

# **Software Design Specification**

**for**

# **Unique Builders Company**

**Version 1.0 approved**

**Prepared by Tech Titans**

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## Revision History

Name	Date	Reason For Changes	Version
Original Version	10/4/2023	Sprint 2	1
Version 2	10/20/2023	Overview and scope edited	2

## 1. Introduction

### 1.1 Overview

This document presents the Software Design Specification for the Unique Builders Company Interface concepts. As we progress into Sprint 2, the focus remains on enhancing the web portal's functionalities, ensuring a seamless interface for both employees and customers. The design specification aims to provide a clear roadmap for the development and implementation of the website's features. This document outlines the interface design for all functional and non-functional requirements of the website.

### 1.2 Goals and Objective

#### 1.2.1 Goals

- Deliver a robust and user-friendly website for Unique Builders, catering to both employees and customers
- To automate and streamline internal processes such as employee management, timekeeping, payroll, and work order management.
- To provide a platform for customers to get in touch with the company, learn about what services the company offers, and request quotes or further information.
- Enhance the website's interface design, ensuring it meets the functional requirements and provides an intuitive user experience.

#### 1.2.2 Objectives

- Detailed design of the employee login system, including scenarios like first-time login, password retrieval, and account security.
- Specification of the customer contact form, ensuring efficient communication between the company and its clients.
- Design and specification of the payroll system, capturing essential attributes like hours worked, payment type, and total weekly amount

## 1.3 Scope

The scope of this sprint's design specification encompasses the detailed design of the web portal's functionalities, including the employee login system, customer contact form, and payroll system. The document provides a comprehensive overview of the interface design, database description, and software architecture. The aim is to ensure that the design aligns with the functional requirements and provides a clear direction for the development team.

## 2. Data design

A description of all data structures. Data Design for all functional areas as it is the design of the database. This includes database design tables, erds, etc.

### 2.1 Internal software data structure

#### 2.1.1 Employee

Stores the employee's information, acquiring most of this information from the first time the employee logs in through the employee portal.

Employee consist of the following attributes:

EMPL\_ID: The identification number used to specifically identify an employee, this will also be the username for the employee for their login.

empl\_first\_name: The employee's first name

empl\_last\_name: The employee's last name

password: The employee's password

email: The employee's email/s

phone\_number: The employee's phone number/s

empl\_role: The employee's position in the company

empl\_status: If the employee is an active or inactive currently in the company

#### 2.1.2 Address

Stores the addresses of previous or ongoing jobs for the company

Address consists of the following attributes:

ADDRESS\_ID: The identification number used to specifically identify an address

Street: The street name for an address

unit\_number: the unit or apartment number for an address

city: the city name for an address

state: the state name for an address

Zipcode: the zipcode number for an address

### **2.1.3 Work Order**

Stores the information for each work order created

Work Order consists of the following attributes:

WORKORDER\_ID: The identification number used to specifically identify a work order

ADDRESS\_ID: The address identification number correlated to that work order

EMPL\_ID: The employee identification number assigned to that work order

job\_type: The type of work that is required for the work order

date\_assigned: the date the work order is assigned for

status: the status of the work order

ext\_company\_name: an outside company name involved in work orders but no directly correlated to Unique Builders

### **2.1.4 Customer**

Stores the information for a customer, gaining this information by the customer contact form that was filled out on the website.

Customer consists of the following attributes:

CUST\_ID: The identification number used to specifically identify a customer

cust\_first\_name: The customer's first name

cust\_last\_name: The customer's last name

email: The customer's email/s

phone\_number: The customer's phone number/s

job\_inquiry: The customer description of what job they have in mind

### **2.1.5 Payroll**

Stores the information for every weekly payroll

Payroll consists of the following attributes:

PAYROLL\_ID: The identification number used to specifically identify a weekly payroll

EMPL\_ID: The employee identification number used to correlate back to the payroll

pay\_week: The week the payroll is being distributed

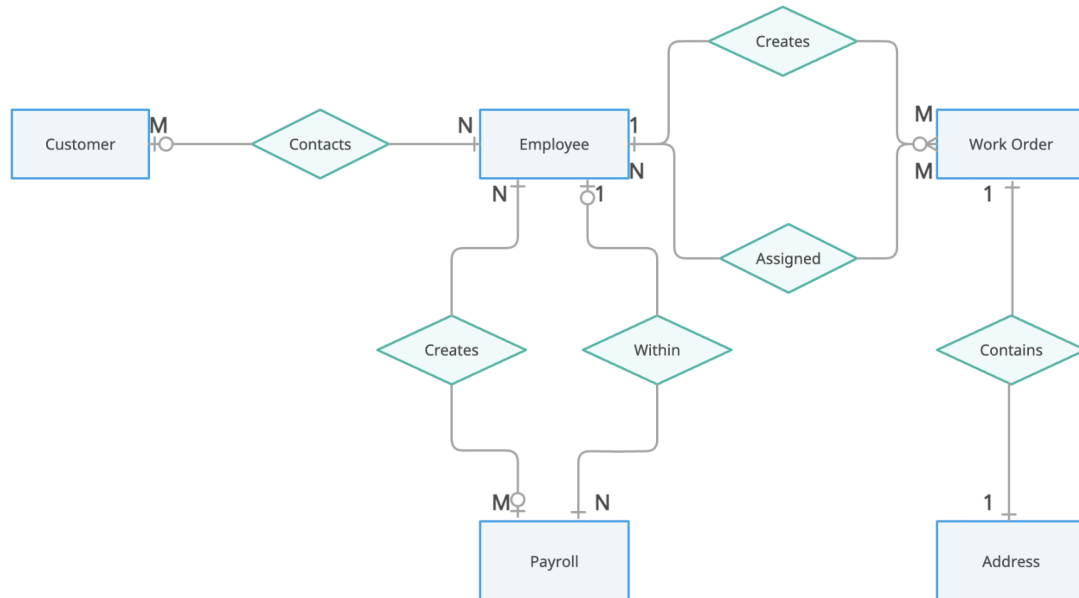
hours\_worked: The number of hours worked by a specific employee

hourly\_pay\_rate: The hourly pay rate for a specific employee

total\_weekly\_amount: The total amount paid to all employees

payment\_type: The type of payment the employee is receiving for the week (cash or check)

## 2.2 Database Description



### Employee:

- EMPL\_ID (Primary Key)
- empl\_first\_name
- empl\_last\_name
- password
- email (mv)
- phone\_number (mv)
- empl\_role
- empl\_status

### Address:

- ADDRESS\_ID (Primary Key)
- street
- unit\_number
- city
- state
- zipcode

### Work Order:

- WORKORDER\_ID (Primary Key)
- ADDRESS\_ID (Foreign Key)
- EMPL\_ID (Foreign Key)
- Job\_type (mv)
- date\_assigned
- status
- ext\_company\_name

### Customer:

- CUST\_ID (Primary Key)
- cust\_first\_name
- cust\_last\_name
- email (mv)
- phone\_number (mv)
- job\_inquiry

### Payroll:

- PAYROLL\_ID (Primary Key)
- EMPL\_ID (Foreign key)
- pay\_week
- hours\_worked
- hourly\_pay\_rate
- total\_weekly\_amount
- payment\_type

## 2.3 Architecture

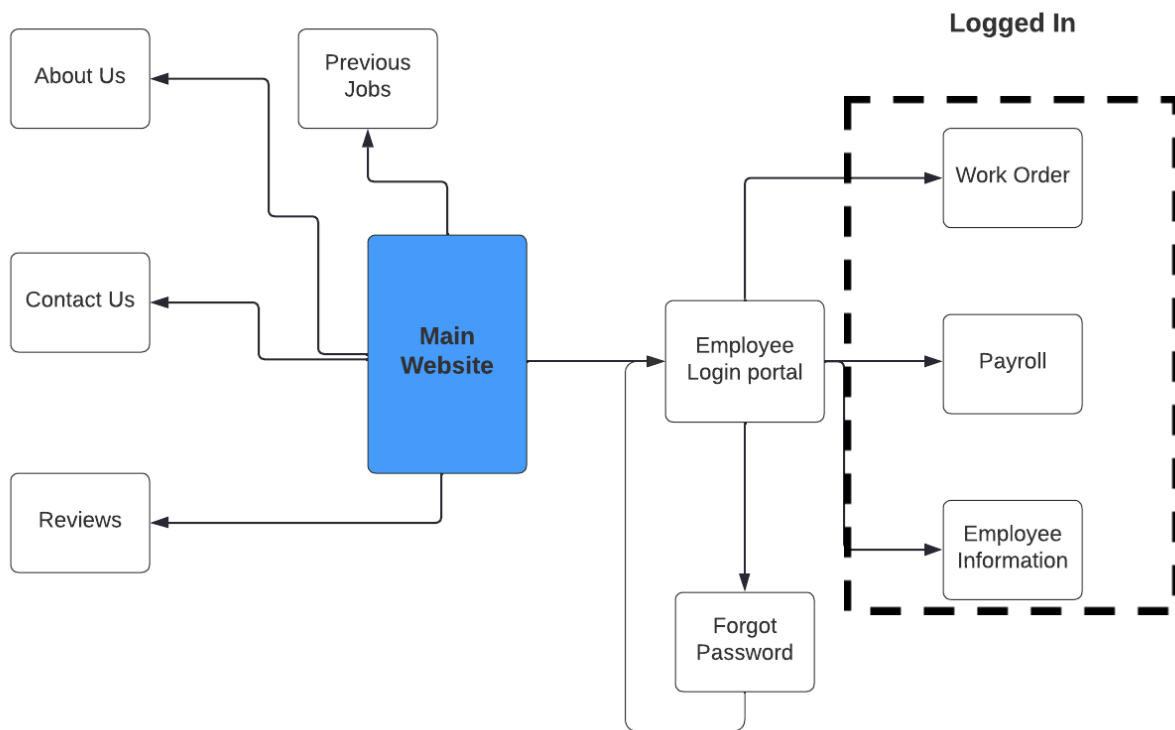
The following diagram describes the architecture of the application:



### 3. User interface design

This section is for all functional requirements, since it is the design of the website.

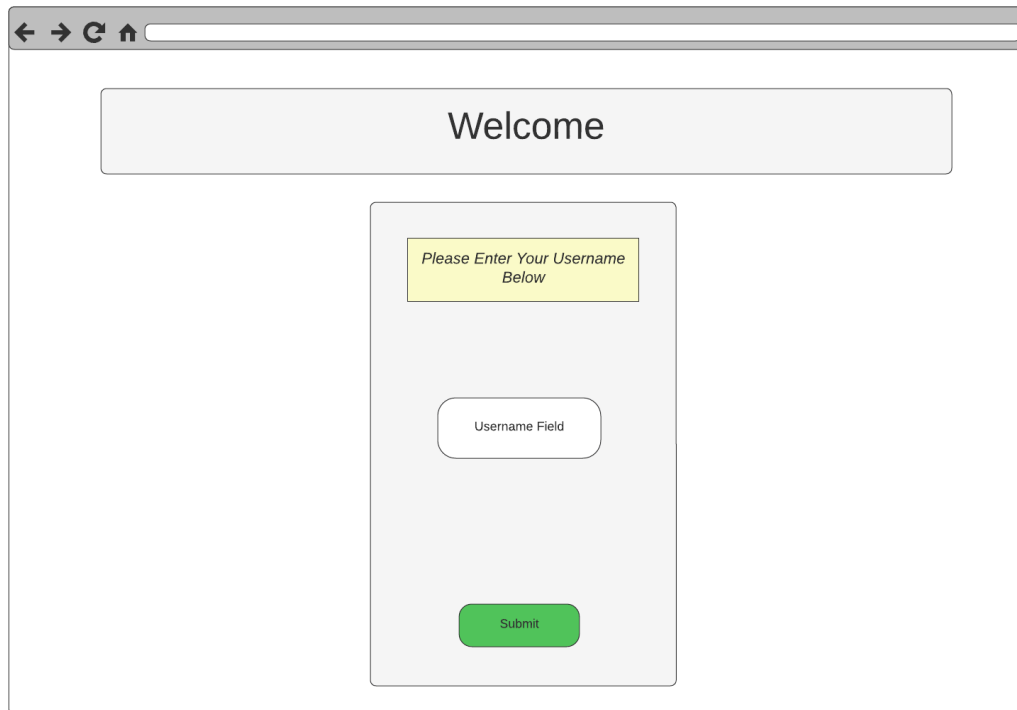
#### 3.1 Sitemap / Flow Chart



## 3.2 Interface In Logical Order

### 3.2.1 Interface Design for Initial Employee Login

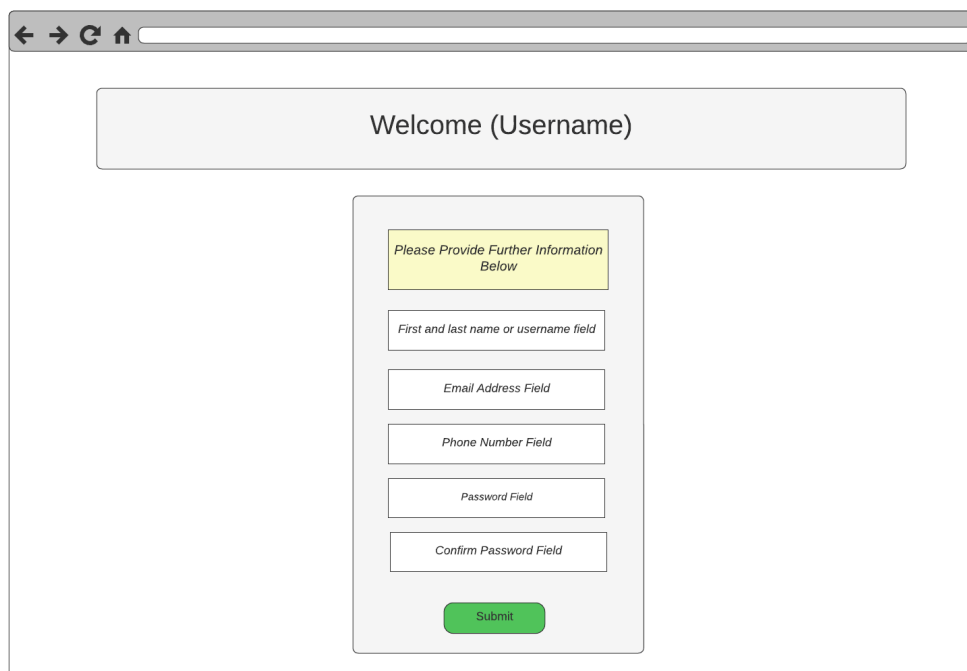
For Functional Requirement: 2.1 Employee Login (from SRS Sprint 1).



A web browser window displaying a login interface. At the top, a light gray bar contains the word "Welcome". Below this, a yellow box with the text "Please Enter Your Username Below" is centered. Underneath the yellow box is a white rounded rectangle labeled "Username Field". At the bottom of the form is a green rounded rectangle labeled "Submit".

### 3.2.2 Interface Design for Gathering Employee Information Login

For Functional Requirement: 2.1 Employee Login.

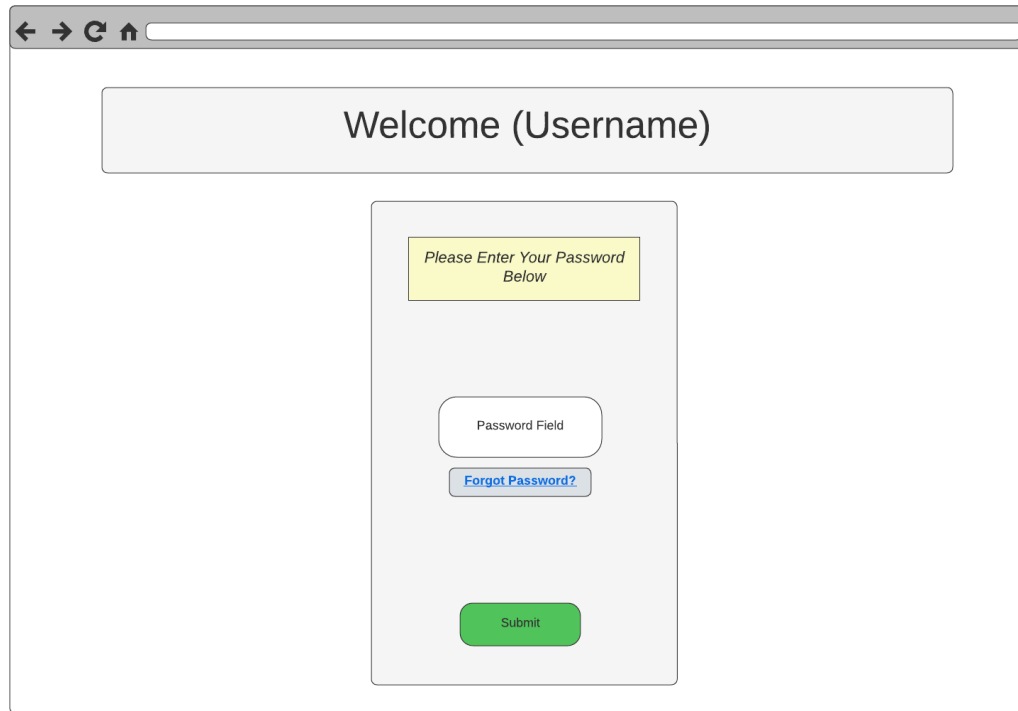


A web browser window displaying a registration or information gathering interface. At the top, a light gray bar contains the text "Welcome (Username)". Below this, a yellow box with the text "Please Provide Further Information Below" is centered. Underneath the yellow box are five white rounded rectangles, each containing a label: "First and last name or username field", "Email Address Field", "Phone Number Field", "Password Field", and "Confirm Password Field". At the bottom of the form is a green rounded rectangle labeled "Submit".



### 3.2.3 Interface Design for Employee Password Login

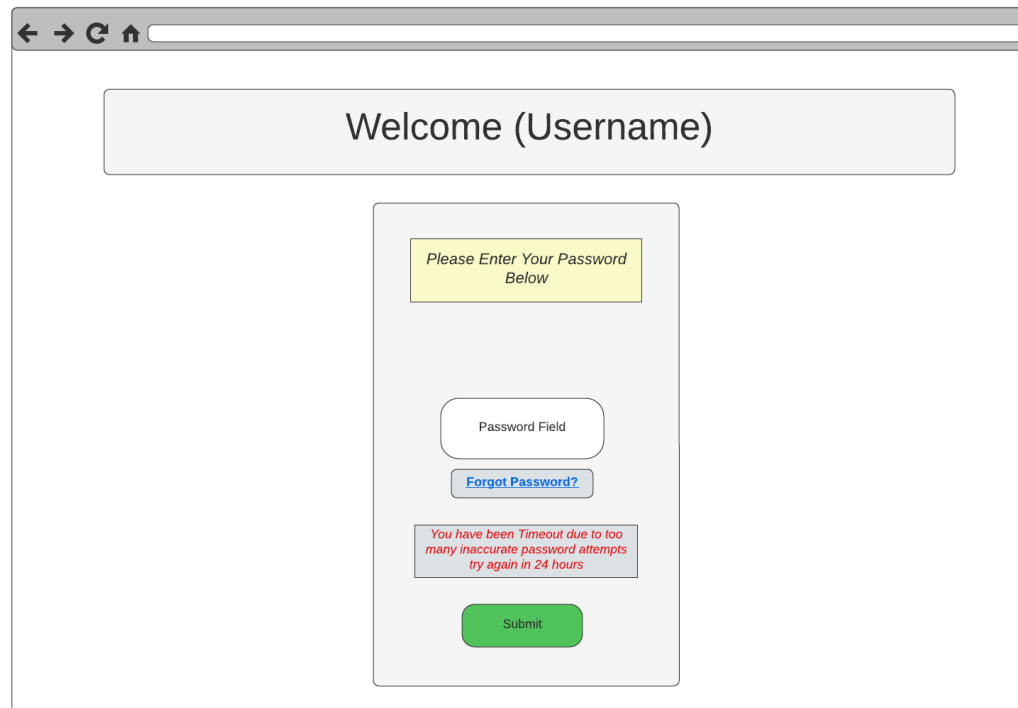
For Functional Requirements: 2.1 Employee Login & 2.2 Employee Forgot Password.



The interface is displayed within a browser window. At the top, a light gray box contains the text "Welcome (Username)". Below this, a central gray box contains a yellow box with the text "Please Enter Your Password Below". Underneath the yellow box is a white rounded rectangle labeled "Password Field". Below the password field is a blue button labeled "Forgot Password?". At the bottom of the central gray box is a green button labeled "Submit".

### 3.2.4 Interface Design for Employee Password Login Timeout

For Functional Requirements: 2.1 Employee Login & 2.2 Employee Forgot Password.



The interface is displayed within a browser window. At the top, a light gray box contains the text "Welcome (Username)". Below this, a central gray box contains a yellow box with the text "Please Enter Your Password Below". Underneath the yellow box is a white rounded rectangle labeled "Password Field". Below the password field is a blue button labeled "Forgot Password?". Below the "Forgot Password?" button is a red box with the text "You have been Timeout due to too many inaccurate password attempts try again in 24 hours". At the bottom of the central gray box is a green button labeled "Submit".

### 3.2.5 Interface Design for Confirming Employee Information for Forgot Password

For Functional Requirement: 2.2 Employee Forgot Password.

The image shows a web browser window with a navigation bar at the top containing back, forward, refresh, and home icons, followed by an address bar. Below the navigation bar is a light gray rectangular box containing the text "Welcome (Username)". Centered below this box is a vertical gray container. At the top of this container is a yellow box with the text "Please Provide Needed Information Below". Below this is a white input field labeled "Confirm Email Address". Underneath the input field is a small gray box with the text "Or". Below that is another white input field labeled "Confirm Phone Number". At the bottom of the vertical container is a green rounded rectangular button labeled "Submit".

### 3.2.6 Interface Design for Incorrect Information Input for Forgot Password

For Functional Requirement: 2.2 Employee Forgot Password.

The image shows a web browser window with a navigation bar at the top containing back, forward, refresh, and home icons, followed by an address bar. Below the navigation bar is a light gray rectangular box containing the text "Welcome (Username)". Centered below this box is a vertical gray container. At the top of this container is a yellow box with the text "Please Provide Needed Information Below". Below this is a white input field labeled "Confirm Email Address". Underneath the input field is a small gray box with the text "Or". Below that is another white input field labeled "Confirm Phone Number". Below the input fields is a red box with the text "The Information Provided is incorrect". At the bottom of the vertical container is a green rounded rectangular button labeled "Submit".

### 3.2.7 Interface Design for Alert of Information sent to Employee

For Functional Requirement: 2.2 Employee Forgot Password.

The screenshot shows a web browser window with a navigation bar at the top containing back, forward, refresh, and home icons, followed by an address bar. The main content area features a light gray rectangular box at the top with the text "Thank You (Username)". Below this is a white rectangular box with a light gray border. Inside this box, at the top, is a smaller white box with the text "Hello (username)". Below that is a larger white box containing the text: "Please be patient as we send you an email or text message with a temporary password for the next time you want to login." At the bottom of this box is another white box with the text: "Information sent to : (email / phone number)". At the very bottom of the white box is a yellow oval button with the text "Go back to Login".

### 3.2.8 Interface Design for Employee Temporary Password Login

For Functional Requirements: 2.1 Employee Login & 2.2 Employee Forgot Password.

The screenshot shows a web browser window with a navigation bar at the top containing back, forward, refresh, and home icons, followed by an address bar. The main content area features a light gray rectangular box at the top with the text "Welcome (Username)". Below this is a white rectangular box with a light gray border. Inside this box, at the top, is a yellow rectangular box with the text "Please Provide Needed Information Below". Below that are three white rectangular input fields, each with a light gray border, containing the text "Temporary Password Field", "New Password Field", and "Confirm Password Field" respectively. At the bottom of the white box is a green rectangular button with the text "Submit".

3.2.9 Interface Design for Work Orders

For Functional Requirement: 2.5 Job work orders.

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http://uniquebuilders.com

Work Orders

+ Add Work Order

Status (In Progress) ▼

🔍

search

Work Order ID	Employee/s or Company Assigned ▼	Date Assigned ▼	Job Type ▼	Address ▼	Status ▼
WO34467	Bob Jones / Terry Sullivan	10/01/2023	Drywall	2976 Shoup Drive	In Progress
WO76903	Jake Phillip	09/30/2023	Subfloor	3226 Barnett Way	In Progress
WO86038	GreenCare Inc	09/29/2023	Powerwash	2732 Leo Ave	In Progress
WO5829	Ivan Moreno	09/27/2023	Painting	3012 Slane Way	In Progress
WO69320	Gio Gonzales	09/27/2023	Subfloor	2456 Harry Dr	In Progress
WO11263	Brett Earl	09/25/2023	Concrete Grinding	2346 Shoup Drive	In Progress
WO74021	Brett Earl	00/25/2023	Subfloor	2606 Mckinney Dr	In Progress
WO37292	Jake Phillip	09/25/2023	Drywall	3121 Track Way	In Progress
WO72094	Bob Jones	09/24/2023	Framing	2793 Nestor Ave	In Progress
WO22391	Terry Sullivan	09/24/2023	Drywall	2363 Barnett Way	In Progress

### 3.2.10 Interface Design for Payroll

For Functional Requirement: 2.4 Weekly Timekeeping and Payroll.

← → ↺ ⬆

http://uniquebuilders.com

Payroll

Date 08/15/2023 - 08/22/2023

+ Create New Weekly Payroll

Search Date

Employee Name	Payment Type	Hourly Wage	Hours Worked	Amount to be Paid
Leo Longus	Cash	\$28	40	\$1120.00
Emex Gilo	Cash	\$23	32	\$736.00
Gerry Ford	Cash	\$20.50	24	\$492.00
Terry Sullivan	Cash	\$30	40	\$1200.00
Bob Jones	Cash	\$25.50	40	\$1020.00
Ronald Mac	Cash	\$22	32	\$660.00
William Qion	Cash	\$28	16	\$448.00
Sarah Holly	Cash	\$23.50	16	\$564.00
Sasha Perry	Cash	\$24	40	\$736.00
				Total Amount for (Payroll ID) = Cash \$6,976.00 / Check \$0.00

### 3.2.11 Interface Design for Employee Information Page

For Functional Requirement: 2.3 Adding and Terminating Employee dropdown.

The screenshot shows a web browser window with the URL <http://uniquebuilders.com>. The page features a blue header bar with the text "Employee Information". To the right of the header are three buttons: "+ Add new Employee", "Status (Active)" with a dropdown arrow, and "Change Employee Status" (highlighted in yellow). Further right is a search bar with a magnifying glass icon and the text "search". Below the header is a table with four columns: "Employee", "Status", "Role", and "Hourly Wage". The table contains nine rows of employee data. Each row has a dropdown arrow next to the "Status" and "Role" columns, and a spinner control next to the "Hourly Wage" column. A vertical scrollbar is visible on the right side of the table.

Employee	Status	Role	Hourly Wage
Leo Longus	Active	On Site	\$28
Emex Gilo	Active	On Site	\$23
Gerry Ford	Active	On Site	\$20.50
Terry Sullivan	Active	Office	\$30
Bob Jones	Active	On Site	\$25.50
Ronald Mac	Active	Office	\$22
William Qion	Active	On Site	\$28
Sarah Holly	Active	Office	\$23.50
Sasha Perry	Active	On Site	\$24

### 3.2.12 Interface Design for Customer Contact Page

For Functional Requirement: 2.6 Customer Contact Form.

The screenshot shows a web browser window with the URL <http://uniquebuilders.com>. The navigation bar includes links for [Reviews](#), [About Us](#), [Home](#), and [Employee Login](#). The main content area features a yellow 'Contact Us' button. Below it is a form with a light gray background. The form contains a message: 'Please provide further information to ensure you get contacted accurately and as soon as possible'. It includes four input fields: 'First and last name or username field', 'Email Address Field', 'Phone Number Field', and a larger 'Job Desscription Field' (note the typo). A green 'Submit' button is at the bottom of the form.

← → ↻ 🏠 <http://uniquebuilders.com>

[Reviews](#) | [About Us](#) | [Home](#) | [Employee Login](#)

**Contact Us**

Please provide further information to ensure you get contacted accurately and as soon as possible

*First and last name or username field*

*Email Address Field*

*Phone Number Field*

*Job Desscription Field*

**Submit**

## 4. Test Plan

Test strategy and preliminary test case specification are presented in this section, for Functional Requirements: 2.1 Employee Login & 2.2 Employee Forgot Password (from SRS Sprint 1).

### 4.1 Overview

This test plan details how to test the employee login & forgot password functionality of the website. Many scenarios, such as first login, forgot password, & incorrect password will be tested. The values to input in the test are shown in the input column.

### 4.2 Scope

This test plan involves two functional areas that are closely related to each other and use some of the same webpages on the website for the employees to login to their accounts.

### 4.3 Test Plan Table

Functional Area	Description	Input	Methods & Functions	Expected Output	Actual Output
Employee Login	An employee is logging into their account for the first time.	Cr124; <a href="mailto:cr@gmail.com">cr@gmail.com</a> ; 707-620-1000;	verifyEmpl() setupAct()	The employee successfully set up their account and is logged in	
Employee Login	An employee logging in using a valid username and password	Ab145; 245424	verifyEmpl()	The employee is successfully logged in	
Employee Login	An employee attempts to log in with an incorrect password	Ab145; password	verifyEmpl()	The login fails and the employee is prompted to enter the correct password. There is also a notification for the amount of attempts left.	



Employee Login	Log-in attempt with an invalid username	Test112 admin	verifyEmpl()	The login fails and a notification states that the employee doesn't exist. The message also suggests contacting the IT admin if help is needed to resolve the issue.	
Employee Login	An employee attempts to log in with an incorrect password and exhausted all available attempts	Ab145; 12345; 23345; 00000; 22222; 88123;	verifyEmpl()	The password submit button and textbox are deactivated and the account is locked for 24 hours.	
Forgot password	An employee who has previously set up their account with their email is attempting to reset their password.	<a href="mailto:cr@gmail.com">cr@gmail.com</a> ;	resetPass()	The employee successfully verifies their phone number and receives a temporary password via email. The employee will re-enter their username and then be prompted to confirm the temporary and new password.	

Forgot password	An employee who has set up their account with their phone number is attempting to reset their password.	707-620-1000;	resetPass()	The employee successfully verifies their phone number and receives a temporary password via text message. The employee will re-enter their username and then be prompted to confirm the temporary and new password.	
Forgot password	An employee who has set up their account with their phone number is attempting to reset their password with an incorrect phone number	322-222-1000;	resetPass()	Employee fails to verify their phone number and is prompted to enter the correct phone number.	
Forgot password	An employee who has set up their account with their email is attempting to reset their password with an incorrect email	test@gmail.com;	resetPass()	Employee fails to verify their email and is prompted to enter the correct email.	