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Date: Oct 7, 2023

Deliverable Name: Project Deliverable 1 - System Request

# System Request for Gorilla Distribution Center's Payroll Modernization

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## Introduction

In today's digital era, businesses benefit from streamlined operations and efficiency, often achieved through modern software solutions. We recognize Gorilla Distribution Center's dedication to its operations and employees. With this in mind, we present our proposal: A state-of-the-art digital payroll system tailored to meet the unique requirements and challenges faced by Gorilla Distribution Center.

## Why Choose Us

Avalanche Innovations is a cutting-edge software solutions provider, dedicated to transforming traditional business processes into efficient digital workflows. With years of expertise, an excellent history, and a team of industry experts, we pride ourselves on delivering customized solutions tailored to our clients' unique needs. Partnering with us means:

1. Years of Experience and Expertise
2. Custom Solution specifically made for YOU
3. Adaptability and Future-Ready
4. Robust Data Integrity and Security
5. Comprehensive Support, including but not limited to training and post-deployment maintenance
6. Collaborative and Transparency to ensure YOU are always part of the project
7. Cost-Effective

## Problem Statement

Gorilla Distribution Center currently employs handwritten methods for payroll processing, which, while traditional, are prone to human error, time-consuming, and lack efficiency. Such methods can lead to pay discrepancies, salary disbursement delays, and potential disputes – factors that can negatively impact employee morale and operational efficiency.

## Proposed Solution - The Digital Payroll System

The Digital Payroll System is designed to address the monotony and errors associated with manual payroll processes. At its foundation, the system introduces Digital Time Logs, allowing employees to clock in and out seamlessly, thereby completely phasing out manual logging and the errors associated with it. This is complemented by the Automated Payroll Calculations feature which ensures that salaries are accurately computed in real-time. This calculation takes into account the nuances of individual employee work hours, overtime, any bonuses they might have earned, and necessary deductions. To ensure administrative control and quality assurance, we've integrated a Managerial Oversight component. Through a dedicated dashboard, managers can effortlessly review, adjust, and grant approval for payrolls, ensuring that the entire process remains transparent and accountable. Lastly, understanding the need for periodic reviews and audits, the system is equipped with advanced Reporting Tools. These tools can generate comprehensive payroll reports, be it on a weekly or monthly basis or even for custom-defined periods, keeping management informed about the organization's financial responsibilities.

## Unique Value Proposition

Unlike generic payroll software, our system is custom-designed for the Gorilla Distribution Center, ensuring a perfect fit with operational needs. This tailored approach ensures a precise fit with the center's specific operational needs and details. However, the essence of our offering goes beyond a mere digital transformation from traditional paper methods. It also covers a vision for the future, marking room for anticipated organizational growth, adjusting to any future regulatory changes, and making adaptability in the long run.

Diving into the specifics of the system's features and capabilities, we've integrated several important components designed specially for the Gorilla Distribution Center. The system supports differentiated User Profiles, ensuring distinct interfaces and capabilities for employees and managers. A proactive Notifications feature is embedded to flag pending approvals, highlight discrepancies, and announce system updates, ensuring timely interventions and actions. But above all, data integrity and security are paramount for any solution. Our Security Protocols ensure rigorous protection of all stored data. Access controls are in place, ensuring that only authorized individuals can make modifications or updates like managers, thereby safeguarding the accuracy and consistency of the payroll data.

# Feasibility Analysis

## Technical Feasibility Analysis

Modernizing the payroll process of the Gorilla Distribution Center from a manual to a digital system demands not just a technological transition but a combination of cutting-edge tools, expertise, and future-ready decisions. The software and hardware requirements are very important for the successful deployment of the Digital Payroll System. While the proposed system is designed to be cloud-based, eliminating the immediate need for hefty on-site servers, there's a significant emphasis on the quality of the internet connection. The reliability and speed of the connection will directly influence the system's efficiency and user experience. The choice of cloud provider is crucial; we must opt for providers known for their uptime, security protocols, and scalability options, like AWS, Azure, or Google Cloud. This would ensure that the Digital Payroll System is always functional and reliable. Crafting a system of this magnitude demands a blend of seasoned professionals and domain-specific experts. Our team with seasoned developers well-versed in programming languages, is supported by database experts adept at ensuring data integrity, security, and swift retrieval. This is further supported by our UI/UX designers, ensuring the system, while robust, remains user-centric and intuitive.

Maintenance and support stand as the main reason behind ensuring the system's longevity. A digital solution, no matter how advanced, is not a set-it-and-forget-it project. It will require regular updates, both for adding new features and for ensuring security. As cyber threats evolve, our security protocols must stay a step ahead, demanding regular patches and updates. Beyond this, there's the aspect of user support. In the unlikely event of a system hiccup or a user query, a dedicated support team will be essential to ensure swift resolutions and uninterrupted operations. Considering the growth trajectory of Gorilla Distribution Center, scalability is not just a nice-to-have but a necessity. The system, while designed for today, must anticipate tomorrow. As employee and scalability of business grows, our digital payroll system must adapt, scale, and evolve, ensuring it remains relevant, efficient, and exemplary.

## Economic Feasibility Analysis

The project will demand an upfront capital investment. This will encompass costs related to software development, including system design, coding, testing, and deployment. Additionally, initial costs may involve training programs designed to familiarize employees with the new system, ensuring a smooth transition from the traditional handwritten method. Once the system is live, certain recurring expenses will ensue. These might include fees for cloud hosting services, periodic system updates to introduce new features or enhancements, and any ongoing support or troubleshooting needs. Additionally, there may be costs related to data backup and security services to ensure the system's integrity and resilience against potential cyber threats.

The introduction of the digital payroll system aims to drastically reduce manual labor hours previously devoted to recording, calculating, and verifying payroll data. This time-saving directly translates to financial savings. Additionally, by automating the payroll process, the possibility of human errors, which can lead to financial discrepancies or even potential legal disputes, is greatly reduced. Over time, these cumulative savings can be substantial for the company. Beyond direct savings, the digital system will likely boost employee morale and satisfaction. Receiving timely and accurate paychecks without discrepancies or delays can significantly enhance employee trust and confidence in the organization, which can lead to increased productivity and reduced turnover—a factor that carries its own set of associated costs.

When we balance the projected costs against anticipated savings and benefits, the ROI becomes clear. Based on initial estimations, the system's costs should be recouped within a couple of years post-implementation. Beyond this break-even point, the Gorilla Distribution Center stands to save money and resources, thus attaining a positive ROI. Economic feasibility isn't solely about numbers; it's also about understanding potential financial risks. For instance, any delays in system implementation or unforeseen technical challenges could inflate project costs. Similarly, potential resistance from employees unfamiliar with digital systems might necessitate additional training sessions or support, incurring further expenses. It's crucial to factor in a buffer or contingency fund to address such uncertainties. While there are upfront costs and recurring expenses, the combination of direct savings, indirect benefits, and the strategic value of modernization suggests that this investment is not only justified but is greatly profitable for the Gorilla Distribution Center.

## Organizational Feasibility Analysis

A system must resonate with the people it serves and the environment in which it operates, no matter how technically sound or economically viable. The move to digitize the payroll process should be in line with the overall strategic objectives of the Gorilla Distribution Center. If the center has ambitions of modernizing its operations, scaling its workforce, or expanding its reach, then the implementation of a digital payroll system can serve as a foundational step in that journey. The cultural landscape of the center is pivotal. If there's a history of resistance to change or a deep-rooted attachment to traditional ways of working, there might be initial pushback. Hence, understanding the organization's culture will guide how the transition is managed, ensuring it's not just a technical shift but a cultural evolution.

While the current system is handwritten, the operations' speed, frequency, and specific nuances need to be understood to successfully deploy our solution. The new digital system must be able to accommodate these dynamics without causing disruption. For instance, if payroll processes are tied to specific operational milestones or timings, the digital solution must mirror or enhance these workflows. Critical to the success of this transition is the buy-in from all relevant stakeholders. This isn't limited to top-tier management but extends to every employee who interacts with the system. Regular briefing sessions, workshops, and open forums can be instrumental in ensuring everyone understands the benefits, feels heard regarding their concerns, and is on board with the change.

The shift from handwritten to digital might be daunting for some employees, especially those less familiar with digital tools. Hence, an integral part of this transition will be comprehensive training sessions. These sessions will need to be tailored to various user groups, ensuring everyone from the tech-savvy to the tech-averse feels comfortable and confident in using the new system. Post-implementation, it's crucial to have channels open for feedback. Understanding the challenges, bottlenecks, or even user appreciation will provide insights into areas of improvement and refinement. An organization that listens and iterates based on feedback fosters a sense of ownership and inclusivity among its members. While some challenges exist, they're navigable with the right strategies. With proper planning, communication, and an inclusive approach, it will be an asset that aligns with the company’s vision and growth.

# Estimated Project Cost

We will take advantage of the extensive benefits that AWS provides to deploy our project.

|  |  |
| --- | --- |
| Product | Total Cost ($) Project Duration: 2023 |
| Human Resources Cost | $553,000 |
| AWS Costs | $58,000 |
| Training and Onboarding | $15,000 |
| Maintenance and Support | $12,000 |
| Contingency Fund | $25,000 |
| Miscellaneous Expense | $10,000 |
| Total Estimated Project Cost | $673,000 |

## Cost-benefit analysis report for three years

* In the first year (2023), the project incurs significant upfront development costs, resulting in a net cost of -$673,000. During this phase, the focus is on building the system rather than accruing benefits. As such, the ROI for the first year is negative, representing the initial investment phase. However, the benefits, primarily cost savings from reducing manual payroll processing, are expected to start incurring from this year onward.
* By the second year, the system becomes operational, leading to significant savings and benefits. The costs, excluding personal but including AWS, Maintenance, Support, Contingency, and Miscellaneous, amount to $120,000. On the benefits side, the organization experiences substantial savings of $450,000, which is due to the elimination of manual processes, error reduction, and overall efficiency gains from the digital payroll system. The net benefit for 2024 stands at a positive $330,000. The total net after two years becomes -$343,000. The ROI for 2024, calculated as ($330,000 / $673,000) x 100, is approximately 49%.
* In the third year, as the organization further optimizes and becomes familiar with the system, which causes the benefits to increase. The costs remain consistent at $120,000. By this time the old system is completely out and the company sees the benefits rise to $480,000. This results in a net benefit of $360,000 for 2025. The total net after three years turns positive at +$17,000. The ROI for this year, calculated as ($360,000 / $673,000) x 100, is approximately 53.5%.

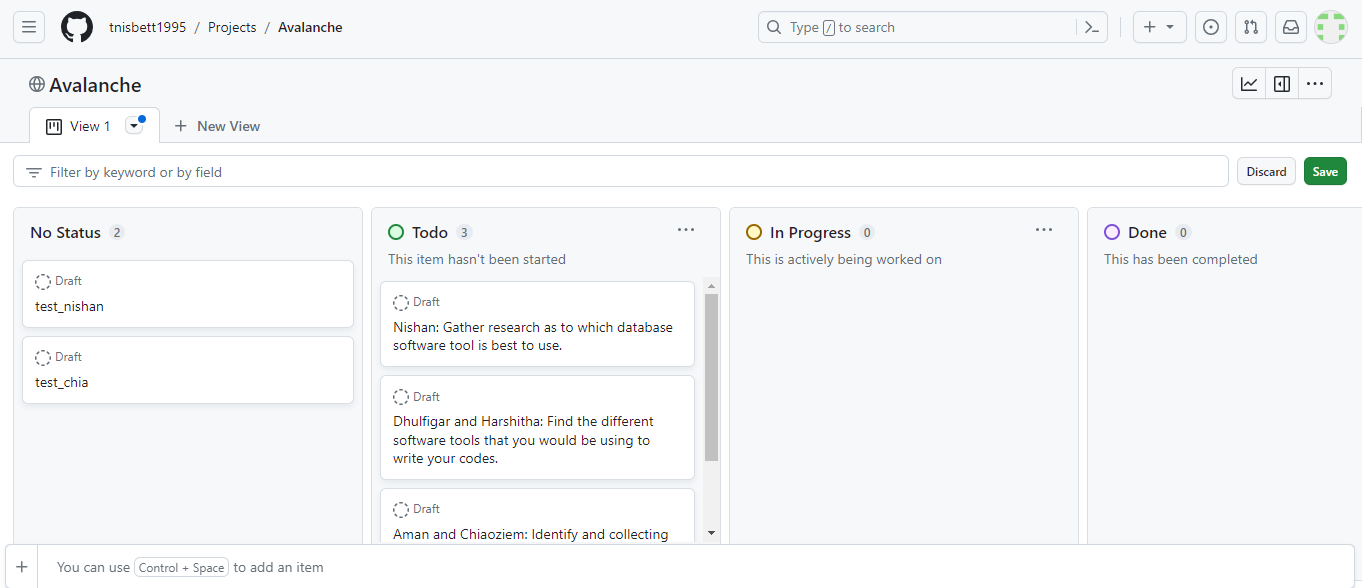
## Project Methodology: Agile (Scrum)

We will be using the Agile (Scrum) methodology to develop the payroll system. Agile is a set of principles for software development under which requirements and solutions evolve through the collaborative effort of cross-functional teams. Agile is a master of adaptive planning, changing development, early delivery, and continuous improvement, urging a rapid and flexible response to change. Scrum is a specific Agile framework that structures the development process in cycles of work known as "sprints," which are typically 2-4 week periods. The benefits of using Agile are

1. **Iterative Development:** A digital payroll system will require continuous feedback from users to ensure it aligns with the unique needs of the Gorilla Distribution Center. Scrum promotes iterative development, allowing the team to release parts of the software in sprints and gather feedback early and often.
2. **Flexibility:** Given that the center is transitioning from a manual system, there may be requirements that aren't clear at the outset. Agile provides the flexibility to adapt to changing requirements without significant disruptions.
3. **Collaboration:** Scrum emphasizes daily communication among all stakeholders, ensuring everyone is aligned and any potential roadblocks are addressed immediately. This collaboration is vital, especially when developing software that many individuals will interact with.
4. **Stakeholder Engagement:** The regular sprint reviews in Scrum allow stakeholders to see the progress and provide feedback. This ensures that the software developed aligns closely with the center's needs.
5. **Risk Management:** The frequent iterations and reviews allow potential risks or issues to be identified early on, ensuring they can be addressed before they escalate.
6. **Transparent Progress Tracking:** Scrum employs tools like backlogs, which offer transparency in tracking the project's progress and ensuring that timelines are met.
7. **Efficient Resource Management:** With set durations for sprints (often 2-4 weeks), it becomes easier to allocate resources and ensure that the team's efforts are focused on the highest priority tasks.

## GitHub Project Management and Kanban

For this project, we have chosen GitHub Project Management because of its multitude of user-friendly features. It boasts efficient task organization through issues, a visual representation of progress via project boards, collaborative coding through pull requests, and effective progress monitoring using milestones. Its integrative capabilities ensure a smooth and streamlined workflow, accommodating our team's diverse needs. To provide a glimpse into our organized approach, here's a screenshot of our Kanban board.



Screenshot of Kanban Board

GitHub Project Link: https://github.com/users/tnisbett1995/projects/3/views/1

Link for Kanban Board: <https://github.com/users/tnisbett1995/projects/3/views/1?layout=board>

## Estimated Project Timeline

|  |  |  |
| --- | --- | --- |
| **IS436 Group 7 - Estimated Project Timeline** | | |
|
| **Date** | **Tasks** | **Weekly Meeting Agenda** |
| 10/01 - 10/08 | **1. Deliverable 1 - System Request**  2. Division of Work/Roles  3. GitHub Project Modification  4. Kanban Board  5. Set-Up GitHub Collaboration | 1. Discuss Project Proposal  2. Start Working on Deliverable 1  3. Get involved in the GitHub Project |
| 10/09 - 10/15 | 1. Work on Deliverable 2  2. Work on Functional requirements  3. Work on Non-functional Requirement  4. Start thinking of interview information  5. Create a set of questions for the interview  6. Implement Feedback from D1 | 1. Start thinking of deliverable 2  2. Think of requirements for the project  3. Get some Use Cases  4. Division of Work  5. Think of interviews |
| 10/16 - 10/22 | 1. Work on interview and documentation  2. Get observation notes  3. Documentation of all resources and questions used  4. Use case analysis  5. Use case diagram  6. Implement Feedback from D1  **7. Finish and Submit Deliverable 2** | 1. Interview, Interview, Interview  2. Documentation |
| 10/23 - 10/29 | 1. Work on Deliverable 3  2. Start Working in Developing the Project  3. Website Design  4. ERD Documentation  5. Implement Feedback from D2 | 1. Division of work  2. Making UI/UX Designs for the website  3. Thinking of database  4. Working in ERD |
| 10/30 - 11/05 | 1. Write Initial Code/Web Dev  2. HTML/CSS/JS/Frameworks  3. Work on Functionality  4. Implement Feedback from D2  **5. Finish and Submit Deliverable 3** | 1. Discuss web development and tools that will be used  2. Division of work  3. Start writing initial web dev codes |
| 11/06 - 11/12 | 1. Work on Deliverable 4  2. Work on backend  3. Start working on a database  4. Implement Feedback from D3 | 1. Test, Test, Test, Test, Test  2. Division of work  3. Integration of code  4. Quality Assurance Test, Test, Test |
| 11/13 - 11/19 | 1. Finish Backend Code  2. Finish Database  3. Implement Feedback from D3  **4. Finish and Submit Deliverable 4** | 1. Test, Test, Test, Test, Test  2. Integration of Code  3. Division of Code  4. Finalize the backend and Database |
| 11/20 - 11/26 | 1. Work on Deliverable 5  2. Quality Assurance Check  3. Bug fixes and Debugging  4. Implement Feedback from D4 | 1. Test, Test, Test, Test, Test  2. Integration of code  3. Division of work  4. Fix any potential bugs and errors |
| 11/27 - 12/3 | 1. Finalize the project  2. Finish All documentation  3. Implement Feedback from D3  **4. Finish and Submit Deliverable 4**  **5. Work on Presentation** | 1. Test, Test, Test, Test, Test  2. Finalize the web app  3. Check for any final errors or bugs  4. Plan for project presentation |
| 12/04 - End of class | 1. Submission of All Documentation and Deliverables  **2. Project Presentation** | 1. Meet up before presentation  2. Presentation DEMO  3. Celebrate Project Completion |

## Avalanche Innovation Team

|  |  |  |
| --- | --- | --- |
| **Name** | **Role** | **Salary ($) - Annual** |
| Aman Gurung | Data/Business Analyst I | $70,000 |
| Chiagoziem Igwe | Data/Business Analyst II | $70,000 |
| Dhulfiqar Hussein | Lead Developer I, Full Stack | $108,000 |
| Harshitha Sayini | Developer II, Full Stack | $105,000 |
| Nishan Subba | Database Administrator | $85,000 |
| Trevin Nisbett | Project Manager, Quality Assurance | $115,000 |

# Team Member Information

## Trevin Nisbett - Project Manager, Quality Assurance

I am Trevin Nisbett, and I will be the Project Manager for this project. I have experience in Java, SQL, and Excel. I am excited to work on this project and apply my technical skills to the Avalanche Innovation team to have a successful digital payroll system.

For questions or inquiries, please contact me at

Email: [tnisbet1@umbc.edu](mailto:tnisbet1@umbc.edu)

Github: tnisbett1995

## Dhulfiqar Hussein - Lead Developer I, Full Stack

Hello, My name is Dhulfiqar Hussein and I will serve as a full-stack lead developer alongside Harshitha. I have experience in the following areas, SQL, HTML, CSS, JAVASCRIPT, Python, C++, and PHP. I am excited to collaborate with the team and share my technical skills to drive the success of our digital payroll system project.

For questions or inquiries, please contact me at

Email: [dhussei1@umbc.edu](mailto:dhussei1@umbc.edu)

Github: DhulfiqarH

## Harshitha Sayini - Developer II, Full Stack

I am Harshitha Sayini and I will serve as a full-stack developer alongside Dhulfiqar. I have experience working with SQL, HTML, Java, CSS Javascript, and Excel. I will be using my programming skills to aid in the development of our web application for Avalanche Innovation. As a team, we will be committed to creating an application that will be accessible to all users.

For questions or inquiries, please contact me at

Email: [hsayini1@umbc.edu](mailto:hsayini1@umbc.edu)

Github: hsayini7078

## Nishan Subba - Database Administrator

I'm Nishan, and I serve as the Database Administrator for our project. With a strong background in data management and experience in SQL, Python, and Excel, I've had the privilege of working with various databases, including Oracle and MySQL. My passion lies in extracting stories from data and transforming raw information into actionable insights. I'm committed to bringing my data expertise to the Avalanche Innovation team to ensure the success of our digital payroll system project.

For questions or inquiries, please contact me at

Email: [nsubba1@umbc.edu](mailto:nsubba1@umbc.edu)

Github: nissubba1

## Aman Gurung - Data/Business Analyst I

My name is Aman and I will serve as a Data/Business Analyst I for this project. I have experience in SQL, Statistics in Business and Econ, Excel, and Python. I am skilled in producing insightful data visualizations and reports that provide our company with the information they need to make wise decisions.

For questions or inquiries, please contact me at

Email: [amang2@umbc.edu](mailto:amang2@umbc.edu)

Github: Aman440501

## Chiagoziem Igwe - Data/Business Analyst II

My name is Chiagoziem Igwe, and I will serve as a Data and Business Analyst II for this project.

For questions or inquiries, please contact me at

Email: [chiagoi1@umbc.edu](mailto:chiagoi1@umbc.edu)

Github: chiaigwe

## Meeting Time

Weekly Meeting:

Every Sunday @ 8 PM

## Contact US

For any inquiries or additional information related to this proposal, please get in touch with our key project members:

Trevin Nisbett

*Project Manager, Quality Assurance*

Email: [tnisbet1@umbc.edu](mailto:tnisbet1@umbc.edu)

As the Project Manager, Trevin oversees the entire project, ensuring milestones are met, quality is maintained, and all team members collaborate effectively. For any project/proposal inquiry, Trevin is your go-to contact.

Aman Gurung

*Data/Business Analyst I*

Email: [amang2@umbc.edu](mailto:amang2@umbc.edu)

Aman, our Data/Business Analyst I, dives deep into the specifics of the payroll system, ensuring that the proposal aligns perfectly with the business requirements of the Gorilla Distribution Center. For details on the project’s analytical aspects, Aman is your go-to contact.