

Masons Capstone Web App

Final Design Documentation

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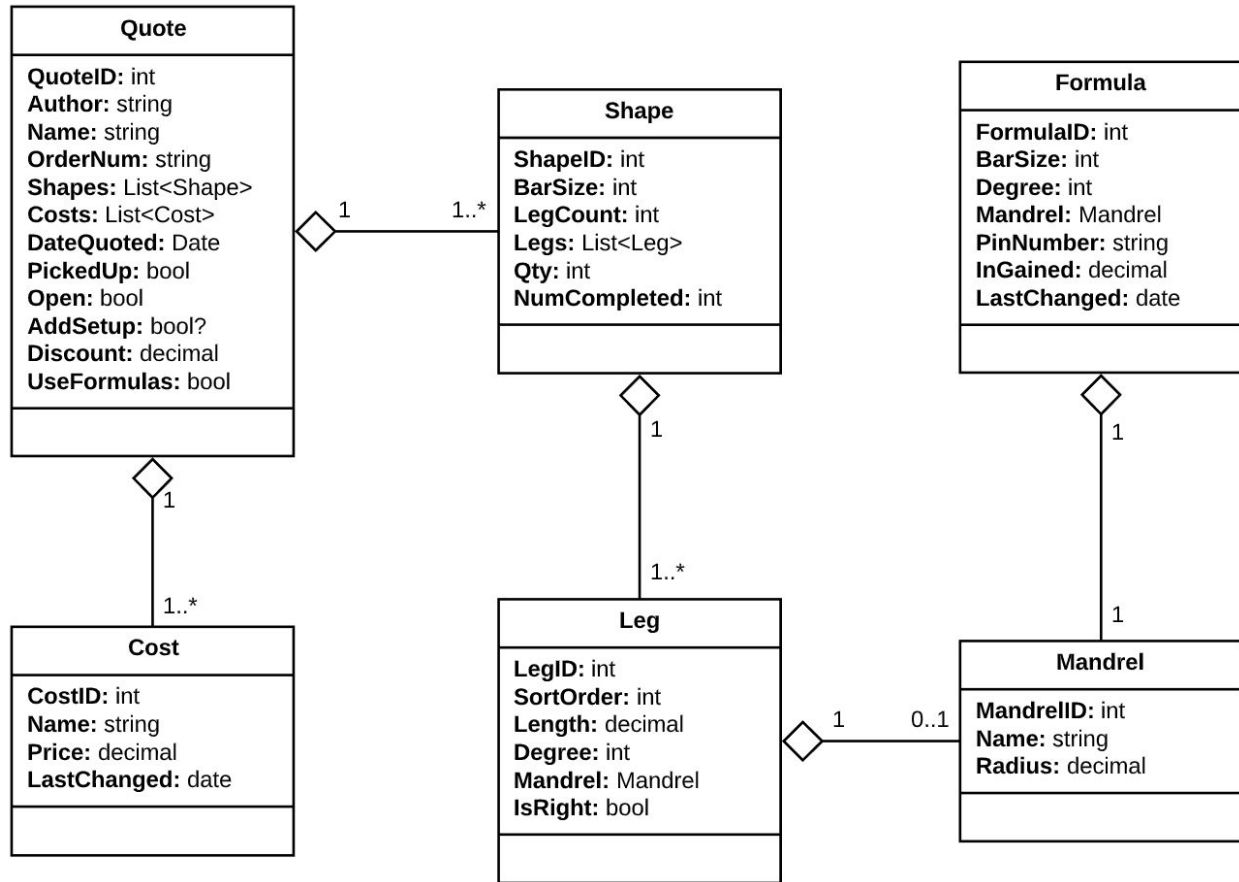
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Project Overview

The goal of this project is to develop a web app to be used by the Masons Supply Eugene branches, that will help in calculating the cost and amount of resources required to fulfill rebar orders. Also, it will be able to retrieve previously input information such as formulas for certain bends and procedures that will facilitate their workflow. Features will include:

- A. Order cost calculator
 - i. Number of 20 ft. bars required
 - ii. Number of bends required
 - iii. Number of cuts required
 - iv. A report on how to use rebar remnants efficiently
 - v. Dynamic calculation for formulas the user hasn't manually entered
 - vi. Dynamic drawings of shapes in the quote for user reference
- B. Formula Management
 - i. Form to enter length gained in a bend
 - ii. Searchable formulas based on bar thickness, mandrel size, and degree of bend
- C. Cost Management
 - i. Form to enter the cost of rebar, bends, and cuts for each size of rebar
 - ii. Form to enter the cost of a setup charge
- D. Reviewing Quotes
 - i. A list of open quotes that will display whether or not the order has been picked up and the completion progress of each shape
 - ii. A button for each quote to recalculate the total cost based on cost changes
 - iii. A list of closed quotes that can be reopened if needed
- E. Admin Login
 - i. A forgot password button to allow logging in through the admin's email
 - ii. Site pages that can only be accessed by the admin

Domain Model

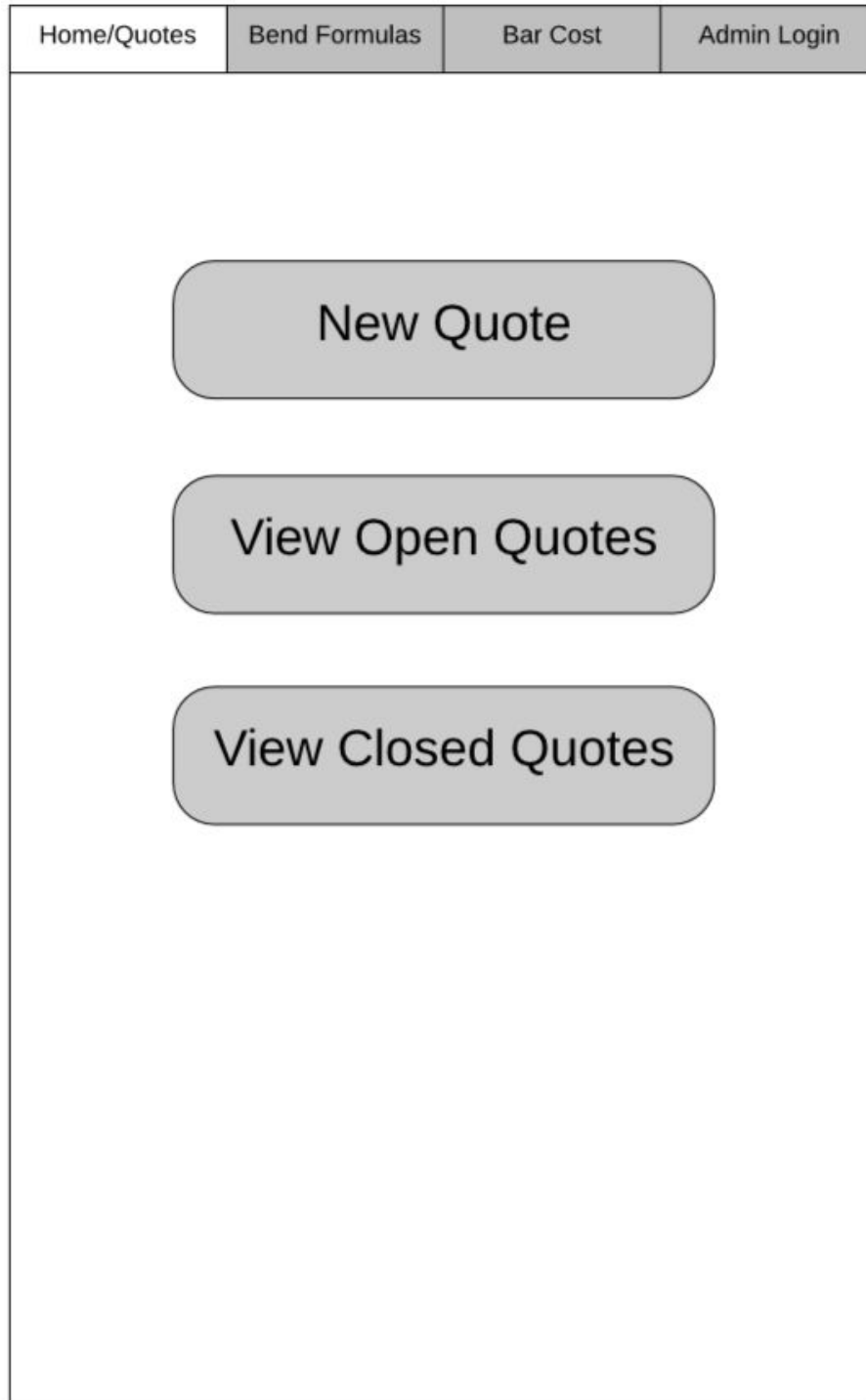


The user enters formulas that will be used to calculate quotes. A formula defines how much shorter a shape will need to be cut based on the angle of its bends. Part of a bend is defined by a mandrel. A quote will have custom shapes. Every shape will have legs that make up the shape. A leg will have a length and a bend which is partially defined by a mandrel. The user will enter prices for the different sizes of rebar and the prices of cuts and bends. These prices will be the costs in the database. When a quote is made, copies of needed costs are added to the quote. That way if the user changes the costs in the database, the quote that was promised to a customer won't change price because it's reading from its own list of costs.

UI Diagrams

UI #1: Home Page

Models used: None



Sub-section: Order Cost Calculator

Users will start by entering the number of legs each shape in the quote will have. When the user clicks “Enter”, the form populates with textboxes and dropdowns to allow the user to enter the data for each leg in the shape. The user can then click “Finish Quote” to see the review of the total cost and the number of bars, cuts, and bends required to fabricate the order. The review will also give instructions on the order to fabricate the shapes in, in order to most efficiently use remnants of shapes. The quote review page is also where the user can edit the quote name, and assign an order number to the quote.

UI #2: Shape Entry

Models used: Quote, Shape, Leg, Mandrel, Formula

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
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Quote

Shape 1 - #5 Rebar w/ 2 Legs, Qty: 60 [Edit](#)
Shape 2 - #5 Rebar w/ 2 Legs, Qty: 30 [Edit](#)
Shape 3 - #4 Rebar w/ 3 Legs, Qty: 40 [Edit](#)

Rebar Size:

#4 ▼
#3
#5
#6

 # of Legs:

Qty:

Leg 1 Lenth (inches):

Leg 1 Bend (Degrees): Mandrel:

Small ▼
Medium
Large

☒ Left ☐ Right

Leg 2 Lenth (inches):

Leg 2 Bend (Degrees): Mandrel:

Small ▼
Medium
Large

☒ Left ☐ Right

Leg 3 Lenth (inches):

Next Shape

Delete Shape

Finish Quote

Cancel Quote


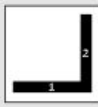

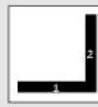

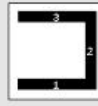
UI #2.5: Create New Quote Popup

Models used: Quote, Shape, Leg, Mandrel, Cost

Create New Quote	
Quote Creator:	<input type="text" value="Text"/>
Order Number:	<input type="text" value="Text"/>
Quote Name:	<input type="text" value="Text"/>
Number of Shapes:	<div><div>1</div><div><div>▲</div><div>▼</div></div></div>
Number of Legs:	<div><div>3</div><div><div>▲</div><div>▼</div></div></div>

UI #3: Finished Quote Review

Models used: Quote, Shape, Leg, Mandrel, Cost, Formula

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
Quote Written By: Bob Smith - 4/1/2020 3:30:00 PM			
Quote Name: <input type="text" value="Bob's Concrete W 11th Project"/>			
Order Number: <input type="text" value="5623148"/>			
Discount: <input type="text" value="0"/>			
Apply Setup: <input checked="" type="radio"/> Automatic <input type="radio"/> Yes <input type="radio"/> No			
<div>Total Cost: \$454.40 #4 Bars Used: 14 (\$10 ea.) + 40 Cuts (\$0.25 ea.) + 80 Bends (\$0.25 ea.) #5 Bars Used: 15 (\$15 ea.) + 90 Cuts (\$0.33 ea.) + 90 Bends (\$0.33 ea.) Setup Charge: \$0.00 #4 Remnants: (15" x 13), (165" x 1) #5 Remnants: (20" x 5)</div>			
<div>Instructions Perform cuts in the following order.</div>			
1st Shape(x30): 10 bars of #5 needed Edit 			
<div><p>Cut each piece at: 70" Cut (3) per (20' bar) for (10 bars)</p><p>Leg 1: 36" Bend 1: 90°, Medium Mandrel Leg 2: 36"</p><p>Remnants: (30" x 10) Will Be Used Again</p></div> 			
2nd Shape(x60): 5 bars of #5 needed Edit 			
<div><p>Cut each piece at: 22" Cut (1) per (30" remnant) for (10 remnants) Cut (10) per (20' bar) for (5 bars)</p><p>Leg 1: 36" Bend 1: 90°, Medium Mandrel Leg 2: 36"</p><p>Remnants: (20" x 5) Not Used Again</p></div> 			
3rd Shape(x40): 14 bars of #4 needed Edit 			
<div><p>Cut each piece at: 75" Cut (3) per (20' bar) for (13 bars) Cut (1) per (20' bar) for (1 bars)</p><p>Leg 1: 30" Bend 1: 90°, Small Mandrel Leg 2: 18" Bend 2: 90°, Small Mandrel Leg 3: 30"</p><p>Remnants: (15" x 13) Not Used Again, (165" x 1) Not Used Again</p></div> 			
<div><div>Add Shape</div><div>Save Quote</div></div>			

Sub-section: Formula Management

Users can view all formulas that are in the database. They can search for specific formulas based on bar size, degrees, and/or the mandrel. Users can edit existing formulas or add a new one.

Formulas are composed of a bar size, degree, mandrel, pin number, and inches gained from the bend.

UI #4: Formula Searching

Models used: Formula, Mandrel

[illegible]

UI #5: Formula Entry

Models used: Formula, Mandrel

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
<div><div>Bar Size:</div><div><div>#5 ▼</div><div>#3</div><div>#4</div><div>#6</div></div></div> <div><div>Degree:</div><div>135</div></div> <div><div>Mandrel Size:</div><div>Medium ▼</div><div>Large</div></div> <div><div>Results In</div><div>↓</div></div> <div><div>Pin At:</div><div>6</div></div> <div><div>Inches Gained:</div><div>0.5</div></div> <div><div>Save Formula</div></div>			

Sub-section: Cost Management

Users can enter costs that will be used in the calculation of the total cost of quotes. Every cost records the date of the last time it was changed so the user can gauge if they need to check whether steel prices have changed in that time.

UI #6: Cost Entry

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
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#3

Bar Cost:
\$5.00
(1/1/2020)

Bend Cost:
\$0.25
(1/1/2020)

Cut Cost:
\$0.25
(1/1/2020)

#4

Bar Cost:
\$10.00
(1/1/2020)

Bend Cost:
\$0.25
(1/1/2020)

Cut Cost:
\$0.25
(1/1/2020)

#5

Bar Cost:
\$15.00
(1/1/2020)

Bend Cost:
\$0.33
(1/1/2020)

Cut Cost:
\$0.33
(1/1/2020)

#6

Bar Cost:
\$20.00
(1/1/2020)

Bend Cost:
\$0.40
(1/1/2020)

Cut Cost:
\$0.40
(1/1/2020)

Setup Fee

Cost:
\$15.00
(1/1/2020)

Submit

Dates are since last change.

Sub-section: Reviewing Quotes

From the home page, users can view lists of either open or closed quotes. Open quotes will display the completion progress of each shape as well as whether or not the customer has picked up the quote's order. When reviewing the details of an individual quote, users can update the completion progress of a shape, mark the quote as picked up, mark the quote as closed, edit the contents of any shape, or have the quote recalculate its total cost based on possibly altered prices from the cost management page. Users can view a list of closed quotes and review their details, but nothing in the quote can be edited while it's closed. A user can reopen a closed quote while reviewing it. Users can delete an open or closed quote while reviewing it, but are taken to a warning page in case the button was clicked accidentally.







UI #7: Open Quotes

Models used: Quote, Shape

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
<h2>Open Quotes</h2> <div>Sort by: <div>Date</div> <div>Alphabetical</div></div> <div><div>Bob's Concrete W 11th Project \$454.40</div><div><div>1st Shape: #5 Bar, 2 LegsCompleted: 30/30</div><div></div><div>2nd Shape: #5 Bar, 2 LegsCompleted: 45/60</div><div></div><div>3rd Shape: #4 Bar, 3 LegsCompleted: 0/40</div><div></div></div><div><div>Details</div><div>Has Not Been Picked Up</div></div></div> <div><div>Steve's Masonry \$115.00</div><div><div>1st Shape: #3 Bar, 2 LegsCompleted: 0/65</div><div></div></div><div><div>Details</div><div>Has Not Been Picked Up</div></div></div> <div><div>Bob's Concrete River Road Project \$326.25</div><div><div>1st Shape: #6 Bar, 3 LegsCompleted: 20/20</div><div></div><div>2nd Shape: #4 Bar, 2 LegsCompleted: 0/20</div><div></div></div><div><div>Details</div><div>Has Not Been Picked Up</div></div></div> <div><div>Cement Solutions Harlow Rd \$1,007.75</div><div><div>1st Shape: #6 Bar, 1 LegsCompleted: 0/50</div><div></div><div>2nd Shape: #5 Bar, 2 LegsCompleted: 0/23</div><div></div></div><div><div>Details</div><div>Has Not Been Picked Up</div></div></div>			

UI #8: Open Quote Review

Models used: Quote, Shape, Leg, Mandrel, Cost, Formula

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
Quote Written By: Bob Smith - 4/1/2020 3:30:00 PM			
Quote Name: <input type="text" value="Bob's Concrete W 11th Project"/>			
Order Number: <input type="text" value="5623148"/>			
Discount: <input type="text" value="0"/>			
Apply Setup: <input checked="" type="radio"/> Automatic <input type="radio"/> Yes <input type="radio"/> No			
<input checked="" type="checkbox"/> Has Been Picked Up			
<div>Total Cost: \$454.40 Update Cost</div> <div>#4 Bars Used: 14 (\$10 ea.) + 40 Cuts (\$0.25 ea.) + 80 Bends (\$0.25 ea.) #5 Bars Used: 15 (\$15 ea.) + 90 Cuts (\$0.33 ea.) + 90 Bends (\$0.33 ea.) Setup Charge: \$0.00 #4 Remnants: (15" x 13), (165" x 1) #5 Remnants: (20" x 5)</div>			
<h3>Instructions</h3> <p>Perform cuts in the following order.</p>			
1st Shape(x30): 10 bars of #5 needed Edit 			
<div><div>Cut each piece at: 70" Cut (3) per (20' bar) for (10 bars)</div><div>Completed: <input type="text" value="30"/></div><div>Leg 1: 36" Bend 1: 90°, Medium Mandrel Leg 2: 36"</div><div>Remnants: (30" x 10) Will Be Used Again</div></div>			
2nd Shape(x60): 5 bars of #5 needed Edit 			
<div><div>Cut each piece at: 22" Cut (1) per (30' remnant) for (10 remnants) Cut (10) per (20' bar) for (5 bars)</div><div>Completed: <input type="text" value="45"/></div><div>Leg 1: 36" Bend 1: 90°, Medium Mandrel Leg 2: 36"</div><div>Remnants: (20" x 5) Not Used Again</div></div>			
3rd Shape(x40): 14 bars of #4 needed Edit 			
<div><div>Cut each piece at: 75" Cut (3) per (20' bar) for (13 bars) Cut (1) per (20' bar) for (1 bars)</div><div>Completed: <input type="text" value="0"/></div><div>Leg 1: 30" Bend 1: 90°, Small Mandrel Leg 2: 18" Bend 2: 90°, Small Mandrel Leg 3: 30"</div><div>Remnants: (15" x 13) Not Used Again, (165" x 1) Not Used Again</div></div>			
<div><div>Add Shape</div><div>Save Quote</div><div>Close Quote</div><div>Delete Quote</div></div>			

UI #9: Closed Quotes

Models used: Quote, Shape

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
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Closed Quotes

Sort by:

Date

Alphabetical

Bob's Concrete W 11th Project
\$454.40

1st Shape: #5 Bar, 2 Legs (x30)

2nd Shape: #5 Bar, 2 Legs (x60)

3rd Shape: #4 Bar, 3 Legs (x40)

Details


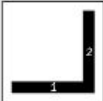
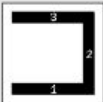
Cement Solutions
\$256.00

1st Shape: #3 Bar, 1 Legs (x230)

Details

UI #10: Closed Quote Review

Models used: Quote, Shape, Leg, Mandrel, Cost, Formula

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
<h3>Bob's Concrete W 11th Project</h3> <p>Order Number: 5623148</p>			
<div>Total Cost: \$454.40 #4 Bars Used: 14 (\$10 ea.) + 40 Cuts (\$0.25 ea.) + 80 Bends (\$0.25 ea.) #5 Bars Used: 15 (\$15 ea.) + 90 Cuts (\$0.33 ea.) + 90 Bends (\$0.33 ea.) Setup Charge: \$0.00 #4 Remnants: (15" x 13), (165" x 1) #5 Remnants: (20" x 5)</div>			
<h3>Instructions</h3> <p>Perform cuts in the following order.</p>			
1st Shape(x30): 10 bars of #5 needed			
<div><p>Cut each piece at: 70" Cut (3) per (20' bar) for (10 bars)</p><p>Leg 1: 36" Bend 1: 90°, Medium Mandrel Leg 2: 36"</p><p>Remnants: (30" x 10) Will Be Used Again</p></div> 			
2nd Shape(x60): 5 bars of #5 needed			
<div><p>Cut each piece at: 22" Cut (1) per (30" remnant) for (10 remnants) Cut (10) per (20' bar) for (5 bars)</p><p>Leg 1: 36" Bend 1: 90°, Medium Mandrel Leg 2: 36"</p><p>Remnants: (20" x 5) Not Used Again</p></div> 			
3rd Shape(x40): 14 bars of #4 needed			
<div><p>Cut each piece at: 75" Cut (3) per (20' bar) for (13 bars) Cut (1) per (20' bar) for (1 bars)</p><p>Leg 1: 30" Bend 1: 90°, Small Mandrel Leg 2: 18" Bend 2: 90°, Small Mandrel Leg 3: 30"</p><p>Remnants: (15" x 13) Not Used Again, (165" x 1) Not Used Again</p></div> 			
<div><div>Reopen Quote</div><div>Back to List</div><div>Delete Quote</div></div>			

UI #11: Delete Quote

Models used: Quote

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
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Are you sure you want to permanently delete the quote "Bob's Concrete W 11th Project"?

Sub-section: Admin Login

The site will have one IdentityUser account with the role of admin. The admin can login from any page in the site. The admin must enter a password to login. An admin account has an email address associated with it that is used to help with logging in when the admin has forgotten their password. If the admin is logged in, the login tab in the navigation bar of every page will take them to the admin settings page where they can logout, or change their email and password.

UI #12: Login Page

Models used: IdentityUser

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
<div>Admin Section</div> <div>Login: <input type="text" value="Admin"/></div> <div>Password: <input type="password" value="Password"/></div> <div><input type="button" value="Login"/> <input type="button" value="Forgot Password"/></div>			

UI #13: Admin Settings/Logout

Models used: IdentityUser

Home/Quotes	Bend Formulas	Bar Cost	Admin Login
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Admin Management

Logout

Edit Admin

Email:

Password:

Save Changes

Schedule

First Sprint: April 7th - April 13th

Features to implement:

Cost Management,
Formula Management

Second Sprint: April 14th - April 27th

Features to implement:

Order Cost Calculator

Third Sprint: April 28th - May 11th

Features to implement:

Order Cost Calculator (Dynamic Calculation, Dynamic Shape Drawing),
Review Quotes (Open Quotes)

Forth Sprint: May 12th - May 25th

Features to implement:

Order Cost Calculator (Dynamic Shape Drawing)
Review Quotes (Closed Quotes),
Admin Login

Fifth Sprint: May 26th - June 5th

Bug Fixing and Testing