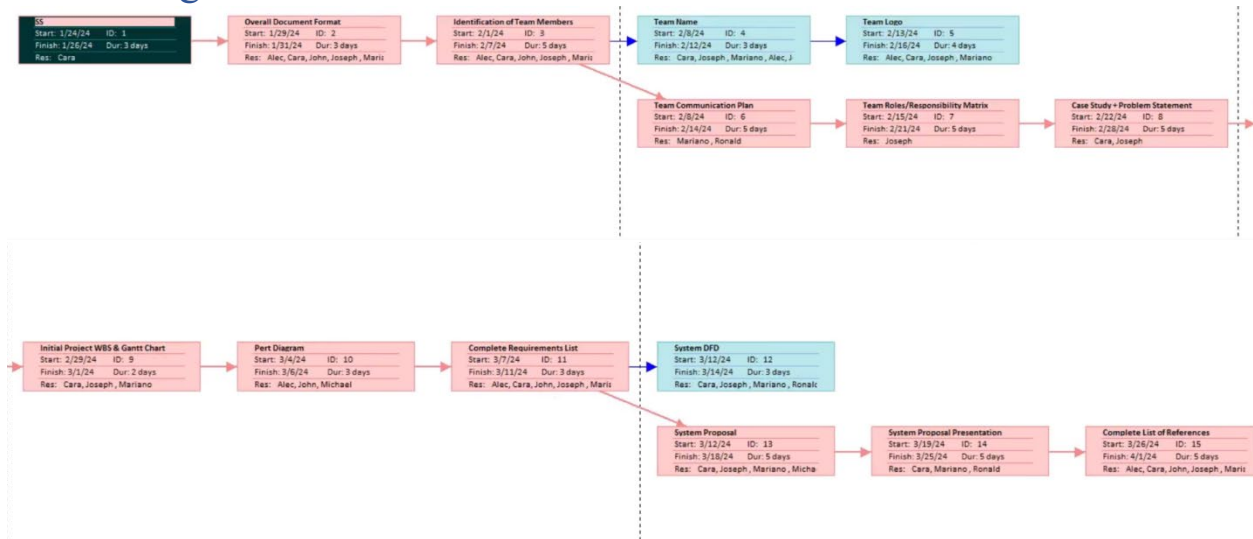


Figure 3. PERT Diagram

Complete Requirements List

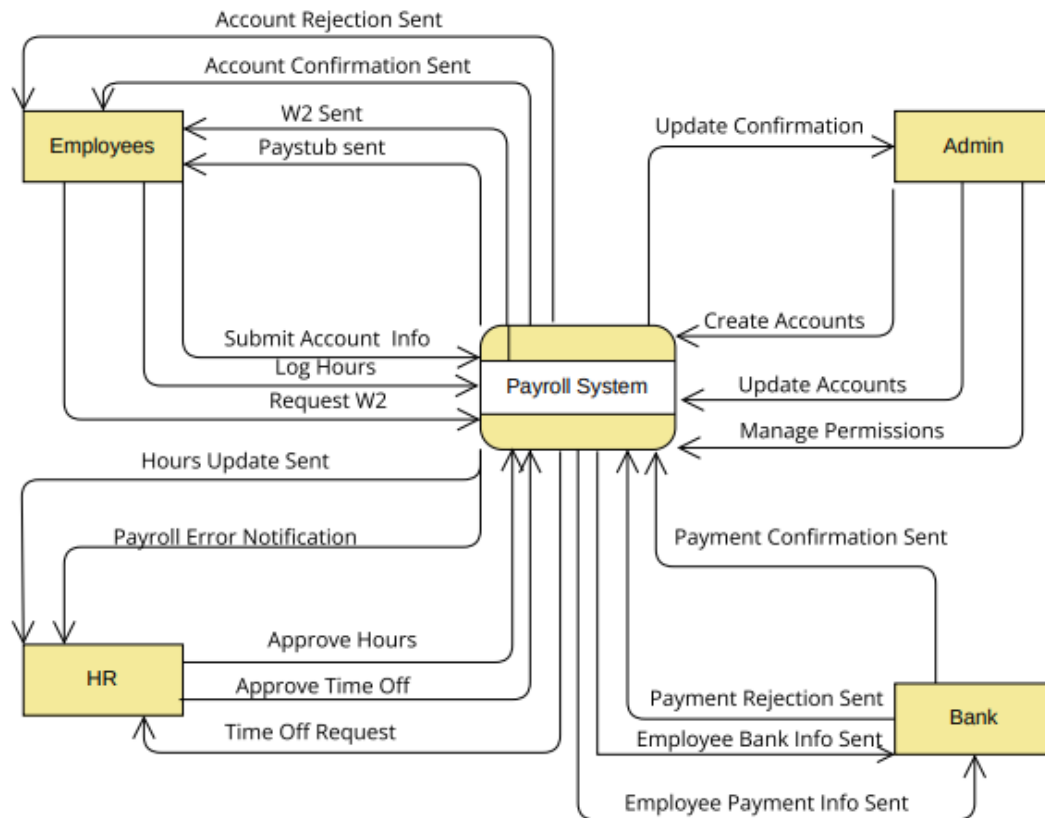
ID	Problem/Requirement Description	Key	Scope	Determined By	Solution
1	Who is in the payroll system	M	WS	Cara	Create user's table
2	Keeping track of employee's hours worked	M	WS	Cara	Timesheet table that workers can update consistently
3	Calculating employee's gross pay	M	WS	Cara	Pay table for employee's salary
5	Calculating employee's net pay (deductions and allowances)	M	WS	Cara	Pay table for employee's salary
6	Security and data protection	M	WS	John	Utilize data encryption algorithms to secure data, access control and key management, etc.
7	Documentation Management	K	WS	John	Knowledge repository for best practices, FAQs. Links available to all protocols with links for PDFs with all info.
8	Identify sick day/holiday entitlements per employee	M	WS	Mariano	Sort and categorize employees through class, etc.
9	Calculate and deduce federal, state, and local taxes	M	WS	Mariano	Gather tax info, and create functions for users
10	How the payroll system will integrate with accounting and HR software	K	OS	Mariano	Gather tax info, and create functions for users
11	Training and support	K	WS	John	Create training videos, FAQs, guides
12	Identify and implement future software updates	D	OS	Mariano	Create a feedback system for admin roles
13	Access to W2	D	WS	Alec	Allow employees to view and print W2 online
14	Allow for increased Scalability	K	WS	Joseph	Cloud-based platform
15	User-Friendly Interface	K	WS	Joseph	Easy to use, follows three click model. Intuitive design, minimal training needed. Accessible from multiple platforms.

16	Customizable Reporting	K	WS	Joseph	Module within payroll software allows for report creation. Reports allow users to see breakdowns of checks. (Income, taxes, etc.)
17	Mobile accessibility	D	OS	Joseph	Software optimized for mobile use
18	Automated Alerts and notifications	D	OS	Joseph	Alerts are set up with software to inform employees of important events. Alerts will be sent by text and email.
19	Incorrect calculation of overtime hours	M	WS	Ronald	Establish an overtime pay rate & logging in pay table
20	Pay period	M	WS	Alec	Establish dates for a biweekly pay period
21	Changing tax laws	K	WS	Ronald	Keeping systems, employees, and management up to date with tax regulations
22	Direct Deposit	D	WS	Alec	Establish direct deposit form
23	Payroll system goes down	M	WS	Ronald	Alternative method of pay (physical paychecks, third-party payment platform) until system is fixed or back-up system is running
24	Accurate financial records	M	WS	Alec	Create and maintain a general ledger outline
25	Audit log of payroll and system activities	M	WS	Michael	Cloud storage for audit logging
26	Time tracking	M	WS	Michael	Employee timecard for employee clock-in and out
27	Data recovery and backup	K	WS	Michael	Create snapshots or full backups of the database
28	Onboard/Offboard Employees	M	WS	Michael	Allow new employees to be added to the table and remove info of ex-employees from the table

System DFD

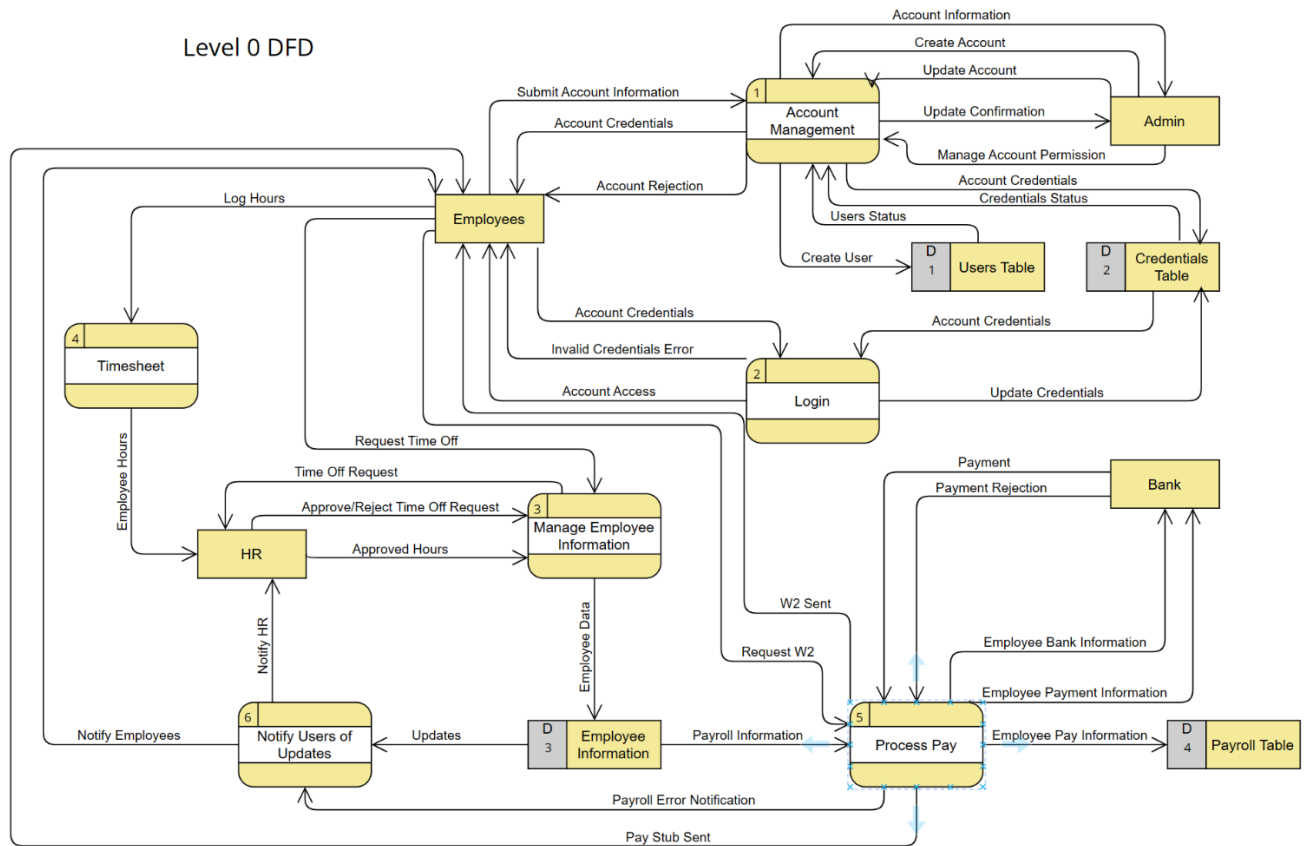
Context Level: Joseph

Context Level



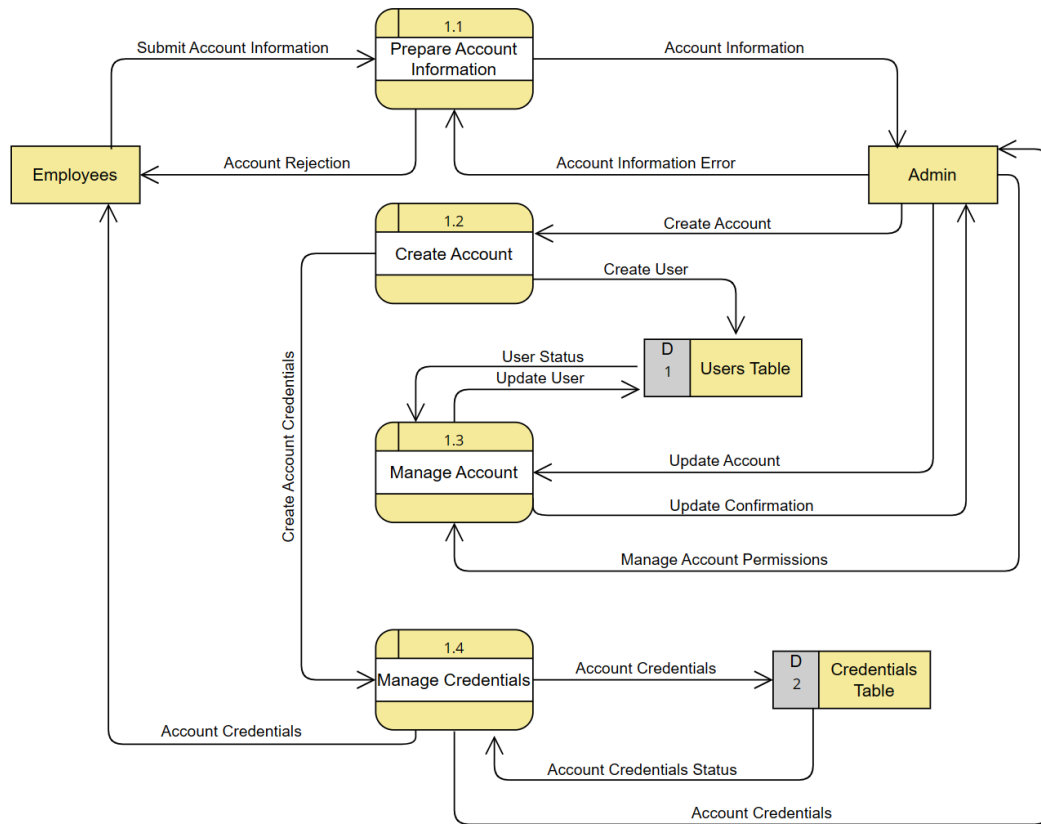
Level 0: Cara

Level 0 DFD



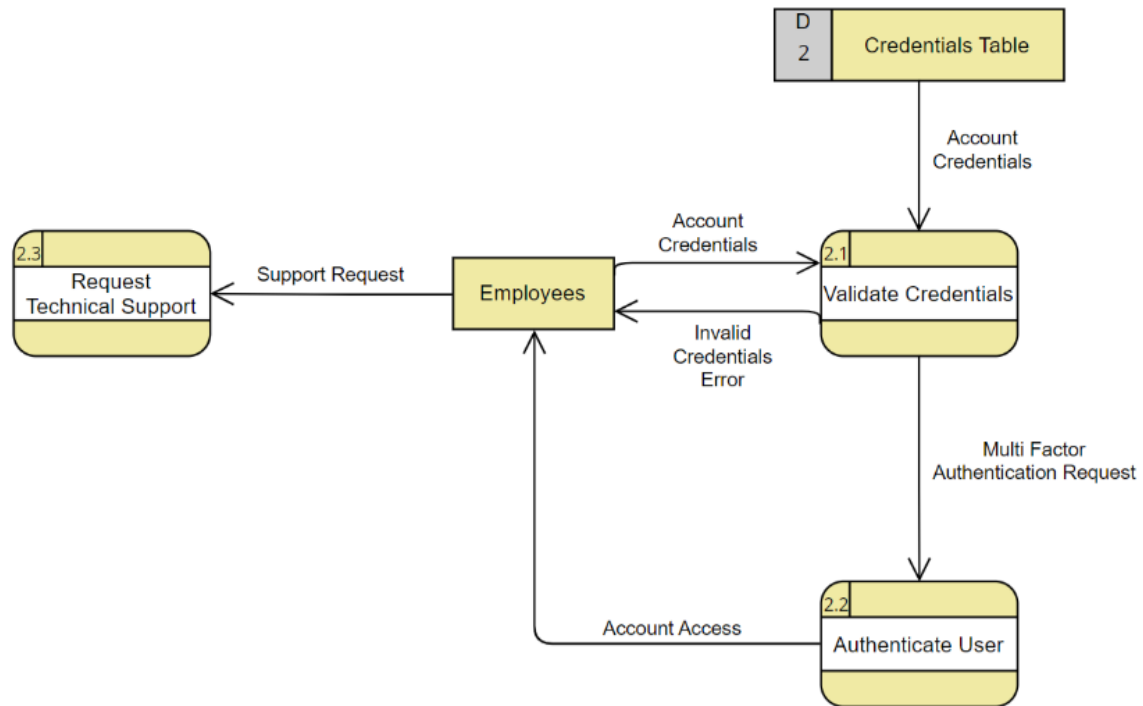
Level 1 Account Management: Cara

Level 1 Account Management DFD

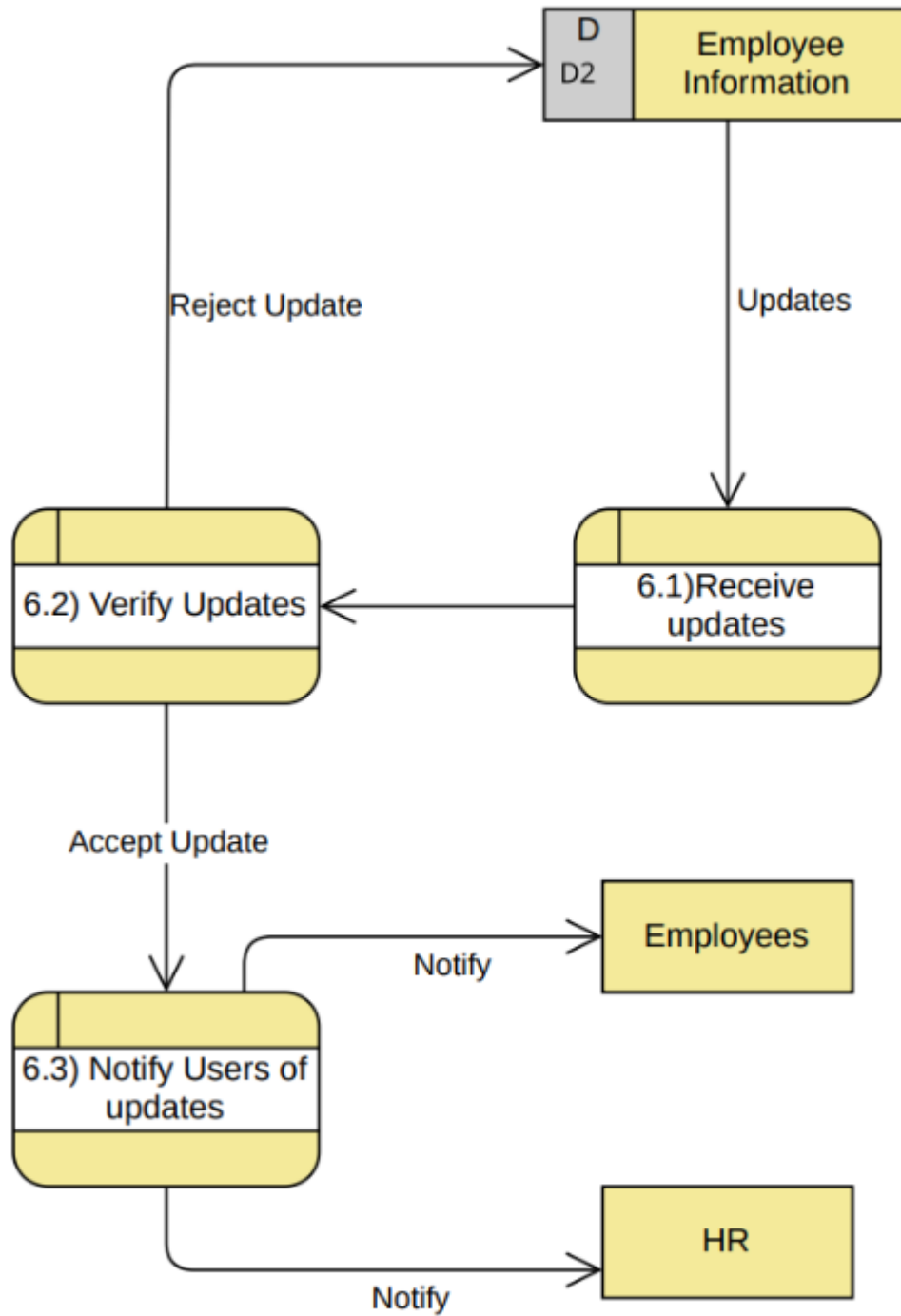


Level 1 Login: Michael

Level 1 DFD Login

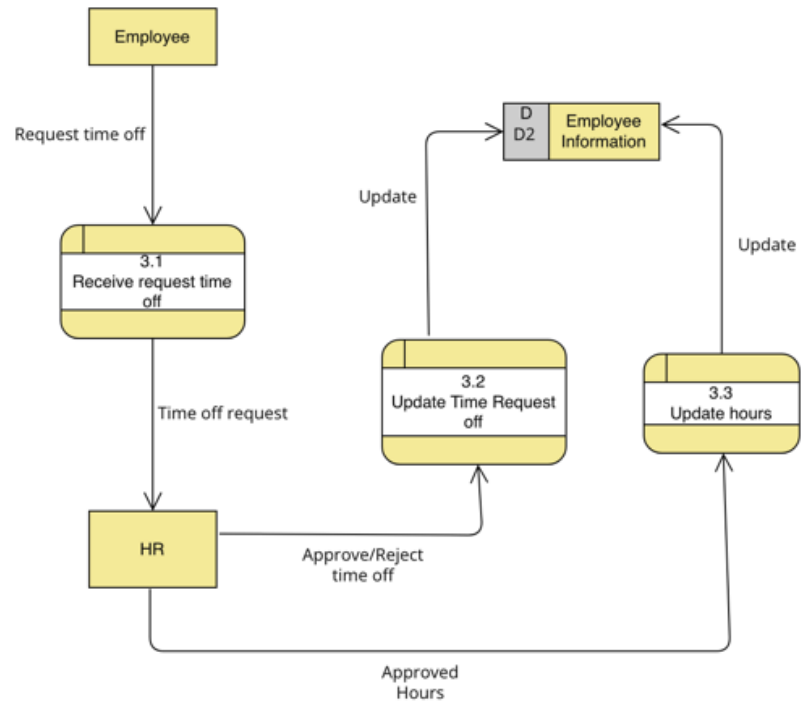


Level 1 Notify Users: Mariano

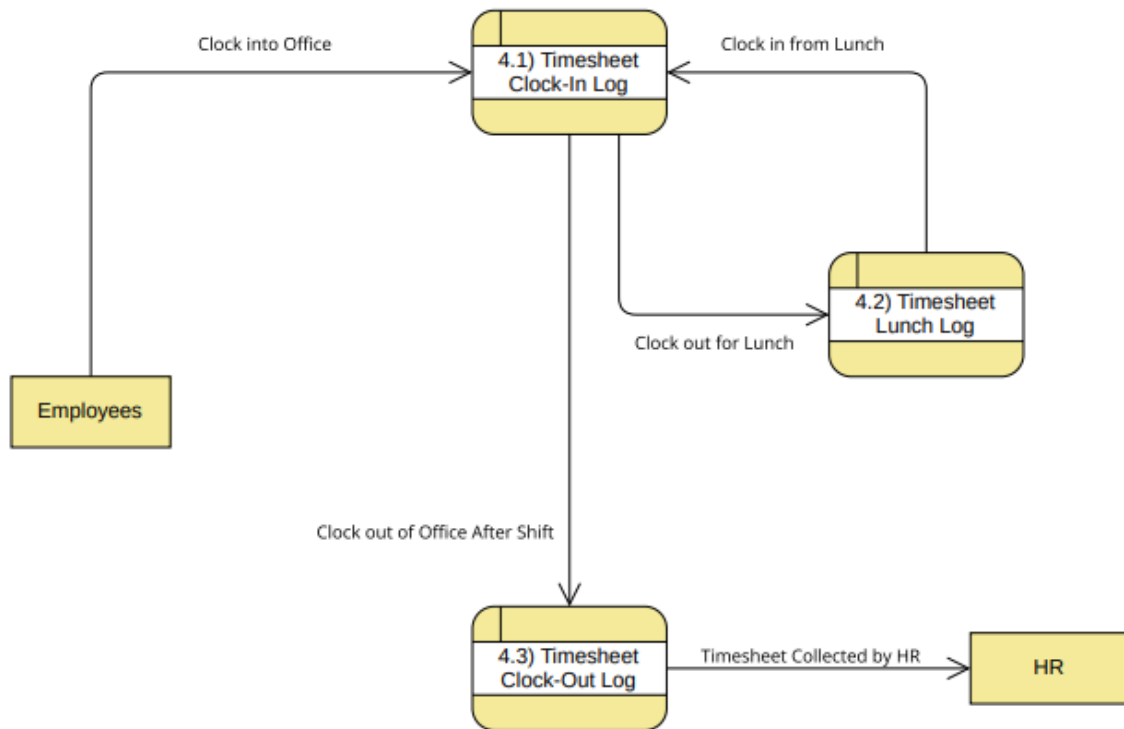


Level 1 Manage Employee Information: Alec

Level 1 DFD Manage Employee Information

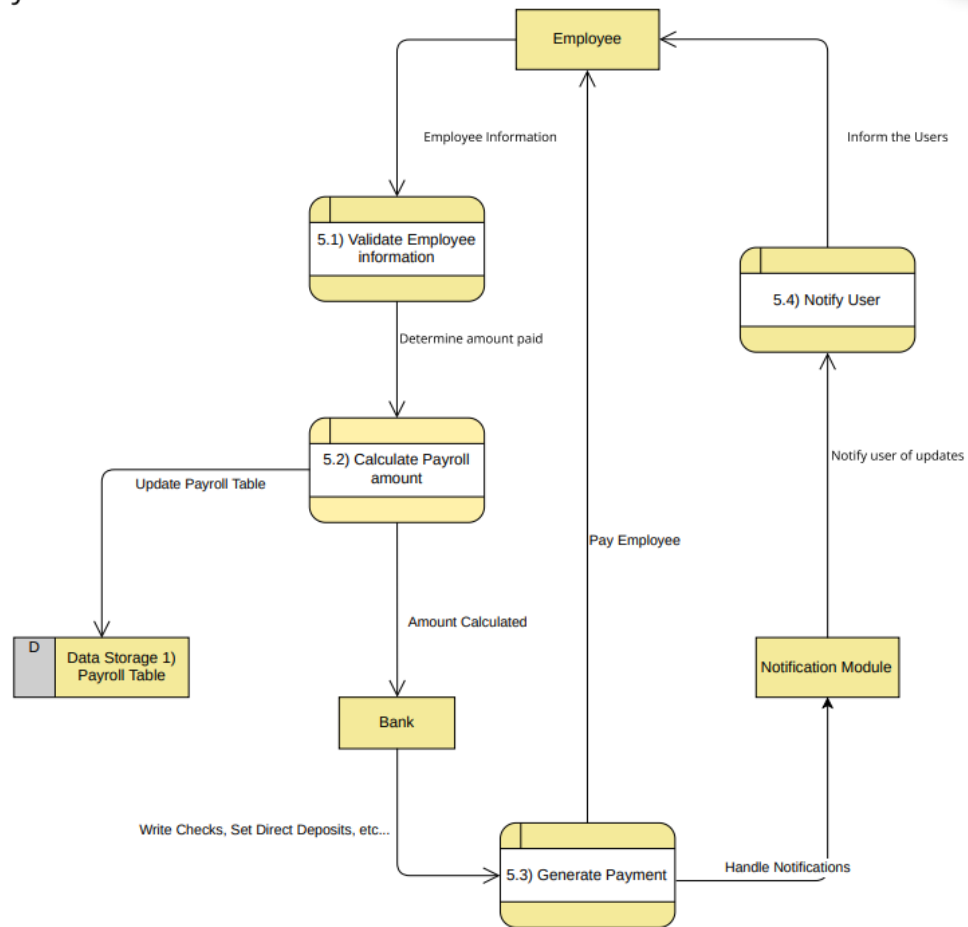


Level 1 Timesheet: Ronald



Level 1 Process Pay: John

Level 1 DFD Process Pay



Payroll System

By: System Sculptors

Micheal Monroe, Cara Morris, Joseph Neveu, Alec Nguyen, John Nguyen, Ronald Nguyen, Mariano
Ramirez

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Executive Summary

Problem Overview:

The current payroll process is time consuming, prone to errors, and inefficient.

Significant manual effort is required from management that can lead to inaccuracies and delays.

Proposed Solutions:

Our proposal identifies two potential solutions that address the identified issues:

1. *Integrated Custom Payroll Software:* Develop and integrate a custom payroll system tailored to the company's key requirements. This solution aims to automate payroll, improve data accuracy, and enhance user access management.
2. *QuickBooks Implementation:* As an off the shelf payroll solution, QuickBooks offers an alternative to custom development. It provides payroll functionality that can potentially reduce time and cost.

Option 1: Cloud-based/ Off the Shelf Payroll Software (QuickBooks)

Feasibility Report:

- Economic Feasibility: Cloud-based software typically involves subscription-based pricing, which may incur ongoing costs. However, it eliminates the need for upfront hardware and software investments, reducing initial expenses. Additionally, it offers scalability, allowing HOC to pay only for the features and resources it needs.
- Operational Feasibility: Cloud-based solutions are accessible from anywhere with an internet connection, enabling remote work capabilities and facilitating collaboration among distributed teams. Training employees on the software can be done through online tutorials and support resources.
- Schedule Feasibility: Implementation timelines for cloud-based solutions are generally shorter compared to on-premises systems due to minimal hardware setup and configuration requirements. Customizations and integrations may extend the timeline, but overall, the deployment can be expedited.
- Technical Feasibility: HOC needs to ensure reliable internet connectivity for uninterrupted access to the cloud-based system. Integration with existing HR and accounting systems may require technical expertise, but many cloud providers offer APIs and integration tools to simplify this process.

Financial Analysis:

1. Break-Even Analysis:

- Total Cost of Ownership (TCO) for QuickBooks subscription over 5 years:
\$200,000
- Annual Cost Savings: \$50,000
- Break-Even Point: $\$200,000 / \$50,000 \text{ per year} = 4 \text{ years}$

2. Return on Investment (ROI):

- Initial Investment (QuickBooks subscription for 5 years): \$200,000
- Annual Cost Savings: \$50,000
- Net Profit (5 years): $\$50,000 * 5 = \$250,000$
- ROI: $(\$250,000 / \$200,000) * 100\% = 125\%$

3. Time Value of Money (TVM):

- Discount Rate: 10%
- Discounted Cash Flows (annual cost savings):
 - Year 1: $\$50,000 / (1 + 0.10)^1 \approx \$45,455$
 - Year 2: $\$50,000 / (1 + 0.10)^2 \approx \$41,322$
 - ...
- Net Present Value (NPV): Sum of discounted cash flows - Initial Investment
- $NPV \approx (\$45,455 + \$41,322 + \dots) - \$200,000$

Option 2: On-Premises Payroll Software (Custom)

Feasibility Report:

- Economic Feasibility: On-premises software involves upfront costs for hardware, software licenses, and implementation services. While it may require a larger initial investment compared to cloud-based solutions, it offers long-term cost savings without recurring subscription fees.
- Operational Feasibility: On-premises software provides complete control and customization options, allowing HOC to tailor the system to its specific requirements. However, maintenance and support may require dedicated IT resources or vendor assistance.
- Schedule Feasibility: Implementation timelines for on-premises solutions may be longer due to hardware procurement, installation, and configuration. Customizations and integrations could further extend the deployment schedule.
- Technical Feasibility: HOC needs to ensure sufficient hardware resources and infrastructure to host the payroll software on-premises. Compatibility with existing systems and databases should be thoroughly evaluated to ensure seamless integration.

Financial Analysis:

1. Break-Even Analysis:

- Total Cost of Ownership for on-premises software over 5 years: \$300,000
- Annual Cost Savings: \$70,000
- Break-Even Point: $\$300,000 / \$70,000 \text{ per year} \approx 4.29 \text{ years}$

2. Return on Investment (ROI):

- Initial Investment (on-premises software setup and hardware): \$350,000
- Annual Cost Savings: \$70,000
- Net Profit (5 years): $\$70,000 \times 5 = \$350,000$
- ROI: $(\$350,000 / \$350,000) \times 100\% = 100\%$

3. Time Value of Money (TVM):

- Discount Rate: 10%
- Discounted Cash Flows (annual cost savings):
 - Year 1: $\$70,000 / (1 + 0.10)^1 \approx \$63,636$
 - Year 2: $\$70,000 / (1 + 0.10)^2 \approx \$57,851$
 - ...
- Net Present Value (NPV): Sum of discounted cash flows - Initial Investment
- $NPV \approx (\$63,636 + \$57,851 + \dots) - \$350,000$

System Analysts Recommendation

Given HOC's robust infrastructure and technical capabilities, an on-premises payroll software solution provides greater control and customization options. The operational feasibility of an on-premises solution ensures seamless integration with existing systems and databases, minimizing disruption to HOC's workflow. While the implementation timeline for on-premises solutions may be slightly longer due to hardware procurement and configuration, the ability to tailor the system to HOC's

specific requirements justifies this initial investment. The on-premises payroll software solution offers HOC the control, flexibility, and cost-effectiveness necessary to streamline its payroll operations effectively. Therefore, the systems analysts recommend proceeding with the implementation of Option 2 to meet HOC's payroll automation needs.

Summary

In conclusion, our proposal outlines viable options to improve the payroll management system. We believe that a custom integrated payroll system will provide the most efficient, scalable, and technical feasibility to address the identified challenges. By implementing this solution, the payroll process will be streamlined to enhance data accuracy and overall efficiency.

Presentation Slides

Payroll System

By: System Sculpture



System Sculpture



Team Members:

Michael Monroe
Cara Morris
Joseph Neveu
Alec Nguyen
John Nguyen
Ronald Nguyen
Mariano Ramirez

Case study



AUTOMATED PAYROLL
SYSTEM



AUTOMATED TIME
KEEPING IS MORE
EFFICIENT FOR LARGE
COMPANIES



TEDIOUS WORK CAN BE
AUTOMATED



ALLOWS FOR MULTIPLE
USER DATA ACCESS
(ADMIN, HR, EMPLOYEE)



KEEPS RECORDS FOR
EMPLOYEE DATA
(HOURS, PAY,
TAXES, ETC.)



John

Problem Statement



Manual Payroll
Process



Inefficiency of
Manual Record
Keeping



Lack of Security



Need for
automation



Documentation /
Data Redundancy



John

Requirements List

- Payroll System Requirements/Problems.
- Mandatory, Key, Desirable.
- Within or Outside Project Scope.
- Detailed Solution.



ID	Problem/Requirement Description	Key	Scope	Determined By	Solution
1	Who is in the payroll system	M	WS	Cara	Create user's table
2	Keeping track of employee's hours worked	M	WS	Cara	Timesheet table that workers can update consistently
3	Calculating employee's gross pay	M	WS	Cara	Pay table for employee's salary
4	Calculating employee's net pay (deductions and allowances)	M	WS	Cara	Pay table for employee's salary
6	Security and data protection	M	WS	John	Utilize data encryption algorithms to secure data, access control and key management, etc.
7	Documentation Management	K	WS	John	Knowledge repository for best practices, FAQs. Links available to all protocols with links for PDFs with all info.
8	Identify sick day/holiday entitlements per employee	M	WS	Mariano	Sort and categorize employees through class, etc.
9	Calculate and deduce federal, state, and local taxes	M	WS	Mariano	Gather tax info, and create functions for users
10	How the payroll system will integrate with accounting and HR software	K	OS	Mariano	Gather tax info, and create functions for users

Ron

Team Roles and Responsibilities



S.No.	Project Deliverables	Project Manager	Assistant Project Manager	System Analyst	Tester/Assistant	Developer	Developer	Communication Manager
		Cara	Mariano	Joseph	Alec	Michael	John	Ronald
1	Submission Files	X						
2	Overall Document Format	X	X	X	X	X	X	X
3	Identification of Team Members	X	X	X	X	X	X	X
4	Team Name	X	X	X	X	X	X	X
5	Team Logo	X	X	X	X			
6	Team Communication Plan		X					X
7	Team Roles/Responsibility Matrix			X				
8	Case Study + Problem Statement			X				
9	Initial Project Work Break Down / Gantt Chart	X	X	X				
10	PERT Diagram	X	X	X				
11	Complete Requirements List	X	X	X	X	X	X	X
12	System DFD Data Flow	X	X	X	X	X	X	X
13	System Proposal		X	X				
14	System Proposal Presentation	X	X	X	X	X	X	X
15	Complete List of References	X	X	X	X	X	X	X

Alec

Work Breakdown Structure

Task Name	Duration	Start	Finish	Predecessors	Resource Names
1 Submission File	3 days	Wed 1/24/24	Fri 1/26/24		Cara
2 Overall Document Format	3 days	Mon 1/29/24	Wed 1/31/24	1	Alec,Cara,John,Joseph,Mariano,Michael,Ronald
3 Identification of Team Members	5 days	Thu 2/1/24	Wed 2/7/24	2	Alec,Cara,John,Joseph,Mariano,Michael,Ronald
4 Team Name	3 days	Thu 2/8/24	Mon 2/12/24	3	Cara,Joseph,Mariano,Alec,John,Michael,Ronald
5 Team Logo	4 days	Tue 2/13/24	Fri 2/16/24	4	Alec,Cara,Joseph,Mariano
6 Team Communication Plan	5 days	Thu 2/8/24	Wed 2/14/24	3	Mariano,Ronald
7 Team Roles/Responsibility Matrix	5 days	Thu 2/15/24	Wed 2/21/24	6	Joseph
8 Case Study + Problem Statement	5 days	Thu 2/22/24	Wed 2/28/24	7	Cara,Joseph
9 Initial Project WBS & Gantt Chart	2 days	Thu 2/29/24	Fri 3/1/24	8	Cara,Joseph,Mariano
10 Part Diagram	3 days	Mon 3/4/24	Wed 3/6/24	9	Alec,John,Michael
11 Complete Requirements List	3 days	Thu 3/7/24	Mon 3/11/24	10	Alec,Cara,John,Joseph,Mariano,Michael,Ronald
12 System DFD	3 days	Tue 3/12/24	Thu 3/14/24	11	Cara,Joseph,Mariano,Ronald
13 System Proposal	5 days	Tue 3/12/24	Mon 3/18/24	11	Cara,Joseph,Mariano,Michael
14 System Proposal Presentation	5 days	Tue 3/19/24	Mon 3/25/24	13	Cara,Mariano,Ronald
15 Complete List of References	5 days	Tue 3/26/24	Mon 4/1/24	14	Alec,Cara,John,Joseph,Mariano,Michael,Ronald

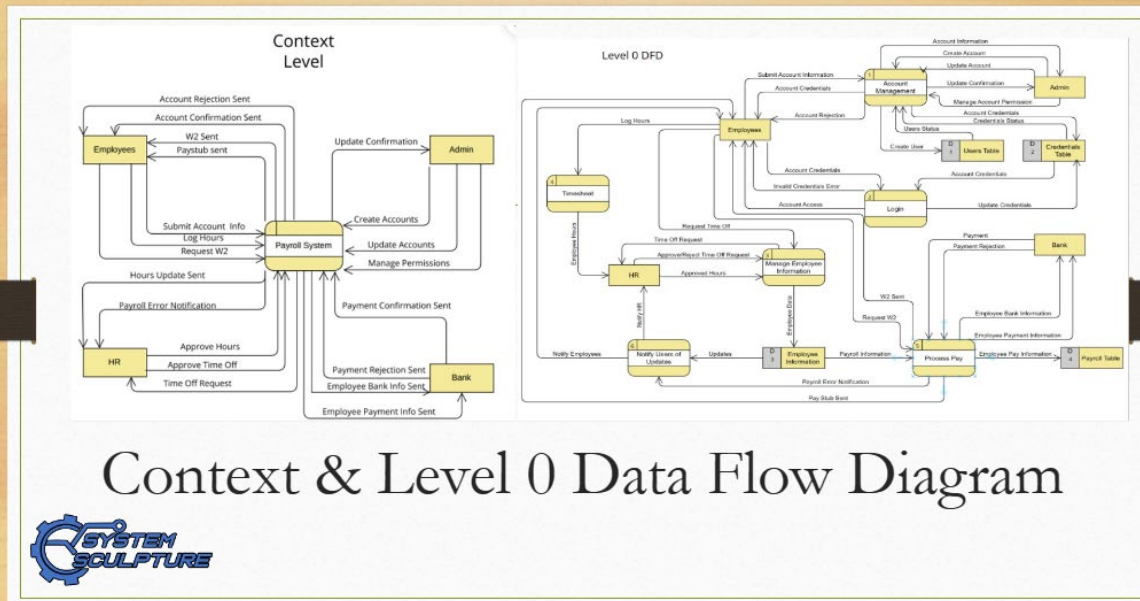


Joseph

PERT Chart



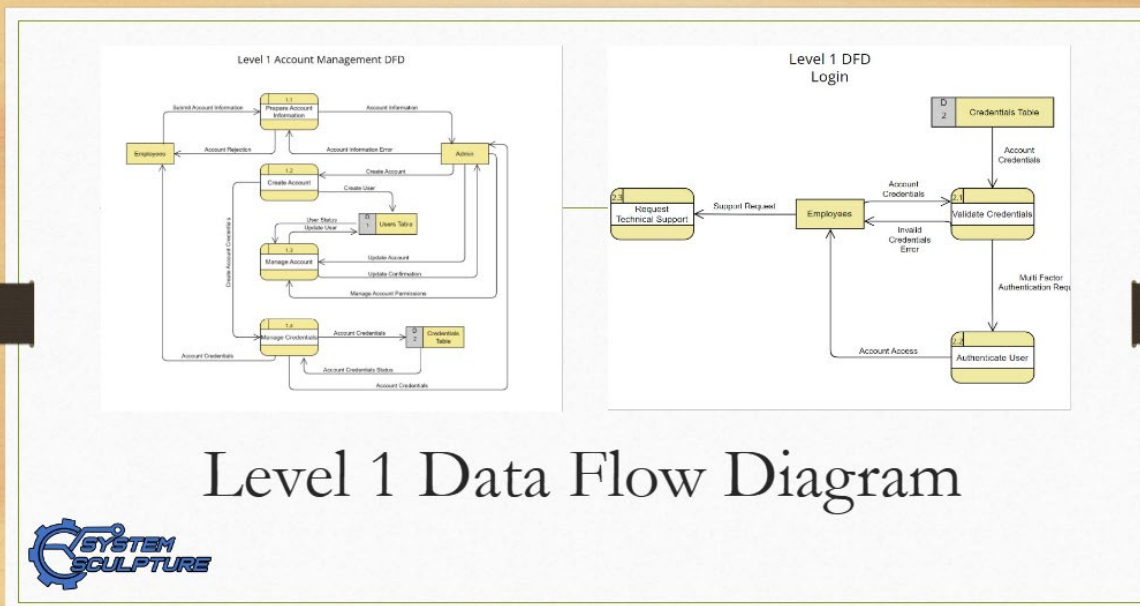
Joseph



Context & Level 0 Data Flow Diagram



Cara



Level 1 Data Flow Diagram



Mariano

Feasibility Report: Cloud-based Payroll Software (QuickBooks)

Schedule Feasibility:

- Shorter implementation time
- Shorter deployment time

Technical Feasibility:

- Reliable internet connection is required
- Integration with existing HR and accounting systems may require technical knowledge



Economic Feasibility:

- Subscription based pricing
- No upfront investment for hardware and software

Operational Feasibility:

- Many online resources for collaboration and training for employees
- May not be very customizable

Michael

Feasibility Report: Custom On-Premises Payroll Software

Schedule Feasibility:

- Implementation may take longer
- Customization could delay deployment

Technical Feasibility:

- Sufficient hardware and infrastructure to host the system is required
- Compatibility with existing systems needs to be evaluated



Economic Feasibility:

- Upfront costs for hardware and software
- No recurring subscription fees

Operational Feasibility:

- Complete control and customization
- Maintenance may be more difficult

Michael

System Analyst Recommendation

- Robust Infrastructure: Utilize HOC's infrastructure for greater control and customization.
- Seamless Integration: Minimize workflow disruption with existing systems and databases.
- Tailored Implementation: Customize system to HOC's needs, justifying initial investment.
- Control and Efficiency: Achieve streamlined payroll operations with recommended on-premises solution.

Option 2: On-Premises Payroll Software
(Custom)



Mariano

Questions?



Team

References

Tilley, S. (2020). *Systems analysis and design*. Cengage.

QuickBooks®: Official Site: Smart Tools. Better Business. QuickBooks®: Official Site | Smart Tools. Better Business. (n.d.). <https://quickbooks.intuit.com/>

Falade, A. (2022, July 8). *Payroll system requirements: An 8-point checklist*. LinkedIn.

<https://www.linkedin.com/pulse/payroll-system-requirements-8-point-checklist-abiodun-falade/>

It project proposal. Tips for Information Technology (IT) Project Proposals. (n.d.).

<https://www.axia-consulting.co.uk/it-project-proposal.htm>

Tuovila, A. (n.d.). *Financial analysis: Definition, importance, types, and examples*. Investopedia.

<https://www.investopedia.com/terms/f/financial-analysis.asp>