

Senior Project SDD

Software Design Document

for

Payroll Database System

Release 1.0

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- Software Design Document
- for

Payroll Database System

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1. Introduction

1.1 Context

The project will allow the sponsor to stay within the desired budget and become more profitable. It will also ensure employees are working desired hours, which will improve morale in this workplace. Finally, the system will save time for the management, considering they won't have to compile financial data and spend time making a schedule that works for all of the employees; the system will do all of these.

1.2 Scope

The Green Light Organization is looking for a system in which they can create automatic schedules for their employees based on employee availability and maintain a payroll budget for the weekly schedule. The schedule will be customizable by the manager creating the schedule, such as how many employees they would want per shift/day and the scheduler will create a schedule based on the employee availability within the database. The manager will add, remove, and edit employee information.

1.2.1 Out of Scope

The database system will not be available for use by customers of the Green Light Organization. Our sponsor has decided that the only authorized users of the database system will be the employees and the sponsor himself. The Green Light organization is focused on improving company operations but is open to reconsidering more features and access in a later release of the database.

1.2.2 Goals

The project will allow the sponsor to stay within the desired budget and become more profitable. The system will be time-saving as it will create automatic schedules.

- Reduce time to make employee schedules by 50%
- Increase profits by 8% after the release
- Improve company work environment

1.3 Authorship

This Software Design Document was prepared by Rosa Reynoso, Gabriela Gutierrez, David Ensign, and Jennifer Lopez.

1.4 Change History

Date	Changes
12/1	Created the document and outline sections
12/4	Added project details to each section
12/8	Inserted diagrams and final updates

1.5 Summary

The payroll database system will create automatic schedules for employees based on employee availability and maintain a payroll budget for the weekly schedule. It will follow the information described above and is expected to be used by the manager and employees to improve company operations.

2. Definition of the Problem

2.1 Overview

The system is a schedule-building software that will allow a manager to create automatic schedules for their employees based on employee availability and maintain a specific payroll budget for the weekly schedule. The payroll budget, employee information, and the finalized schedule can be edited by the employer only. This software will:

- Allow the manager to maintain a budget which allows the store a higher profit.
- Save time from gathering employee and payroll information to create the weekly work schedule for the employer.
- Allow a healthier work environment for all employees, giving them their desired work shifts and boosting morale in the workplace.

This system is being designed for The Greenlight Organization to not only save time for management but increase weekly profit by abiding by the employer's preferred payroll cap.

2.2 To be Developed

Planning Phase:

The group decided to take a month to truly research what programs and language to create this system. We also used this time to meet with each other, as well as the sponsor.

Sprint 1: Database

In this phase we will create the database for information such as Employee Data and Sales History and prepare to create necessary functions within CLion using this database.

Sprint 2: Functions

Within this phase, we used the database created in Sprint 1 to create functions for building an optimal employee schedule, as well as the sales history functions to maximize profits based on payroll budgets.

Sprint 3: UI/Ease of Access

The final sprint in which we plan to clean up the final product with a workable UI. We will also ensure system functionality and ease-of-access techniques to ensure the system will be simple to use for the manager.

2.3 System Context

The components of the payroll database system: The schedule will be customizable by the manager creating the schedule, such as how many employees per shift/day and the scheduler will create a schedule based on the employee availability within the database. The manager will add, remove, and edit employee information. Employees will not be able to edit anything. The sponsor will use the payroll system to stay within the desired budget and become more profitable

2.4 Technologies

- C++
- MySQL
- CLion

2.5 Software Requirements

1. The system must pull employee availability data from the database to create the schedule.
2. The system must pull store payroll from the database when creating the schedule.
3. The system must pull employee wage data from the database for schedule creation.
4. The software shall allow the employer to edit and make final touches before finalizing the schedule.
5. The database shall hold sales data for daily, weekly, monthly, and yearly sales.
6. The system must allow the employer to view and compare sales data for the day, week, month, and year.
7. The system shall allow the employer to set a minimum for employee coverage by shift to ensure the store has enough employees per shift.
8. The system must alert the employer with a warning if a shift is understaffed based on employer's desired employee coverage.
9. The system must allow the employer to edit employee data such as wage, availability, and personal information.
10. The software shall hold a history of schedules from previous weeks up to a minimum of four weeks.

2.6 Stakeholders

Stakeholder	Benefits
Employer <i>Franchisee/Owner</i> <i>Store Manager</i>	<ul style="list-style-type: none">• Maximize profits for the store, which could lead in bonuses or raises based on sales performance.• Saves time on a weekly basis by not having to create a schedule that fits everyone's needs.• Keeps employee information organized within the system incase they need to view or edit any employee information.• Keeps employer aware of daily store sales to further maximize profits.
Employee <i>All Store Employees</i>	<ul style="list-style-type: none">• Receives shifts that the employee prefers to work.• Eliminates any schedule conflict from unavailability and requested time off.

3. Design Description

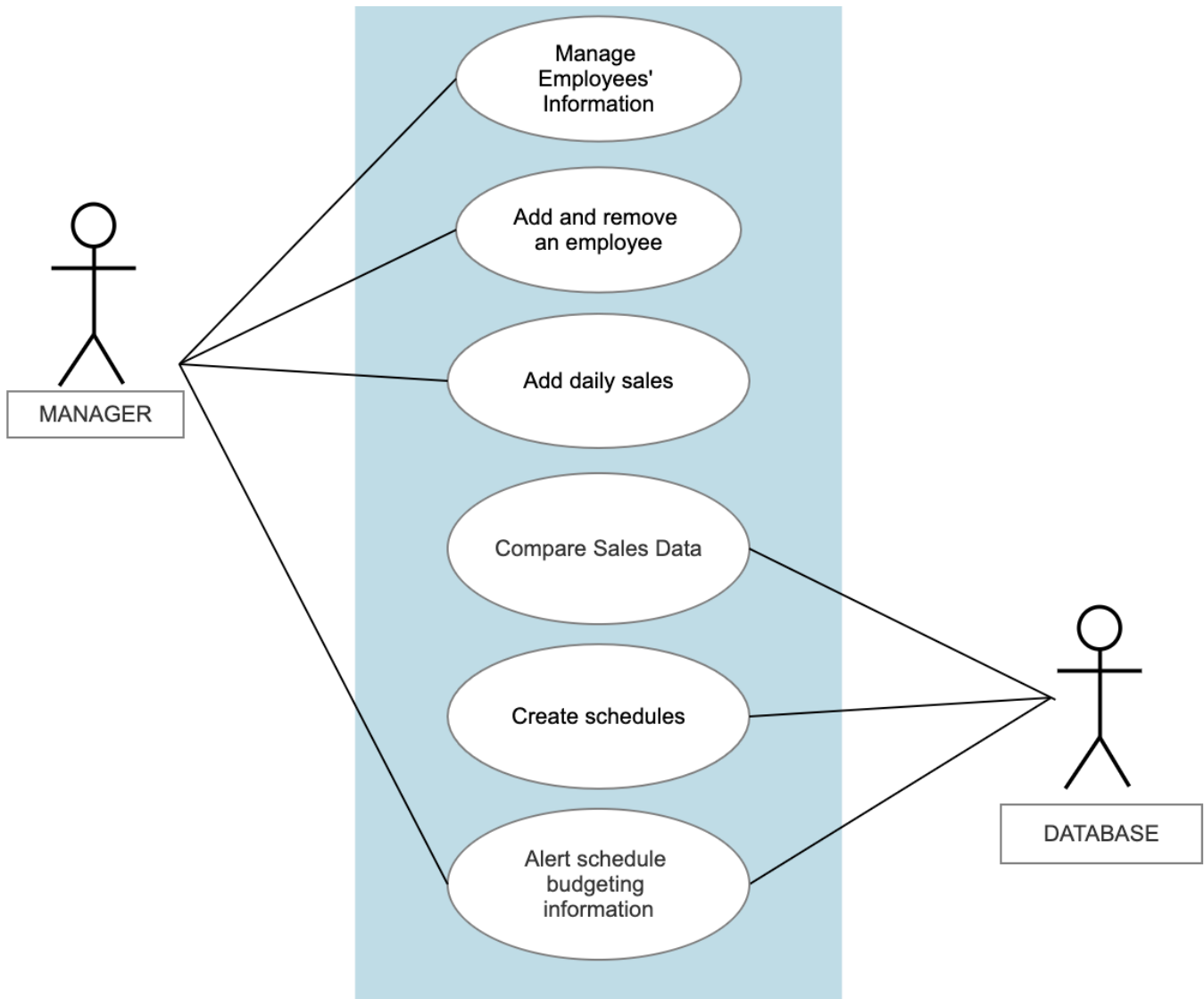
3.1 Software Architecture

3.1.1 Architectural Viewpoint 1

User View

The use case diagram below illustrates a view of the users (manager, employee) interactions with the payroll system, and also, the database system that is involved within the system.





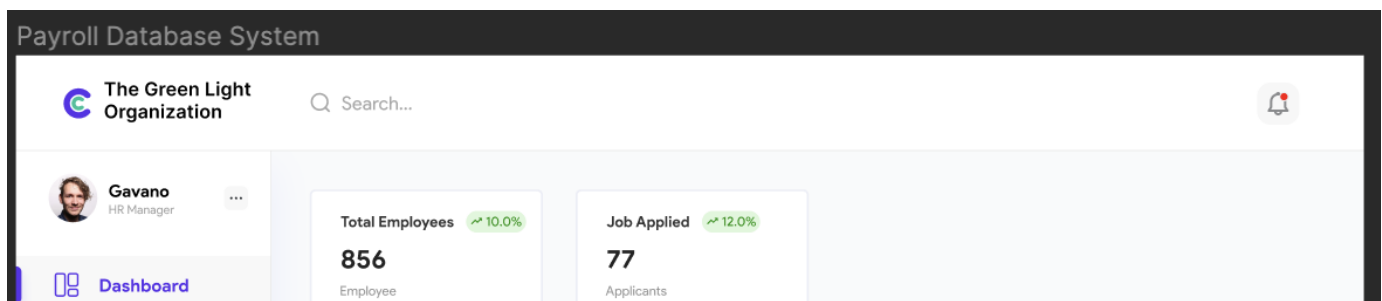
3.2 Detailed Design

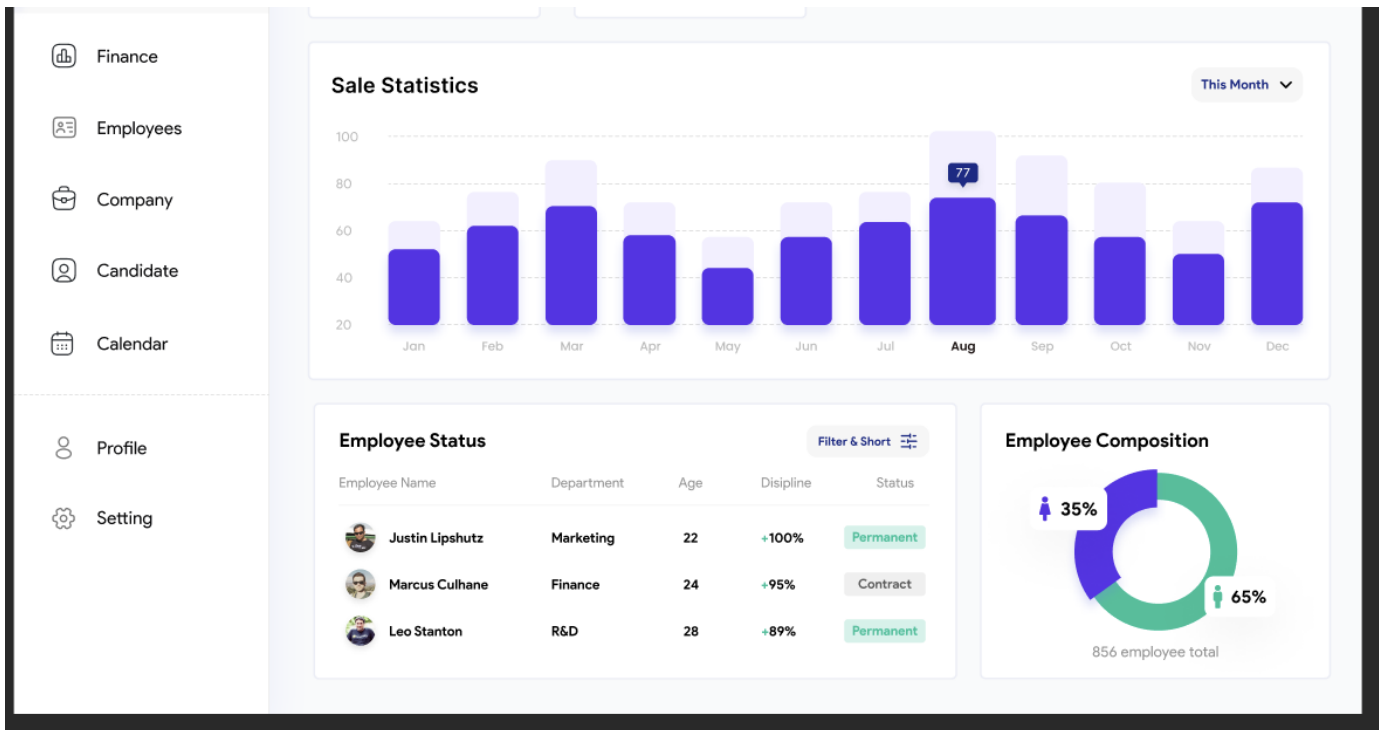
3.2.1 Overview

We may now start the detailed design of the system since the software architecture has been described, examined, and confirmed appropriately. The white-box design aspects of the structure and behavior of the software system are provided by the detailed design process, which builds on the software architecture and is frequently the final significant task before software building starts. We describe the component and interface design perspectives in the section that follows, offering a pattern and a sequence diagram in connection to the system.

3.3 Design interface

3.3.1 Interface Design Viewpoint 1





4. Conclusion

Developing a payroll database system for the Green Light Organization will allow the sponsor to stay within the desired budget and become more profitable. It will ensure employees are working desired hours, and thus, will improve morale in this workplace. The system will help management save time as they will not have to compile financial data and spend time making a schedule that works for all of the employees; the system will do be able to do all of this. The payroll budget, employee information, and the finalized schedule can be edited by the employer only but the database system will be able to be accessed by the employees as the system creates their work schedule. As we prepare to start development, updates and improvements will be made to ensure an effective and structured system is created.

5. References

Terry Hutchinson - The Green Light Organization

C.E. Otero, Software Engineering Design: Theory and Practice. CRC Press, 2012.

IEEE Std 1016 Recommended Practice for Software Design Descriptions. See draft: <http://www.urisan.tche.br/~pbatencourt/engsoftII/IEEE-P1016-d50.PDF>