



Faculty of Science and Technology
420-436-VA | System Development

Project Report

Due date:
Tuesday, February 4, 2025

Orange Team

Alexandru Cirlan

Danat Ali Muradov

Ibrahim Abdel Monem El Zeftawy

Lydia Ayala Hernandez

Client: Crown Granite

Contact Name: Naveed Qumar

SIGNATURES

We certify that this assignment is our own work

I, **Alexandru Circlan, student ID #6235277**, certify that I have contributed to this deliverable, A-C

I, **Danat Ali Muradov, student ID #2357647**, certify that I have contributed to this deliverable, D-A-M

I, **Ibrahim Abdel Monem El Zeftawy, student ID #6257643**, certify that I have contributed to this deliverable, I-A-M-E-Z

I, **Lydia Ayala Hernandez, student ID #2264230**, certify that I have contributed to this deliverable, L-A-H

STATEMENT

- Code from our eCommerce class will be used to develop certain features of this project.
- Code and/or code structure from our Application Development 1 course (Fall 2024) will be used to develop the backend and/or the database of this project.
- Code and/or code structure from our Programming Patterns course (Fall 2024) will be used to develop the backend and/or the database of this project.

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DELIVERABLE 1

Orange Team

Team Leader

&

Scrum master:

Lydia Ayala Hernandez

Minute Taker:

Ibrahim Abdel Monem El Zeftawy

Main point of contact:

Danat Ali Muradov

EXECUTIVE OVERVIEW

Our project will focus on developing a system to track orders and assign the appropriate identification to each order. Our client, Naveed Qumar, is the owner of Crown Granite, a countertop manufacturing company with one showroom and one manufacturing facility in Montreal.

Crown Granite offers a wide selection of countertops, stones and tiles for walls and floors, along with kitchen and bathroom sinks and faucets, which they install in their clients' homes. Currently, our client tracks orders using various Excel sheets, a slow and inefficient method for a company of this size.

Our team will use various platforms to stay organized and efficient. One of the primary tools will be Discord, which we will use for communication, meetings, and anything that involves the project. Our meetings will take place during class time and on Saturdays from 9 pm to 10 pm. We will use Jira to manage tasks, to track progress as well as to track the issues that we will be facing. Additionally, we will use Microsoft Project to create our project plan, applying the Gantt Chart format for better timeline visualization. All our documents and reports will be stored in a GitHub repository, ensuring easy access for all team members.

For each delivery, we will assign a team leader who will be responsible for tracking our progress and future tasks. We have chosen team members for the various areas in our system (front-end, back-end, database) based on their skills and preferences. This approach will also apply to other responsibilities within the project. Since our client has a closer relationship with our team member, Danat Ali Muradov, he will serve as our main point of contact with our client as this will facilitate communication between Qumar and the rest of our team.

CLIENT

Description of our client

Our client's name is Naveed Qumar, and he is the owner of Crown Granite. His company specializes in countertops, flooring tiles, as well as kitchen faucets and sinks. Their process consists of a consultation with their client, the selection of the material, the measurement of the countertop, tile, etc., the manufacturing of the product, and finally the installation of the product. They possess a website at the address <https://crowngranite.ca/> where they show the products offered.

Familiarity with technology

The client has limited knowledge of technology. They are currently using many Microsoft Excel documents to manage their orders, and client information. They have a basic website which is mostly static and does not offer many functionalities. The son of the owner does, however, possess knowledge of how to build websites using a website building platform such as Wix or WordPress. The employees of Crown Granite are the potential users of the solution as well as the clients of the company.

Business problem

The client's business problem is tied to the management or tracking of the orders of the clients. Currently, they are using a multitude of Microsoft Excel sheets to track the orders of the clients. They are also manually creating identification (order ID, payment ID) for each of their orders. Finally, as delivering the product to the client can take some time because the company needs to take measurements, manufacture it, and install it, clients often call many times to know how the process is going. To solve those issues, a web solution can be developed, along with a database, to enable the employees to enter new orders, and keep track of their order status. Clients will then be able to look up the status of their order using a reference number.

TEAM ORGANIZATION

Meetings/Synchronous meetings:

Due to our team being split across different sections, our meetings will primarily take place during our System Development classes, as well as Discord to maximize our time together, to refine and make sure that everything is being reviewed by every team member. After reviewing our schedules, we have agreed on the following meeting times:

Weekly meeting schedule:

Weekday	Time	Type of meeting	Place
Saturday	9:00PM – 10:00PM	Online meeting	Discord
Tuesday	10:00PM – 12:00PM	In-person	Theory & Lab

**** Tuesday and Saturday meetings will be our synchronous meetings since both of our sections will be merging during this Tuesday's class and Saturday will be on discord so everyone should be able to join the meeting. We will be able to talk about our progress and what needs to be done. ****

Section-based meetings – in class:

Section	Weekday	Time
Section 1	Thursday	8:30AM – 11:30AM
Section 2	Monday	8:30AM – 11:30AM

Communication and emergencies:

Discord will be our **primary platform for communication** outside of scheduled meetings. Our weekly calls will also be conducted on Discord. Any **urgent matters** can be addressed either **on Discord or in person at school**, as most of our team members share multiple classes.

Total hours:

In total, our team will be meeting for **approximately 9 hours per week** following this schedule.

Sample Agenda:

This is the sample agenda that we will be using to organize our weekly meetings with our teammates and whenever we meet with our client. Link: [Sample Agenda Final.docx](#)

Project Code Repository:

GITHUB:

All of the code for the order tracking system will be stored on GitHub on the following repository: <https://github.com/Vacheprime/OrderTrackingSystem>

Name	Username
Alexandru Cirlan	4lex16
Danat Ali Muradov	Vacheprime
Ibrahim Abdel El Zeftawy	Ibrahimelz
Lydia Ayala Hernandez	Lydia230

WORD ONLINE:

All our documents/reports will be written using word online to be able to work together synchronously.

MICROSOFT PROJECT:

To create our project plan using the Gantt chart format, we will be using Microsoft Project.

JIRA SOFTWARE:

We will monitor our tasks and any sort of issues that we face using JIRA. This software will be organizing any sort of assignments that need to be reviewed, established or finished by applying the agile methodology.

Policies/Communications

Throughout our project deliveries and our meetings, we will have to respect some policies to sustain a respectful and inclusive environment. When taking decisions, everyone's opinions should be included and should not be secluded by other team members. Each action that is taken should be reviewed and accepted by everyone. We cannot move forward if someone does not agree with something. Thus, we have created and established some policies that each team member will have to respect during our project meetings and when we are proposing any sort of ideas, as to remain in a respectful environment where everyone gets along:

Policies	Description
1 - Be punctual at each meeting.	Be on time to show respect to the members. Making others wait due to tardiness is unacceptable and will not be tolerated.
2 - Contribute to meeting goals.	In each meeting, we will update all members on our next goal, to stay on track with our deliveries. Everyone is expected to contribute to assigned tasks and should not slack off.
3 - Listen to other's proposals.	When a member proposes an idea, we should listen attentively and show respect . Being distracted or ignoring them is disrespectful and will not be tolerated.
4 - Let everyone participate.	Everyone is expected to participate in each meeting, ensuring that all voices are heard and respected . If someone has not participated, they should have a valid reason.
5 - Don't interrupt others while they're speaking.	We will not interrupt or cut off members while they are speaking . This is not acceptable, and everyone should be allowed to speak until they have finished.
6 - Any sort of abuse is unacceptable.	As stated in the policy, any form of abuse (verbal, mental, physical, etc.) will not be accepted or tolerated.
7 - Listen with an open mind.	Be mindful that everyone's opinions matter and should be heard before making any decisions.

Responsibilities

TEAM LEADERS:

For each delivery, a team member will be assigned as the team leader. This person will be responsible for tracking documents and reports due for the next delivery. The team leader is also responsible for overseeing the work done by the other team members. This role will rotate for each delivery, however, if someone excels at managing the team and agrees to take on the role more frequently, they may be assigned as team leader more often.

MINUTE TAKER:

For each meeting, Ibrahim Abdel Monem El Zeftawy or Lydia Ayala Hernadez will be the minute takers for our team. This means that they will be responsible for noting down:

- Topics mentioned during the meeting
- Questions regarding the delivery/project
- Important discussions
- New ideas/propositions

PRIMARY CLIENT CONTACT

Our team member, Danat Ali Muradov, will be our main point of contact with our client since he is the closest to them. This will facilitate our communication throughout the project in case of any further questions that we would like to ask our client. This member will maintain this role for the duration of the project since the rest of the members are not familiar enough with the client.

SHIFT OF ROLES:

We will keep the minute-taker members throughout the project. However, if one of them decides to leave the role for whatever reason, we will change the member. In addition, if we believe that someone else is better fitted for the role, we will ask our team members if changing the current minute-taker will be more beneficial to our team. Furthermore, the team leader role will also change, and as we mentioned earlier, if someone possesses the qualities of a true leader, we will ask them if they would like to be the team leader more often.

DEVELOPMENT TEAM STRUCTURE:

For the implementation of the product, our team members have been assigned tasks based on what they're best at. So, each member will be responsible for the task that aligns with their skills. However, collaboration is encouraged, and team members are welcome to seek assistance or the point of view of others when needed. It is important to notice that some implementations need to be finished before others, so everyone should contribute to the most important tasks in the beginning of the project's realization. The table below shows the tasks along with the member(s) assigned to it:

Implementation Task	Team Member
Front-end Development	Ibrahim El Zeftawy, Alexandru Cirlan
Back-end Development	Lydia Ayala Hernandez, Alexandru Cirlan
Database	Danat Ali Muradov

Reports

The team leader is responsible for tracking all documents and reports that must be completed within a given timeframe. They will ensure that reports are finished and refined before the delivery date. Additionally, the leader must ensure that every team member has reviewed and agreed on all written work and decisions.

Our team's priority is inclusivity: everyone should have the opportunity to participate in every action we take. No one should be left out, and it is the leader's responsibility to uphold this standard.

This board contains each team leader and their assigned delivery:

Delivery	Team Leader
Delivery 1 – Project Plan	Lydia Ayala Hernandez
Delivery 2 – Requirements gathering and analysis	Ibrahim Abdel Monem El Zeftawy
Delivery 3 – UML Diagrams	Alex Cirlan
Delivery 4 – Prototype User Interface	Ibrahim Abdel Monem El Zeftawy
Delivery 5 – DB Design	Danat Ali Muradov
Delivery 6 – Implementation and Clients Comments	Lydia Ayala Hernandez

Contact information of each team member

This board contains our team members contact information – Name, Email and Phone Number:

Full Name	Email	Phone Number
Alexandru Cirlan	cirlana16@outlook	(438) 543-7179
Ibrahim El Zeftawy	Ibrahimelz@outlook.com	(438) 506-2140
Danat Ali Muradov	danatmuradov500@gmail.com	(438) 926-3378
Lydia Ayala Hernandez	Lydia.ay4.la@gmail.com	(438) 926-2295

PROJECT PLAN

This is the project plan we decided on after adding all the tasks for all the deliverables. We decided the time all together while communicating what we thought should take more or less time. The times for Deliverable 2 and onwards are bound to change.

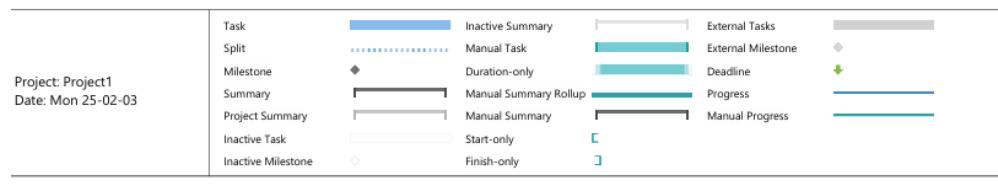
People assigned to each task were based on which person has which role, like per example the team leader will give the executive overview for each deliverable.

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	
1	Normal	Order Checking	97 days	Mon 25-01-20	Tue 25-06-03		
2	Normal	Deliverable 1 - Project Plan	13 days	Mon 25-01-20	Wed 25-02-05		
3	Normal	Front matter	10 mins	Mon 25-01-20	Mon 25-01-20		
4	Normal	Executive Overview	20 mins	Mon 25-01-20	Mon 25-01-20	5,6,7,9	
5	Normal	Client/Sponsor	1 hr	Mon 25-01-20	Mon 25-01-20		
6	Normal	Team organisation	2 hrs	Mon 25-01-20	Mon 25-01-20	5	
7	Normal	Project Plan	4 hrs	Mon 25-01-20	Mon 25-01-20		
8	Normal	Review	30 mins	Mon 25-01-20	Mon 25-01-20	4	
9	Normal	Team Logbook	2 hrs	Mon 25-01-20	Mon 25-01-20		
10	Normal	Critical Path	13 days	Mon 25-01-20	Wed 25-02-05		
11	Normal	Deliverable 2 - Requirements & Analysis	14 days	Thu 25-02-06	Tue 25-02-25	2	
12	Normal	Executive Overview	30 mins	Thu 25-02-06	Thu 25-02-06	13,14,15,16,17,18	
13	Normal	Business Domain	1 hr	Thu 25-02-06	Thu 25-02-06		
14	Normal	Business Environment	90 mins	Thu 25-02-06	Thu 25-02-06		
15	Normal	Client Description	1 hr	Thu 25-02-06	Thu 25-02-06		
16	Normal	Business Problem	30 mins	Thu 25-02-06	Thu 25-02-06		
17	Normal	Open Questions	90 mins	Thu 25-02-06	Thu 25-02-06		
18	Normal	Questionnaire	30 mins	Thu 25-02-06	Thu 25-02-06	17	
19	Normal	Appendix 1 - User Stories	2 hrs	Thu 25-02-06	Thu 25-02-06		
20	Normal	Appendix 2 - Story Test	2 hrs	Thu 25-02-06	Thu 25-02-06	19	
21	Normal	Appendix 3 - Story Map	2 hrs	Thu 25-02-06	Thu 25-02-06	20	
22	Normal	References & Bibliography	30 mins	Thu 25-02-06	Thu 25-02-06	14,13	
23	Normal	Review	30 mins	Thu 25-02-06	Thu 25-02-06	12,13,14,15,16,17	

Project: Project1 Date: Mon 25-02-03	Task		Inactive Summary		External Tasks	
	Split		Manual Task		External Milestone	
	Milestone		Duration-only		Deadline	
	Summary		Manual Summary Rollup		Progress	
	Project Summary		Manual Summary		Manual Progress	
	Inactive Task		Start-only			
	Inactive Milestone		Finish-only			

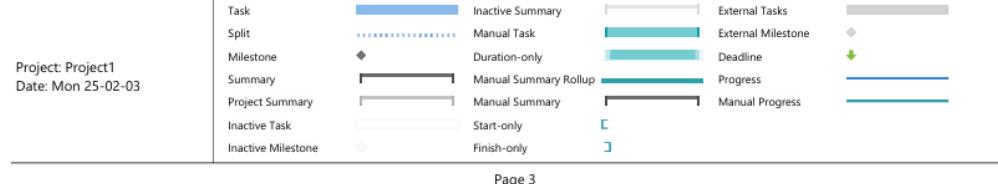
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ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
24	🕒	Team Logbook	2 hrs	Thu 25-02-06	Thu 25-02-06	
25	🕒	Critical Path	14 days	Thu 25-02-06	Tue 25-02-25	
26	🕒	Deliverable 3 - UML Diagrams	14 days	Wed 25-02-26	Mon 25-03-17	11
27	🕒	Executive Overview	30 mins	Thu 25-02-27	Thu 25-02-27	28,29,30,31,32,33
28	🕒	Summary Client Description	20 mins	Wed 25-02-26	Wed 25-02-26	
29	🕒	Business Problem	1 hr	Wed 25-02-26	Wed 25-02-26	
30	🕒	Narrative Description (Present)	90 mins	Wed 25-02-26	Wed 25-02-26	
31	🕒	Appendix 4 - Flowchart	6 hrs	Wed 25-02-26	Thu 25-02-27	32
32	🕒	Appendix 5 - Case UML	2 hrs	Wed 25-02-26	Wed 25-02-26	30
33	🕒	Appendix 6 - Sequence UML	6 hrs	Wed 25-02-26	Thu 25-02-27	32
34	🕒	Appendix 7 - Class UML	4 hrs	Wed 25-02-26	Wed 25-02-26	30
35	🕒	Appendix 8 - Client Forms	3 hrs	Wed 25-02-26	Wed 25-02-26	
36	🕒	Reference & Bibliography	30 mins	Wed 25-02-26	Wed 25-02-26	35
37	🕒	Review	30 mins	Thu 25-02-27	Thu 25-02-27	27,28,29,30,31,32
38	🕒	Team Logbook	2 hrs	Wed 25-02-26	Wed 25-02-26	
39	🕒	Critical Path	14 days	Wed 25-02-26	Mon 25-03-17	
40	🕒	Deliverable 4 - Prototype UI	14 days	Tue 25-03-18	Fri 25-04-04	26
41	🕒	Executive Overview	45 mins	Wed 25-03-19	Wed 25-03-19	42,43,44,45,46,47
42	🕒	Revised Summary Narrative Description	30 mins	Tue 25-03-18	Tue 25-03-18	
43	🕒	Buisness Problems	1 hr	Tue 25-03-18	Tue 25-03-18	
44	🕒	Usability Guideline Listing	90 mins	Tue 25-03-18	Tue 25-03-18	43
45	🕒	Prototype Interfaces	6 hrs	Tue 25-03-18	Wed 25-03-19	43,44
46	🕒	Client's Comments	3 hrs	Wed 25-03-19	Wed 25-03-19	45



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ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
47	🕒	Changes Between Prototypes	1 hr	Wed 25-03-19	Wed 25-03-19	46
48	🕒	Appendix 1 - Revised User Stories	1 hr	Tue 25-03-18	Tue 25-03-18	
49	🕒	Appendix 2 - Revised Story Map	1 hr	Tue 25-03-18	Tue 25-03-18	48
50	🕒	References & Bibliography	45 mins	Tue 25-03-18	Tue 25-03-18	44
51	🕒	Revisions	1 hr	Wed 25-03-19	Wed 25-03-19	41,50
52	🕒	Team Logbook	2 hrs	Tue 25-03-18	Tue 25-03-18	
53	🕒	Critical Path	14 days	Tue 25-03-18	Fri 25-04-04	
54	🕒	Deliverable 5 - DB Design	14 days	Mon 25-04-07	Thu 25-04-24	40
55	🕒	Executive Overview	45 mins	Tue 25-04-08	Tue 25-04-08	56,60
56	🕒	Buisness Problem	30 mins	Mon 25-04-07	Mon 25-04-07	
57	🕒	Narrative Description of DB	2 hrs	Mon 25-04-07	Mon 25-04-07	
58	🕒	Appendix 1 - Data Dictionary	90 mins	Mon 25-04-07	Mon 25-04-07	57
59	🕒	Appendix 2 - DB ERD	4 hrs	Mon 25-04-07	Mon 25-04-07	58
60	🕒	Appendix 3 - Query Optimisation	90 mins	Mon 25-04-07	Tue 25-04-08	59
61	🕒	References & Bilography	30 mins	Tue 25-04-08	Tue 25-04-08	60
62	🕒	Revision	90 mins	Tue 25-04-08	Tue 25-04-08	55,61
63	🕒	Team Logbook	2 hrs	Mon 25-04-07	Mon 25-04-07	
64	🕒	Critical Path	14 days	Mon 25-04-07	Thu 25-04-24	
65	🕒	Deliverable 6 - Implementations & Comments	28 days	Fri 25-04-25	Tue 25-06-03	54
66	🕒	Executive Overview	90 mins	Mon 25-04-28	Mon 25-04-28	72
67	🕒	Summary Description of Client	90 mins	Fri 25-04-25	Fri 25-04-25	
68	🕒	Revised Summary Narrative Description	90 mins	Fri 25-04-25	Fri 25-04-25	
69	🕒	Client's Comments	4 hrs	Fri 25-04-25	Fri 25-04-25	

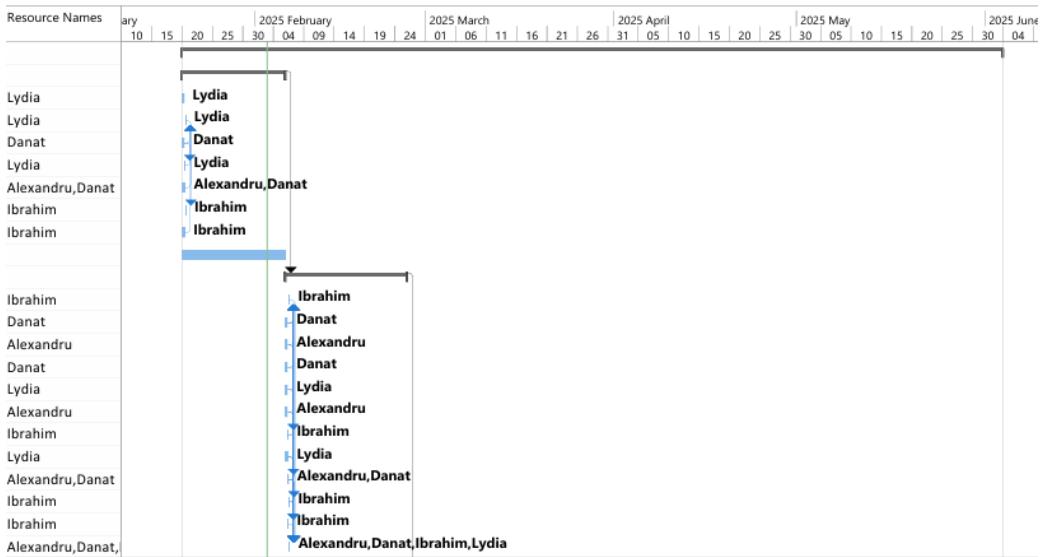


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ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
70		Discuss Design & Implementation Decisions	6 hrs	Fri 25-04-25	Mon 25-04-28	69
71		Security Measures	6 hrs	Fri 25-04-25	Fri 25-04-25	
72		Future Work	1 hr	Mon 25-04-28	Mon 25-04-28	67,68,70,71,74,75
73		Appendix 1 - Revised UI	2 hrs	Fri 25-04-25	Fri 25-04-25	
74		Appendix 2 - User Guide	3 hrs	Fri 25-04-25	Fri 25-04-25	
75		Appendix 3 - Pictures of UI & User Stories	90 mins	Fri 25-04-25	Fri 25-04-25	73
76		References & Bibliography	30 mins	Fri 25-04-25	Fri 25-04-25	
77		Revision	3 hrs	Mon 25-04-28	Mon 25-04-28	66,76
78		Team Logbook	2 hrs	Fri 25-04-25	Fri 25-04-25	
79		Critical Path	28 days	Fri 25-04-25	Tue 25-06-03	

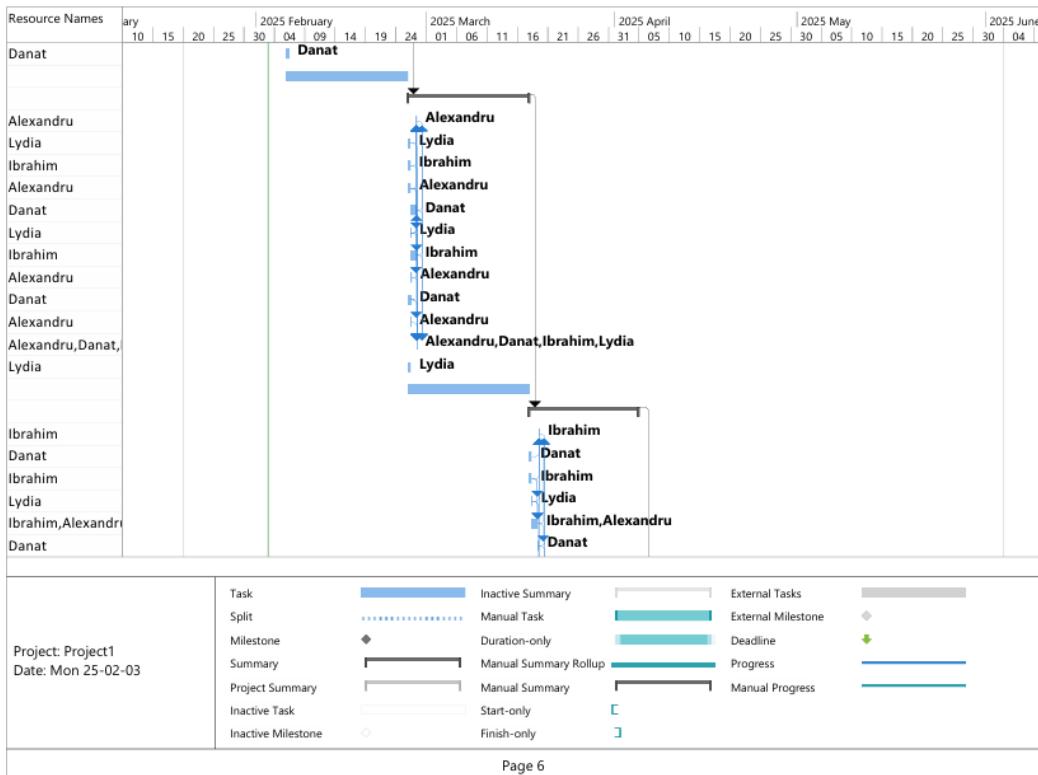
Project: Project1 Date: Mon 25-02-03	Task	Inactive Summary	External Tasks
	Split	Manual Task	External Milestone
	Milestone	Duration-only	Deadline
	Summary	Manual Summary Rollup	Progress
	Project Summary	Manual Summary	Manual Progress
	Inactive Task	Start-only	
	Inactive Milestone	Finish-only	

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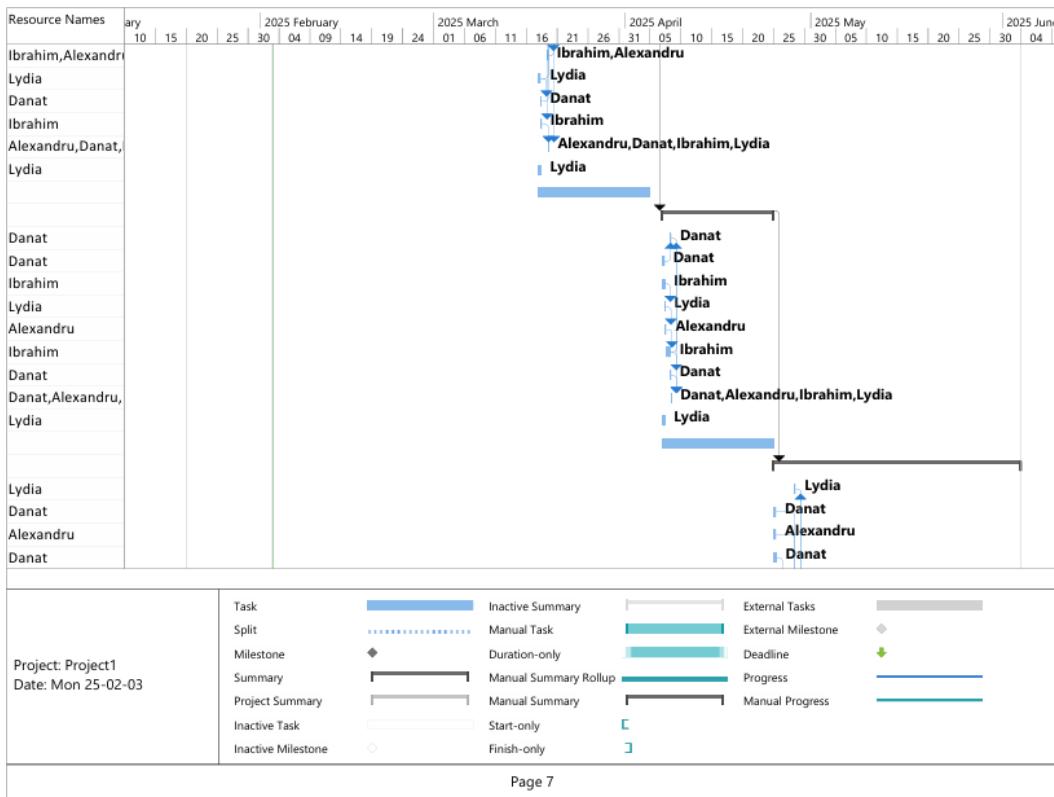


Project: Project1 Date: Mon 25-02-03	Task	Inactive Summary	External Tasks
	Split	Manual Task	External Milestone
	Milestone	Duration-only	Deadline
	Summary	Manual Summary Rollup	Progress
	Project Summary	Manual Summary	Manual Progress
	Inactive Task	Start-only	
	Inactive Milestone	Finish-only	

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Resource Names	ary 10 15 20 25 30 2025 February 04 09 14 19 24 01 06 11 16 21 26 31 05 10 15 20 25 30 05 10 15 20 25 30 04 2025 June																												
Lydia																													
Ibrahim																													
Alexandru																													
Ibrahim																													
Alexandru																													
Danat																													
Lydia																													
Lydia,Alexandru,D																													
Alexandru																													

Project: Project1 Date: Mon 25-02-03	Task		Inactive Summary		External Tasks	
	Split		Manual Task		External Milestone	
	Milestone		Duration-only		Deadline	
	Summary		Manual Summary Rollup		Progress	
	Project Summary		Manual Summary		Manual Progress	
	Inactive Task		Start-only			
	Inactive Milestone		Finish-only			

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DELIVERABLE 2

Orange Team

Team Leader

&

Scrum master:

Ibrahim Abdel Monem El Zeftawy

Minute Taker:

Lydia Ayala Hernandez

Main point of contact:

Danat Ali Muradov

SIGNATURES

We certify that this assignment is our own work

I, **Alexandru Circlan, student ID #6235277**, certify that I have contributed to this deliverable, A-C

I, **Danat Ali Muradov, student ID #2357647**, certify that I have contributed to this deliverable, D-A-M

I, **Ibrahim Abdel Monem El Zeftawy, student ID #6257643**, certify that I have contributed to this deliverable, I-A-M-E-Z

I, **Lydia Ayala Hernandez, student ID #2264230**, certify that I have contributed to this deliverable, L-A-H

Executive Overview

Crown Granite, owned by Naveed Qumar, specializes in high-quality countertops, tiles, and vanities, serving both individual and business clients from its Montreal showroom and manufacturing facility. The internal contact is the client's son, who manages their current website and makes communication with our team.

Crown Granite offers comprehensive services including consultations, fabrication, and installation. While technology such as CNC automation and AI-driven design tools is becoming standard in the industry, the company's website currently lacks reservation systems, real-time stock updates, a good website and a web application system to track orders and assign the appropriate identification to each order.

The business faces several operational challenges stemming from outdated processes. Data for clients and orders are manually managed using Excel sheets, and order IDs are assigned by hand, leading to potential errors and inefficiencies. Additionally, the absence of an automated order tracking system forces clients to rely on phone calls for updates, which weighs on both the customers and employees.

Our analysis of this deliverable has identified key open questions regarding data manipulation, order status, payment processes, reusability of the website, accessibility, and expandability.

Additionally, we created overview tables for order information, client information, payment information, and employee information. The Employee user stories are important and include logging in, resetting passwords, searching orders, updating orders, updating client information, adding orders, adding clients, adding payments, inserting order notes, and searching by area. The Administrator user stories consist of logging in, creating accounts, resetting passwords, deleting orders, managing employees, and completing orders.

For the client stories, there are selecting language and tracking orders. We wrote the Gherkin syntax for each of the features of the Employee user stories, Administrator user stories, and Client user stories. Finally, we created a user story map using the software Jira.

Client Summary

Our client, Naveed Qumar, is the current business owner of Crown Granite, a company specializing in countertops with an extensive selection of Quartz, Natural Stone, and Dekton. In addition to countertops, they also provide tiles, as well as kitchen and bathroom vanities. They offer at-home installation services as well.

Their son, the bridge between our team and the business manager, is both an employee. The company registers clients' credentials along with their order details, answers phone calls to provide order status updates, and has a dedicated team for home installations.

Crown Granite operates in two locations in Montreal: a showroom and a manufacturing facility. They highly value customer loyalty and honesty. Currently, they have very positive reviews, with clients praising their professionalism in installations, quality of workmanship, service, and pricing.

Business Description

Business Domain:

Crown Granite is a business to client and business to business enterprise. They offer countertops, various tiles, sinks, and faucets for private clients, and they might also offer products for businesses looking to renovate. They provide consultations, fabrication, and installation of their products.

The countertop industry is in constant growth and has constant demand for countertops. This is because home renovations have become trendy, and an increasing number of people wish to install new countertops¹. Individuals have also started to favor premium quality materials which are often sustainable².

The competition in the countertop installation industry is significant. Large enterprises are constantly acquiring smaller companies in order to reduce competition and

¹ How To Grow a Countertop Business. (2024, June 13). Host Papa. Retrieved February 10, 2025, from <https://www.hostpapa.com/ideas/business/how-to-grow-a-countertop-business/>

² Mordor Intelligence. (n.d.). *Countertops Market Size & Share Analysis - Growth Trends & Forecasts (2025 - 2030)*. Mordor Intelligence.

<https://www.mordorintelligence.com/industry-reports/countertops-market>

increase their presence in the market. Partnerships and collaborations between enterprises are also prominent³.

Among big countertop industries, technology is extensively used to increase the efficiency of the company's daily operations. For example, CNC automated machining tools help cut slabs in an accurate and fast manner. Artificial Intelligence has also made its way into this industry. For example, clients can utilize AI models to visualize how a certain countertop material will look like in different places around their houses. AI models, along with websites, are used as marketing tools to increase visibility and help reach more and more potential clients⁴.

³ Mordor Intelligence. (n.d.). *Countertops Market Size & Share Analysis - Growth Trends & Forecasts (2025 - 2030)*. Mordor Intelligence.

<https://www.mordorintelligence.com/industry-reports/countertops-market>

⁴ Milia, A. (n.d.). *The Transformative Role of AI and Automation in the Countertop Industry*.

Slippery Rock Gazette.

<https://www.slipperyrockgazette.net/index.cfm//pageId/5118>

Business Environment:

On the website (<https://crowngranite.ca/>), we can see all the products, along with a quick summary from the client explaining how the process works. There is also some brief information to give customers an idea of what to expect and who the client is. Additionally, the website provides contact details and the locations of both branches of the business. However, one thing we noticed is that there is no shopping cart, no way to reserve items, and no option to check whether a certain material is still available or out of stock—aside from calling or visiting in person. There's also no way to make online payments, which could improve convenience for customers.

Business locations:

Crown Granite Factory (Dorval Location): 2091 Ave Chartier, Dorval, QC, H9P1H3



Crown Granite Showroom (TMR Location): 5641 Ave Royalmount, TMR, QC, H4P2P9



Competitors:

Top Granite Montreal, Casa Granite, MBA Granite

Business Problem:

While having a functional website and excellent reviews regarding their customer service, Crown Granite encounters obstacles in the way they handle their business operations and customer interactions. Their first obstacle lies in their method of registering

clients along with their orders, which relies on Excel sheets. Additionally, each order and payment are manually assigned an ID by an employee. The second obstacle they face is that clients must call the company to inquire about their order status: In Fabrication, Confirming Final Plans, etc. Their approach to handling these matters is not only slow and inefficient for the company, but also inconvenient for clients, who must make a phone call just to receive updates on their orders.

Tracking System: The company registers client information, order details, order confirmation dates, and installation date using numerous Excel sheets. However, this method is not designed for large companies or extensive databases, as it quickly becomes **slow** and **unmanageable**. Moreover, manual data entry can lead to **duplicate records** and **errors**. Due to Excel's **inefficient retrieval system**, searching for a specific client or order must also be done manually. As the company and its clientele grow, this tracking method becomes increasingly **time-consuming** and **impractical**, which greatly impacts our client's business performance.

Manual Identification: Assigning unique ID's to orders and payments is crucial for accurately linking them to the correct client, especially when handling multiple orders simultaneously. However, Crown Granite currently assigns these ID's manually, a **highly risky approach** that can lead to **duplicate identifications**. Mixing up orders can **result in issues** such as processing an order for the wrong client or mistakenly believing a payment has failed when it was actually successful, leading to **unnecessary delays**. Nowadays, companies have moved away from manual identification due to all the **negative factors** that can **increase inaccuracy in orders**.

Order Status: When placing orders, clients typically want an estimated date for when their order will be ready for installation. Currently, the company's clients must call to obtain order details. Most businesses either provide an order tracking page on their website or assign customers a reference number to view their order status. The company's current method of offering a tracking "system" is **inefficient for employees**, as they must also handle phone calls. Additionally, it can create **discomfort** and **inconvenience** for customers who may **not feel comfortable**.

Customer Experience: While some customers may be satisfied with the current order tracking method, it is clear that it **is both inefficient and inconvenient**, not only for customers, but also for employees who must handle these calls. Creating a system that is convenient for everyone is essential for **good customer service**. Maintaining the current tracking method can cause **uneasiness** for those who prefer not to communicate directly to obtain order information. Additionally, a system that allows customers to check their order status is more efficient than relying on phone

calls, which may go to voicemail. Consequently, clients are unable to receive the details about their order status.

Employee Experience: Employees responsible for registering clients and all necessary order details using Excel sheets face a **slow and repetitive task**. Moreover, this **tedious** and **lengthy** process increases the risk of order **errors**, which can lead to serious **issues** for the company and the employee himself. In addition to regular questions from customers over the phone, employees must also search for and retrieve order details for customers' questions concerning order statuses. These calls, which can become **burdensome** when customers ask excessive questions, could be avoided with a system that provides customers with the necessary information regarding their order directly.

Providing our client with a system in which they can register, retrieve, update, and delete records containing their customer information and order details can increase productivity and provide a superior and more efficient solution for their current registration method. Moreover, creating a system that automatically assigns IDs to orders and payments can decrease duplicate identifications and system errors and increase order and payment accuracy. Lastly, developing an order tracking interface, in which customers can view their order details along with their order status will increase customer satisfaction and convenience.

Client Questions

Open Questions

For the data manipulation, we know that they use an excel sheet that is mighty inefficient, but we don't know what data they store nor how they group their data. Furthermore, we don't know what data should be generated automatically nor what should be entered manually. We also do not know what should be kept track of and what should be removed once processed.

On the side of the order status, we know that we want clients to be able to look up at the time estimate for their own orders, but we don't know how the client is going to calculate that nor if he wants to make it be an automatic process based on information nor if the employee will enter that information himself. Moreover, we also don't know how many stages of fabrication there are for each product.

Going on to the payment process, we don't know how the customers usually pay, if it's online or physical, nor if the order is paid in installments (over time) or if it's paid in one go (at the beginning or end).

For the reusability of their website, we don't know who made it, nor if it's editable to save us time during the making of the front-end.

On the side of accessibility, we need to know what features we need to add to the websites, these features can be as in language support or color blindness.

Finally, on to the side of expandability, how will the data be accessed or searched and if the company needs to add their own data as in new types of rocks for counter tops, different shaped, processing techniques or more.

Questionnaire

1. **What data do you store in Excel? How do you organize or group your data in Excel? Which data should be generated automatically, and which should be entered manually?**

The client uses multiple Excel sheets for their measurements and fabrication processes. They have two separate sheets for these tasks. Firstly, on the Fabrication sheet, they manually enter all the client's information. They assign a Job # and record the payment information as well. Nothing can be generated automatically.

On the Measurements sheet, there are three sections:

- Measured: Measurements have been taken, and the final layout is confirmed with the client. If the deposit is received, the information is transferred to the Fabrication sheet.
- Ready to be Measured: The client has confirmed everything, and they are just waiting for the measurements to be taken.
- Confirmed - Not Ready: The client has confirmed, but the cabinets are not ready yet, so they are waiting.

Like the Fabrication sheet, the Measurements sheet includes the client's information and the status of the measurements (without a job number yet). Payment details, such as the Sales Order number or invoice number, are also recorded beside the client's information.

2. What information do you track in your database if you have any? What data do you remove once everything is processed?

The client doesn't have any databases; instead, they use Excel sheets to store all their data. They also have a shared platform similar to OneDrive, where a lot of information is stored. Once everything has been processed, they don't remove any data, including fabrication information.

3. How should the order time estimation be calculated? Does the client want the process to be automated (e.g., as soon as a barcode is scanned, the order status updates automatically based on the information)? Or should an employee manually update the order status?

In general, the client is informed that after the final measurements, it takes 7-10 days to fabricate and install the countertop. Once the final measurements have been taken, the process automatically moves into the "confirmation of the final measurements" phase. After confirmation with the client, they can press a button to

put it into the fabrication phase, which usually takes 7-10 days, although it can often be quicker.

When the countertop is ready, the status is updated to "ready." Barcodes are not scanned, so the process is done manually. Additionally, the fabrication time can be calculated depending on the amount of square footage, with larger areas taking longer.

4. How many stages do orders (is there special orders?) go through before reaching their destination?

First Stage:

- The client chooses a color/material and is provided with a price. At this point, the order has not yet been placed.

Second Stage:

- If the client confirms the price and color, a 50% deposit is requested to order the material and proceed further.
- Once the deposit is received, the material is ordered, and final measurements are taken.
- The order is placed in the "confirmed/not ready" or "ready to be measured" sections of the measurement sheet.
- In some cases, measurements can be taken before the deposit, especially if the measurements are unclear or if the client is a trusted contractor or known customer.

Third Stage:

- If the measurements are according to the quotation price and the originally provided plans have minimal changes, the price remains the same.
- If the measurements are larger than expected or adjustments are needed, the price is increased. The client is notified of the change and can choose to accept the new price.
- Once confirmed, the order goes into fabrication.
- The plan is noted in the PLAN section of the fabrication sheet.

Fourth Stage:

- Fabrication usually takes 7 to 10 days due to the high volume of jobs to cut, although it can sometimes take less.
- This corresponds to the FAB column of the fabrication sheet (Yes – fabricated, No – awaiting fabrication).
- When it is known that the counter will be ready soon, the client is called to schedule the installation date.

Fifth Stage:

- Final payment is collected one to two days before installation.
- The counter is ready for pickup or ready to be installed.
- The client is contacted shortly to arrange installation.
- The counter is delivered and installed.

(Normally, a counter can be made ready within a day or two, but due to the many jobs handled simultaneously, it is communicated to the client that it takes 7-10 days. Additionally, around 2-3 counters are installed per day, requiring some time.)

5. Do clients typically pay for services online or in person? If there is a way to pay online, is there a cart system available? Does the client accept installment payments, or is it a single payment? If it's a one-time payment, is it made at the beginning or the end of the process?

The clients have the option to visit their locations and pay by card or they can E-transfer the payment after receiving the invoice. There is no option to pay by cart due to the complexity and the varying nature of each purchase.

For payments:

1. If the client confirms the price on the quote, a Sales Order is sent, and a 50% deposit (1st Payment) is required. This deposit is needed to proceed with taking the measurements and ordering the material. Once the first payment is received, the material is ordered, and measurements are taken.
2. In some cases, measurements can be taken without the deposit, especially for contractors or familiar clients, allowing measurements upfront.

3. The rest of the balance is collected one to two days before installation (Second Payment).
4. When the amount is significant, the client can make multiple payments, but generally, it involves two payments.
5. Installments are not offered because the amounts aren't large enough.

6. Is there no way to reserve materials in advance? Can customers check if certain material is still available or out of stock without having to call or visit in person?

Yes, if the client wants slabs to be held, the supplier can be contacted to hold them, or the slabs can be held if the stock is low. Sometimes, the client is unsure about the type of material and is still deciding among several slabs. If the slabs are in limited stock, Crown Granite will reserve or put on hold the material in case the client chooses that material. This can happen before or after the client makes a deposit. The client cannot check the stock or the price of a material because most suppliers deal with fabricators. Typically, clients do not ask for stock information, but if they do, it is usually for the colors they have considered.

7. Is the current website editable? Who developed it? Is it reusable?

The current website was made by a paid contractor using WordPress. Our client can edit the website since they have the log-in information about the web application, so yes, the current website can be changed by our client. We can then reuse and apply some modifications to the current website, making the features reusable. So, regarding the website, yes, it can be edited.

8. Does the client care about their website statistics, such as visitor numbers, or which products of the website receive the most views? Does the current website track this information?

No, the client doesn't care about web statistics, and no, the current website does not keep track of this information.

9. What features need to be added to the web application or website (if necessary) for accessibility? For example, does the client require language support, color-blind accessibility, or any other adjustments?

The most important would be French and English support, but other than that, nothing else is needed.

10. How will the data be accessed or searched? Does the company need the ability to add its own data, such as new types of countertops, different shapes, process techniques, or anything else?

The data is being accessed and searched using the Excel application, thus these actions are performed manually. The current website contains their current collection of quartz and stone along with the information of each type of material. The client does not need the ability to add types of materials or countertops as there are too many options for them to constantly add and remove the ones that are available. The shapes are all different, since the clients provide the company with counter measurements. The company has physical countertop plans, which are used during the shaping process of the slabs, so they don't need to be included in the system since it is all done by machines.

Appendices

Tables Overview

Table 1: Order Information

Measured by who (initials)	Plan ready	In fabrication	Material available	Date the fabrication began	Price
Client Information (see table 2)	Material Name	Size of slab	Description of product	Sink Type	Taxes
Square footage of slab	Estimation date of installation	Installation / Pick up date	Job done	Product notes	Invoices
Order Status	Job Number				

Table 2: Client Information

Client Name	Client Reference	Phone Number	Address	Postal Code	City

Table 3: Payment Information

Client Information (see table 2)	Payment amount	Job Number	Invoice Number	Payment Type

Table 4: Employee Information

Employee Initials	First Name	Last Name	Title	Address
Postal Code	City	Phone Number	Birth Date	Hired Date

Appendix 1

Employee User Stories

Title: Logging In

User Story:

As an Employee

I want to be able to enter my login information & 2FA

So that I can view our current orders.

Title: Reset Password

User Story:

As an Employee

I want to reset my password

So that I can log back into my account

Title: Search Order

User Story:

As an Employee

I want to search a specific order

So that I can find all the information related to that order.

Title: Update Order

User Story:

As an Employee

I want to update a specific order detail([Table 1](#))

So that I can keep all fields related to that order updated with the most recent data.

Title: Update Client**User Story:**

As an Employee

I want to update a specific client's information ([Table 2](#))

So that I can keep all clients' information up to date.

Title: Add Order**User Story:**

As an Employee

I want to store a new order

So that I can keep all orders, and their information saved.

Title: Add Client**User Story:**

As an Employee

I want to store a new client in our system

So that I can save their details for future orders.

Title: Add Payment**User Story:**

As an Employee

I want to record client payments linked to specific orders ([Table 3](#))

So that I can track their payment history and confirm the fabrication and installation steps.

Title: Insert Order Notes**User Story:**

As an Employee

I want to keep notes regarding the final installation of the product

So that our company can improve its work efficiency.

Title: Search by Area

User Story:

As an Employee

I want to manage the location of the orders

So that we can efficiently do installations for orders that are in similar areas.

Administrator User Stories

Title: Logging In

User Story:

As an Administrator

I want to login to the website

So that I can view our current orders.

Title: Create Account

User Story:

As an Administrator

I want to create employee accounts

So that our employees can manage orders.

Title: Reset Password

User Story:

As an Administrator

I want to reset my password

So that I can log back into my account.

Title: Delete Order**User Story:**

As an Administrator

I want to delete cancelled orders

So that I keep the order records accurate.

Title: Manage Employees**User Story:**

As an Administrator

I want to manage all employee information ([Table 4](#))

So that all records remain accurate and up to date, allowing effective management of all information related to the employees.

Title: Complete Orders**User Story:**

As an Administrator

I want to restrict updates to orders that are completed

So that no further modifications can be made.

Client User Stories**Title:** Selecting Language**User Story:**

As a Client

I want to be able to change the website's language

So that I can understand their products and advertisement.

Title: Tracking Order
User Story:
<u>As a Client</u>
<p><u>I want to be able to track my order</u></p> <p><u>So that I can estimate the date of the product installation.</u></p>

Appendix 2

Gherkin Syntax for Employee User Stories

Gherkin Syntax: Logging In
<p>Feature: Logging In</p> <p># Scenario for employee successfully enters login information</p> <p>Scenario: Employee successfully enters login information</p> <ul style="list-style-type: none"> Given an employee has an account assigned to him When the employee enters his username and password And the employee submits the login form And the username and password are correct Then the employee should be redirected to the 2FA page And the employee should receive a 2FA code <p># Scenario for employee successfully completes 2FA page</p> <p>Scenario: Employee successfully completes 2FA page</p> <ul style="list-style-type: none"> Given an employee has been redirected to the 2FA page When the employee enters his 2FA code And the 2FA code is correct Then the employee should be redirected to the order tracking dashboard

Gherkin Syntax: Reset Password
<p>Feature: Reset Password</p> <p># Scenario for employee successfully requesting a password reset</p> <p>Scenario: Employee requests password reset</p> <ul style="list-style-type: none"> Given an employee has forgotten his password

And he has the email test@example.com registered with the account
When the employee clicks on the forgot password button of the login page
Then a reset password link is sent to test@example.com

Scenario for employee successfully resets his password
Scenario: Employee successfully resets his password
Given an employee receives a password reset link by email
And the employee opens the link
Then the employee enters a new password on the reset password form
And the employee confirms the new password
Then the employee's password should be changed
And the employee should be able to log in with the new password

Gherkin Syntax: Search Order

Feature: Search Order

Scenario for employee searching for an order
Scenario: Employee searches order
Given an employee has the Job ID of the order to search
When the employee enters the Job ID in the Job ID input field
And the employee clicks on the search button
Then the employee should be redirected to a page with the order info

Gherkin Syntax: Update Order

Feature: Update Order

Scenario for employee requesting the update of the order information
Scenario: Employee requests update of order information
Given an employee is on the order edit page
When the employee changes the order info in the appropriate text input field ([Table 1](#))
And the employee clicks on the update button
Then a confirmation popup should appear
And the employee should be asked to confirm the changes

Scenario for employee successfully confirming order update
Scenario: Employee successfully confirms order update

Given an employee is prompted to confirm the order update
When the employee clicks on the confirm changes button
Then the order information should be updated
And the employee should be able to view the new order information throughout the system

Gherkin Syntax: Update Client

Feature: Update Client

Scenario for employee updating client information
Scenario: Employee updates client information
 Given an employee is on the client edit page
 When the employee changes the client info in the appropriate text input field ([Table 2](#))
 And the employee clicks on the update button
 Then a confirmation popup should appear

Scenario for employee successfully confirming client information update
Scenario: Employee successfully confirms client information update
 Given an employee is prompted to confirm the client info update
 When the employee clicks on the confirm changes button
 Then the client's information should be updated
 And the employee should be able to view the new order information throughout the system

Gherkin Syntax: Add Order

Feature: Add Order

Scenario for employee adding a new order
Scenario: Employee requests to add a new order
 Given an employee is on the add order page
 When the employee enters all the appropriate order information in the right text fields ([Table 1](#))
 And the employee clicks on the update button
 Then a confirmation popup should appear

Scenario for employee successfully confirming the addition of a new order
Scenario: Employee successfully confirms the addition of a new order

Given an employee is prompted to confirm the addition of a new order
When the employee clicks on the confirm button
Then the new order is added to the system
And the employee should be able to view the new order's information

Gherkin Syntax: Add Payment

Feature: Add Payment

Scenario for employee requesting to add a new payment
Scenario: Employee requests to add a new payment
 Given an employee is on the add payment to order page
 When the employee enters all the appropriate payment
 information ([table 3](#))
 And the employee clicks on the add payment button
 Then a confirmation popup should appear

Scenario for employee successfully confirming the addition of a payment
Scenario: Employee successfully confirms the addition of a payment
 Given an employee is prompted to confirm the addition of a payment
 When the employee clicks on the confirm button
 Then the payment is added to the order
 And the employee should be able to view the new payment's
 information
 And the amount due of the order should be subtracted by the payment
 amount

Gherkin Syntax: Insert Order Notes

Feature: Insert Order Notes

Scenario for employee requests to add notes to order
Scenario: Employee requests to add notes to order
 Given an employee is on the order edit page
 When the employee changes and adds notes to the order
 And the employee clicks on the update button
 Then a confirmation popup should appear

Scenario for employee successfully confirming the addition order notes
Scenario: Employee successfully confirms the addition of order notes

Given an employee is prompted to confirm the addition order notes
When the employee clicks on the confirm button
Then the order notes are added to the order
And the employee should be able to view the new order notes

Gherkin Syntax: Search by Area

Feature: Search by Area

Scenario for searching orders by area
Scenario: Employee searches for orders in an area
 Given an employee is on the search order page
 When the employee chooses to search by area
 And the employee enters the area of the order in the area input field
 And the employee clicks on the search button
 Then the employee should be redirected to a page containing all the orders in the area specified

Gherkin Syntax: Update Order Status

Feature: Update Order Status

Scenario for employee requesting the update of the order status
Scenario: Employee requests update of order status
 Given an employee is on the order edit page
 When the employee changes the order status in the appropriate field
 And the employee clicks on the update button
 Then a confirmation popup should appear
 And the employee should be asked to confirm the changes

Scenario for employee successfully confirming the new order status
Scenario: Employee successfully confirms order status
 Given an employee is prompted to confirm the order's new status
 When the employee clicks on the confirm changes button
 Then the order status should be updated
 And the employee and the clients should be able to view the order's new status

Gherkin Syntax: Update Order Status

Feature: Update Order Status

Scenario for employee requesting the update of the order status

Scenario: Employee requests update of order status

Given an employee is on the order edit page

When the employee changes the order status in the appropriate field

And the employee clicks on the update button

Then a confirmation popup should appear

And the employee should be asked to confirm the changes

Scenario for employee successfully confirming the new order status

Scenario: Employee successfully confirms order status

Given an employee is prompted to confirm the order's new status

When the employee clicks on the confirm changes button

Then the order status should be updated

And the employee and the clients should be able to view the order's new status

Gherkin Syntax: Update the Estimation of the Installation Date

Feature: Update the Estimation of the Installation Date

Scenario for employee updating the estimation of the installation date

Scenario: Employee requests update of estimation of the installation date

Given an employee is on the order edit page

When the employee changes the estimation of the installation date in the appropriate field

And the employee clicks on the update button

Then a confirmation popup should appear

And the employee should be asked to confirm the changes

Scenario for employee successfully confirming estimate of installation

Scenario: Employee successfully confirms new estimate of installation

Given an employee is prompted to confirm the order's new estimate of installation

When the employee clicks on the confirm changes button

Then the order's estimation of installation should be updated

And the employee and the clients should be able to view the order's estimation of installation

Gherkin Syntax for Administrator User Stories

Gherkin Syntax: Logging In

Feature: Logging In

Scenario for administrator successfully enters login information

Scenario: Administrator successfully enters login information

Given an admin has an account assigned to him

When the admin enters his username and password

And the admin submits the login form

And the username and password are correct

Then the admin should be redirected to the 2FA page

And the admin should receive a 2FA code

Scenario for administrator successfully completes 2FA page

Scenario: Administrator successfully completes 2FA page

Given an admin has been redirected to the 2FA page

When the admin enters his 2FA code

And the 2FA code is correct

Then the admin should be redirected to the order tracking dashboard

Gherkin Syntax: Create Account

Feature: Create Account

Scenario for administrator requesting the creation of an employee account

Scenario: Administrator successfully requests account creation for employee

Given an admin is on the account creation page

When the admin enters all the appropriate information in the right text
fields for creating an employee account

And the employee information is valid

And the admin clicks on the create account button

Then a popup should appear

And the admin should be prompted to confirm the account creation

Scenario for administrator confirming the creation of an employee account

Scenario: Administrator successfully confirms the creation of an account

Given an admin is prompted with confirming the creation of an employee account

When the admin clicks on the confirm button

Then the employee account should be created

And the employee should be able to log into his new account

Gherkin Syntax: Reset Password

Feature: Reset Password

Scenario for administrator successfully requesting a password reset

Scenario: Administrator requests password reset

Given an admin has forgotten his password

And he has the email test@example.com registered with the account

When the admin clicks on the forgot password button of the login page

Then a reset password link is sent to test@example.com

Scenario for administrator successfully resets his password

Scenario: Administrator successfully resets his password

Given an admin receives a password reset link by email

And the admin opens the link

Then the admin enters a new password on the reset password form

And the admin confirms the new password

Then the admin's password should be changed

And the admin should be able to log in with the new password

Gherkin Syntax: Order Deletion

Feature: Order Deletion

Scenario for administrator successfully requesting order deletion

Scenario: Administrator requests order deletion

Given an admin is on the order edit page

When the admin clicks on the delete order button

Then a confirmation popup should appear

And the admin should be prompted to confirm the deletion of the order

Scenario for administrator successfully deleting an order

Scenario: Administrator successfully resets his password

Given an admin is prompted to confirm the deletion of an order

When the admin clicks on the confirm button Then the order should be deleted And the order should no longer be stored in the system

Gherkin Syntax: Order Completion

Feature: Order Completion

```
# Scenario for administrator successfully completing an order
Scenario: Administrator completes an order
    Given an admin is on the order edit page
    When the admin selects the order completed value in the appropriate
        dropdown box
    Then the order should be marked as completed
    And the order should no longer be editable by employees
```

Gherkin Syntax for Client User Stories

Gherkin Syntax: Selecting Language

Feature: Selecting Language

```
# Scenario for client selecting the French language
Scenario: Client selects French language
    Given a client would like to change the website's display language
    And the client currently has the website in English
    When the client clicks on the French language button
    Then the website should be displayed in French
    And the French language button should turn into the English language
        button
```

```
# Scenario for client selecting the English language
Scenario: Client selects English language
    Given a client would like to change the website's display language
    And the client currently has the website in French
    When the client clicks on the English language button
    Then the website should be displayed in English
    And the French language button should turn into the French language
        button
```

Gherkin Syntax: Tracking Order

Feature: Tracking Order

Scenario for client tracking his order

Scenario: Client tracks his order's status

Given a client is on the track order page

When the client enters the order's reference number into the appropriate text field

And the reference number is correct

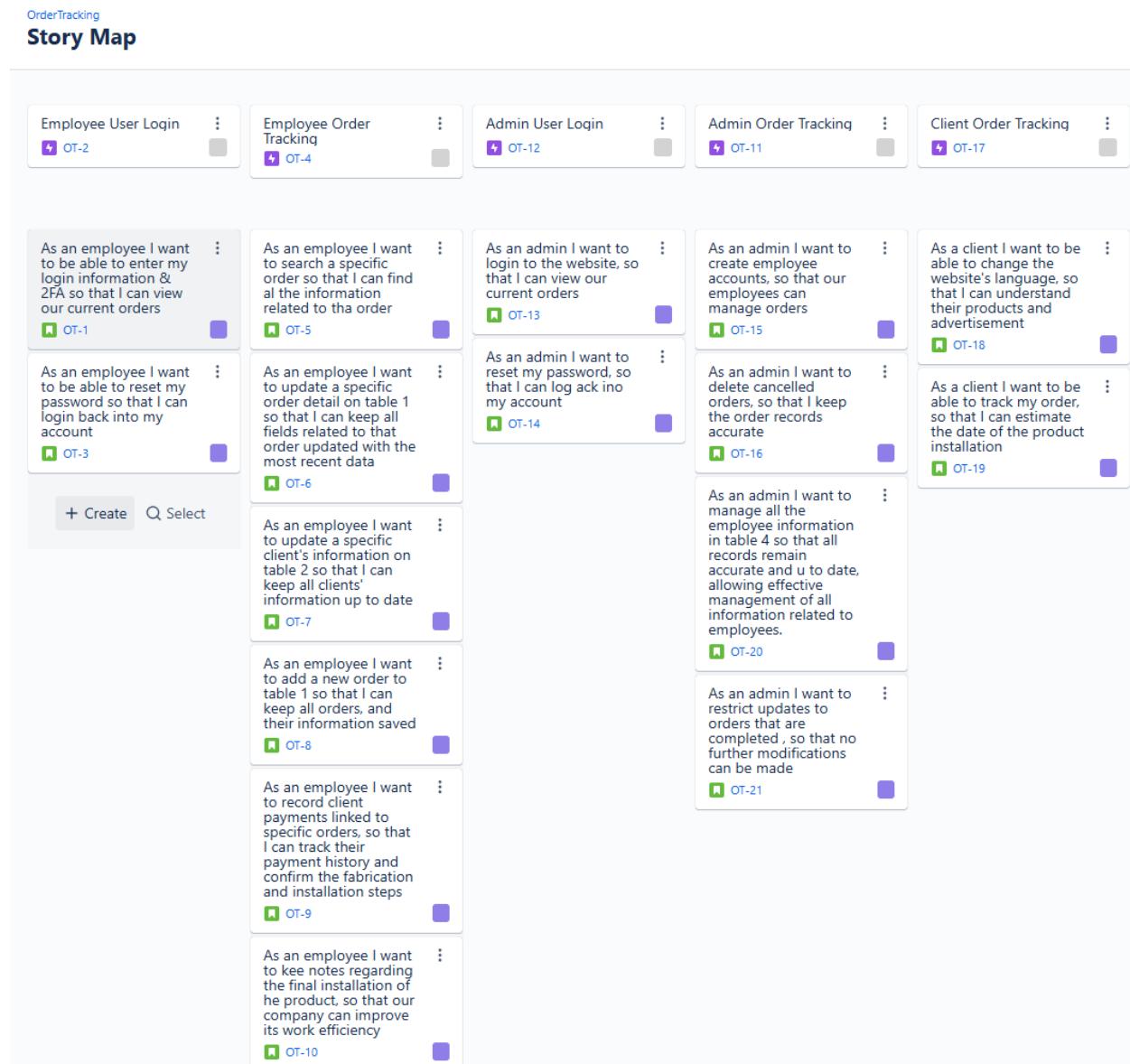
Then the client should be redirected to a page that displays the status of the order

Appendix 3

User stories were divided into three categories: Employee, Administrator and Client. The story map was done on our Jira:

[Jira Link](#)

Here is a screenshot of the user story map:



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Google. (n.d.). Showroom location inside picture [Google image]. Retrieved February 24, 2025, from <https://tinyurl.com/4k5u69vz>

DELIVERABLE 3

Orange Team

Team Leader

&

Scrum master:

Alexandru Cirlan

Minute Taker:

Ibrahim Abdel Monem El Zeftawy

Main point of contact:

Danat Ali Muradov

SIGNATURES

We certify that this assignment is our own work

I, **Alexandru Circlan, student ID #6235277**, certify that I have contributed to this deliverable, A-C

I, **Danat Ali Muradov, student ID #2357647**, certify that I have contributed to this deliverable, D-A-M

I, **Ibrahim Abdel Monem El Zeftawy, student ID #6257643**, certify that I have contributed to this deliverable, I-A-M-E-Z

I, **Lydia Ayala Hernandez, student ID #2264230**, certify that I have contributed to this deliverable, L-A-H

Executive Overview

Crown Granite, owned by Naveed Qumar, specializes in high-quality countertops, tiles, and vanities, serving both individual and business clients from its Montreal showroom and manufacturing facility. The internal contact is the client's son, who manages their current website and makes communication with our team.

Crown Granite offers comprehensive services including consultations, fabrication, and installation. While technology such as CNC automation and AI-driven design tools is becoming standard in the industry, the company's website currently lacks reservation systems, real-time stock updates, a good website and a web application system to track orders and assign the appropriate identification to each order.

The business faces several operational challenges stemming from outdated processes. Data for clients and orders are manually managed using Excel sheets, and order IDs are assigned by hand, leading to potential errors and inefficiencies. Additionally, the absence of an automated order tracking system forces clients to rely on phone calls for updates, which weighs on both the customers and employees.

This deliverable goes over the narrative description of current state of their system which is used to understand the process of their current system. It goes from when the client first asks for a new order, to when they've archived the order.

Continuing onwards, it also goes over examples of their data in their client forms and documents. This will be used to know what the data we'll be using looks like and the tables we need.

Furthermore, we've created multiple diagrams to plan out how the web application we plan on creating will work. There's a flowchart diagram to show how the users will navigate, a use case diagram to show the different actions possible and the results, a sequence diagram to show the interactions between different entities and to order them sequentially and a class diagram to show the structure of our classes for our Model.

Client Summary

Our client, Naveed Qumar, is the current business owner of Crown Granite, a company specializing in countertops with an extensive selection of Quartz, Natural Stone, and Dekton. In addition to countertops, they also provide tiles, as well as kitchen and bathroom vanities. They offer at-home installation services as well.

Their son, the bridge between our team and the business manager, is both an employee. The company registers clients' credentials along with their order details, answers phone calls to provide order status updates, and has a dedicated team for home installations.

Crown Granite operates in two locations in Montreal: a showroom and a manufacturing facility. They highly value customer loyalty and honesty. Currently, they have very positive reviews, with clients praising their professionalism in installations, quality of workmanship, service, and pricing.

The current website was developed by a paid contractor who designed it using WordPress. However, our client has access to the application's account, allowing them to modify the website. Presently, the home page has several issues, including misaligned images, font colors that blend into the background, and buttons that lead to unrelated content, among others. In summary, while these issues are relatively minor and can be fixed, the website remains unchanged due to our client's limited knowledge and experience with web design and technology.

Business Problem

While having a functional website and excellent reviews regarding their customer service, Crown Granite encounters obstacles in the way they handle their business operations and customer interactions. Their first obstacle lies in their method of registering clients along with their orders, which relies on Excel sheets. Additionally, each order and payment are manually assigned an ID by an employee. The second obstacle they face is that clients must call the company to inquire about their order status: In Fabrication, Confirming Final Plans, etc. Their approach to handling these matters is not only slow and inefficient for the company, but also inconvenient for clients, who must make a phone call just to receive updates on their orders.

Tracking System: The company registers client information, order details, order confirmation dates, and installation date using numerous Excel sheets. However, this method is not designed for large companies or extensive databases, as it quickly becomes **slow** and **unmanageable**. Moreover, manual data entry can lead to **duplicate records** and **errors**. Due to Excel's **inefficient retrieval system**, searching for a specific client or order must also be done manually. As the company and its clientele grow, this tracking method becomes increasingly **time-consuming** and **impractical**, which greatly impacts our client's business performance.

Manual Identification: Assigning unique ID's to orders and payments is crucial for accurately linking them to the correct client, especially when handling multiple orders simultaneously. However, Crown Granite currently assigns these ID's manually, a **highly risky approach** that can lead to **duplicate identifications**. Mixing up orders can **result in issues** such as processing an order for the wrong client or mistakenly believing a payment has failed when it was actually successful, leading to **unnecessary delays**. Nowadays, companies have moved away from manual identification due to all the **negative factors** that can **increase inaccuracy in orders**.

Order Status: When placing orders, clients typically want an estimated date for when their order will be ready for installation. Currently, the company's clients must call to obtain order details. Most businesses either provide an order tracking page on their website or assign customers a reference number to view their order status. The company's current method of offering a tracking "system" is **inefficient for employees**, as they must also handle phone calls. Additionally, it can create **discomfort** and **inconvenience** for customers who may **not feel comfortable**

Customer Experience: While some customers may be satisfied with the current order tracking method, it **is both inefficient and inconvenient**, not only for customers, but also for employees who must handle these calls. Creating a system that is convenient for everyone is essential for **good customer service**. Maintaining the current tracking method can cause **uneasiness** for those who prefer not to communicate directly to obtain order information. Additionally, a system that allows customers to check their order status is more efficient than relying on phone calls, which may go to voicemail. Consequently, clients are unable to receive the details about their order status.

Employee Experience: Employees responsible for registering clients and all necessary order details using Excel sheets face a **slow and repetitive task**. Moreover, this **tedious** and **lengthy** process increases the risk of order **errors**, which can lead to serious **issues** for the company and the employee himself. In addition to regular questions from customers over the phone, employees must also search for and retrieve order details for customers' questions concerning order statuses. These calls, which can become **burdensome** when customers ask excessive questions, could be avoided with a system that provides customers with the necessary information regarding their order directly.

Providing our client with a system in which they can register, retrieve, update, and delete records containing their customer information and order details can increase productivity and provide a superior and more efficient solution for their current registration method. Moreover, creating a system that automatically assigns IDs to orders and payments can decrease duplicate identifications and system errors and increase order and payment accuracy. Lastly, developing an order tracking interface, in which customers can view their order details along with their order status will increase customer satisfaction and convenience.

Narrative Description of Present System

A client gives the company a call and requests for an order to be made. The employee answering the call will add the order to the excel document with all the information it needs.

When the client pays a deposit for the order to begin, the employees need to add payment information and the details of the transactions to excel document.

The employees then need to create plans for the order and make sure they have adequate materials and tools. They need to create fabrication plans and also check up with the client in case of any inquiries.

At each step of the process, they need to make sure they update the status of each order. When that happens, the employee must find it through a huge excel sheet and add or change whatever information to the order. This happens often due to orders having multiple stages that they go through.

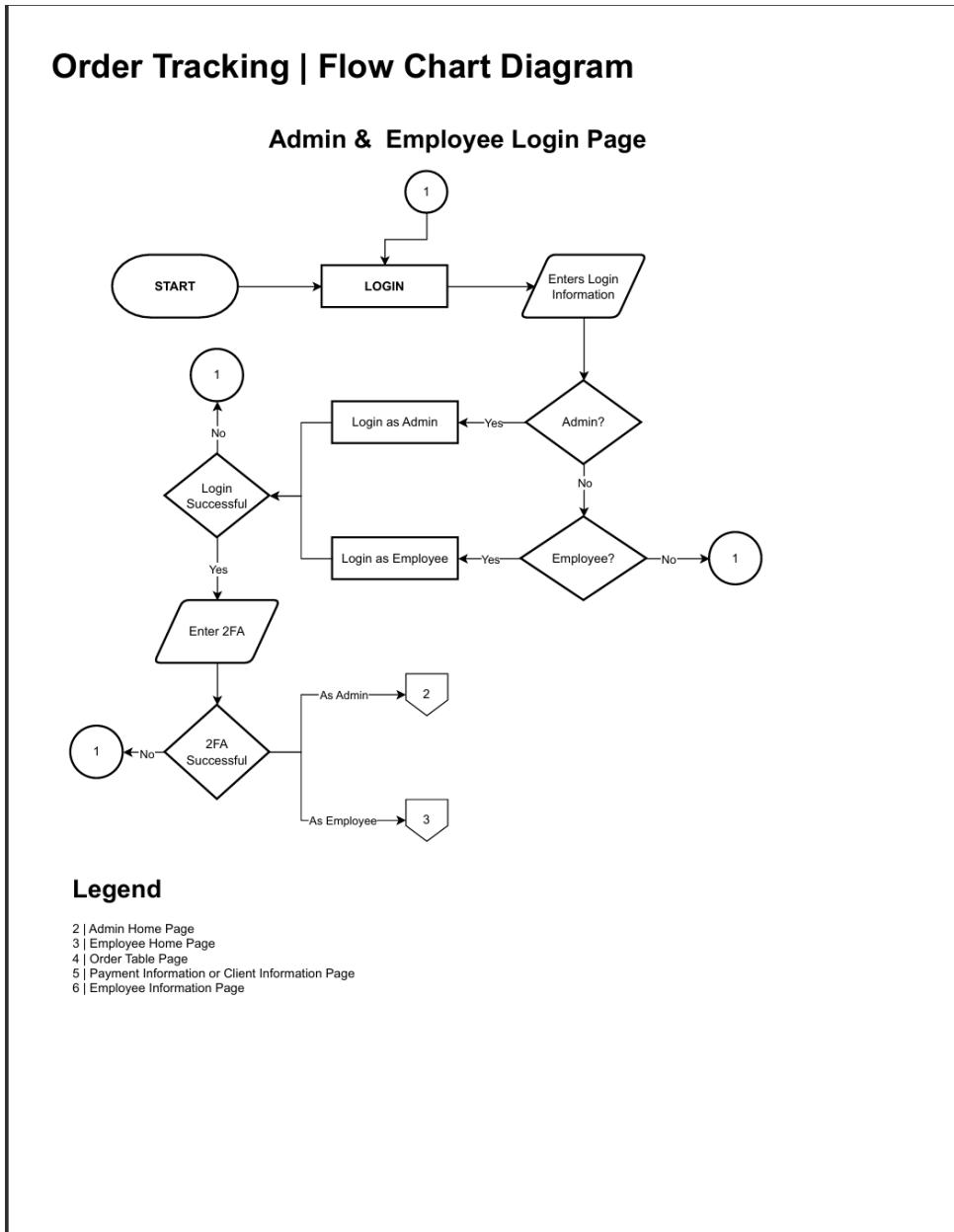
When they finish the order, the employees need to deliver the materials as well as install them if they need to.

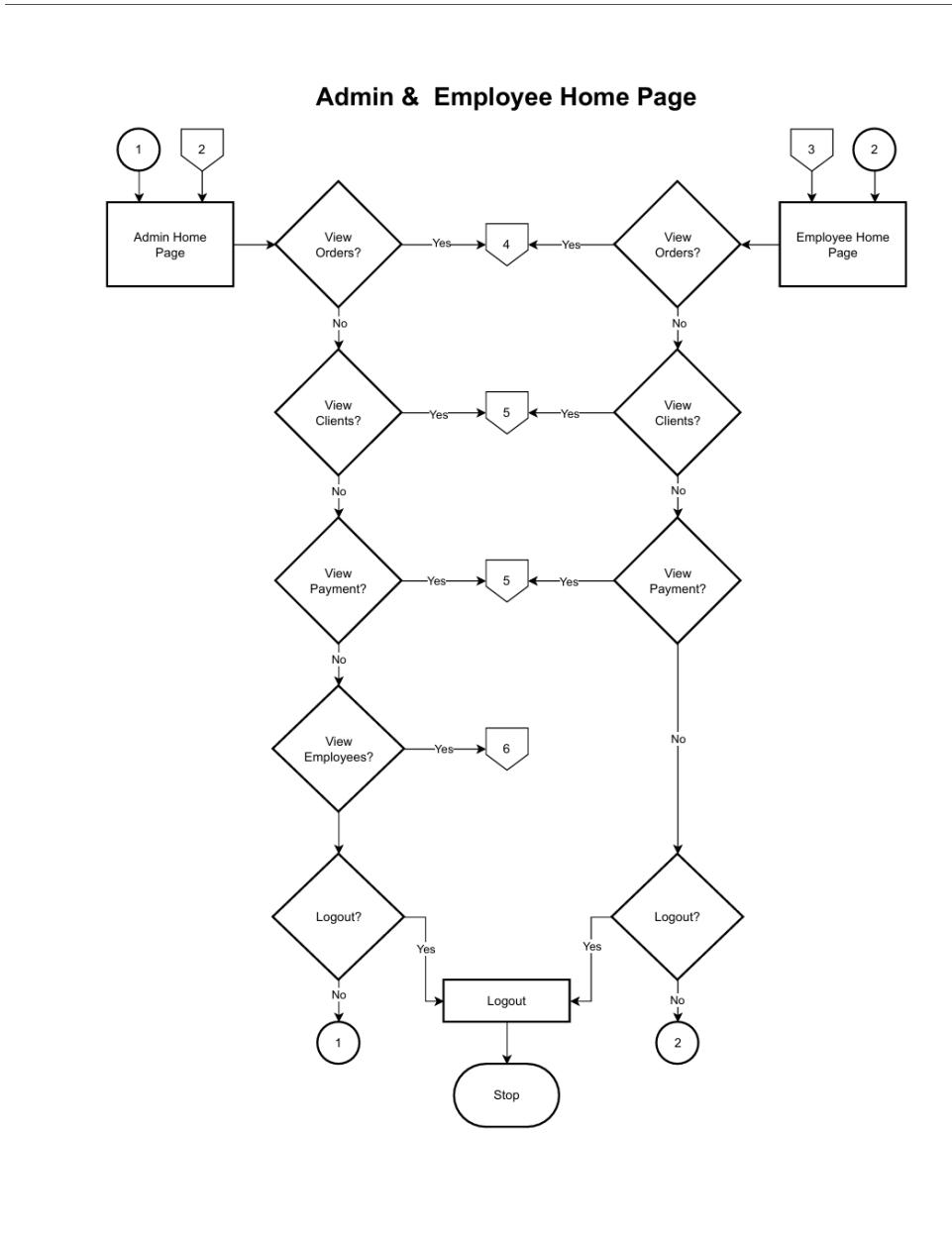
Then the client will pay for their transaction in full, meaning the employees have to add another payment to the order.

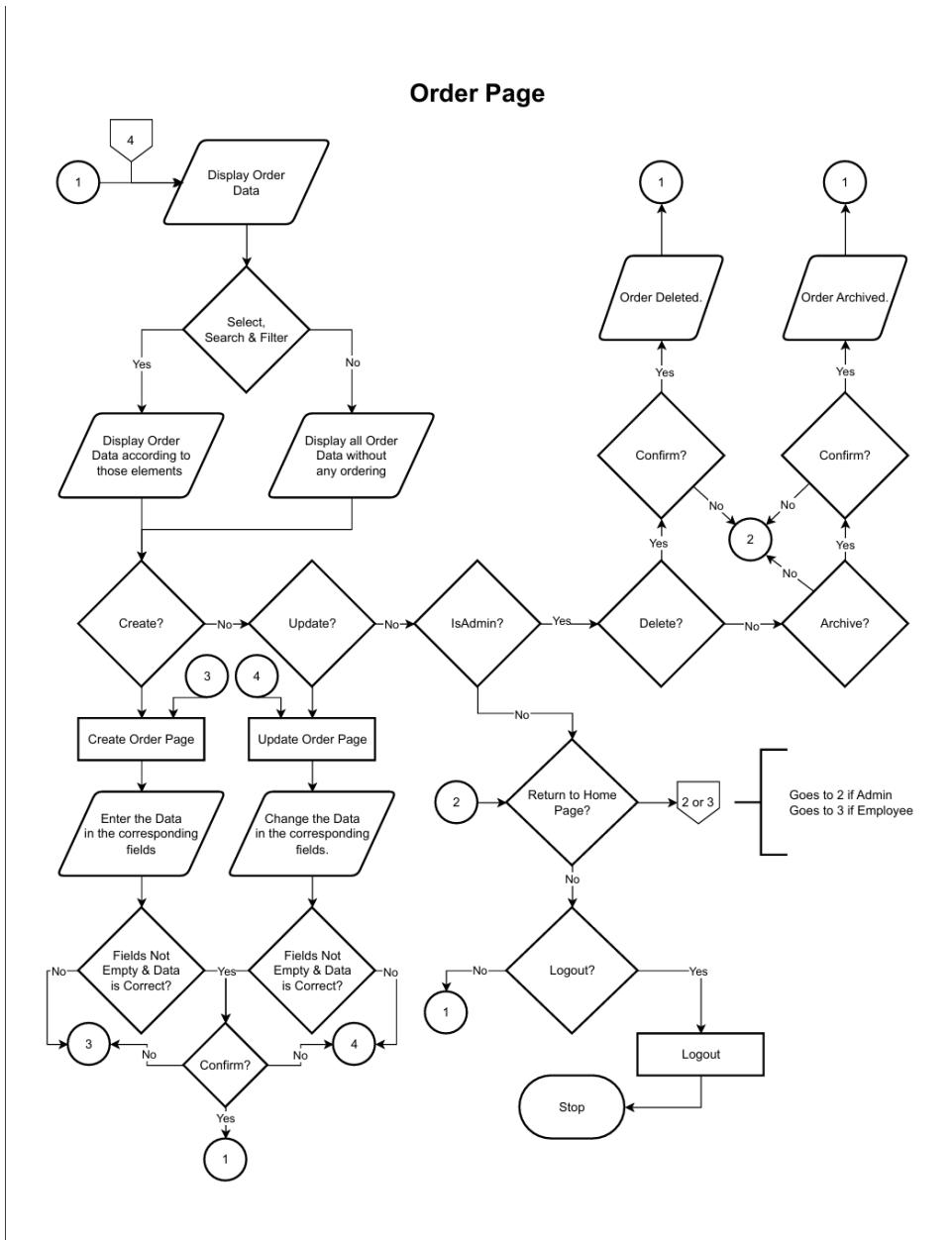
Once an order is completed, they archive it so that no more modifications are brought to it by accident. The cycle repeats with each order.

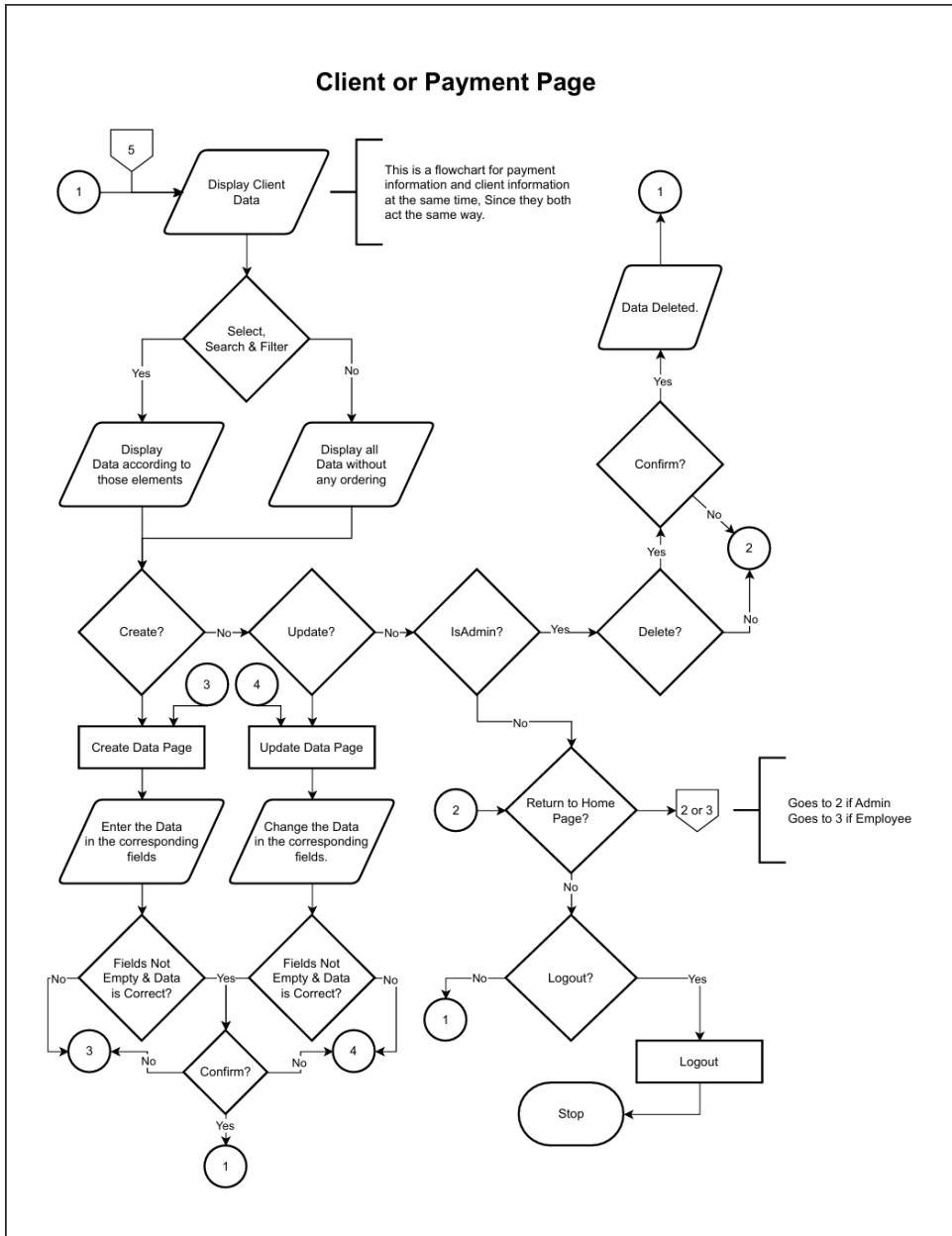
Appendices

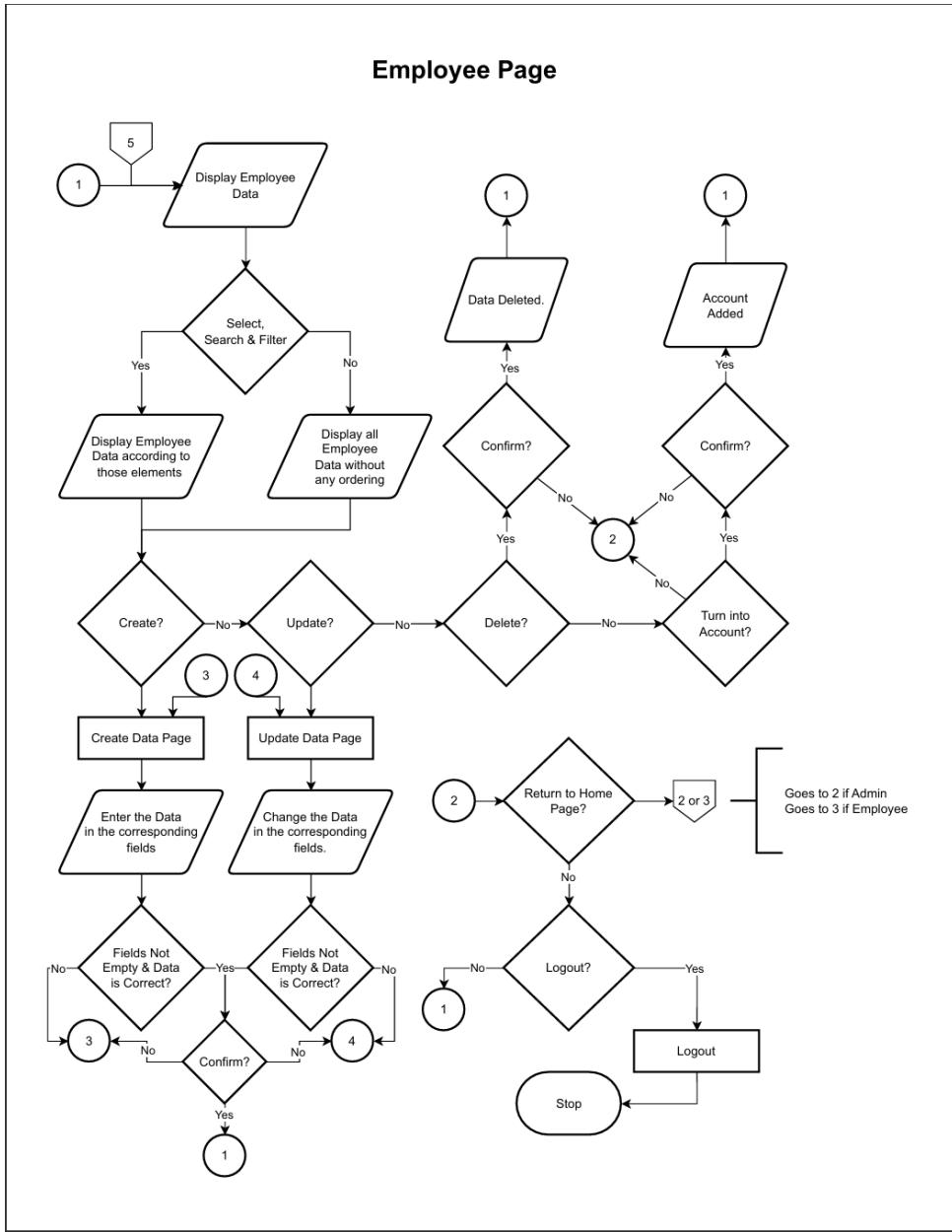
Appendix 1: Flowchart Diagram

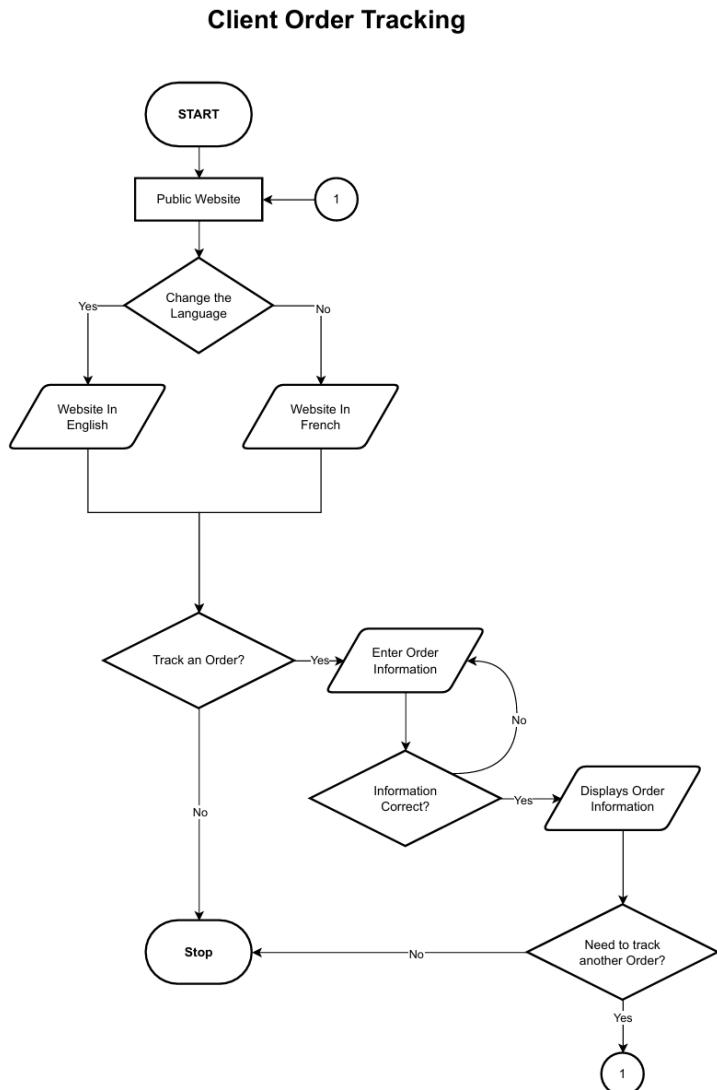




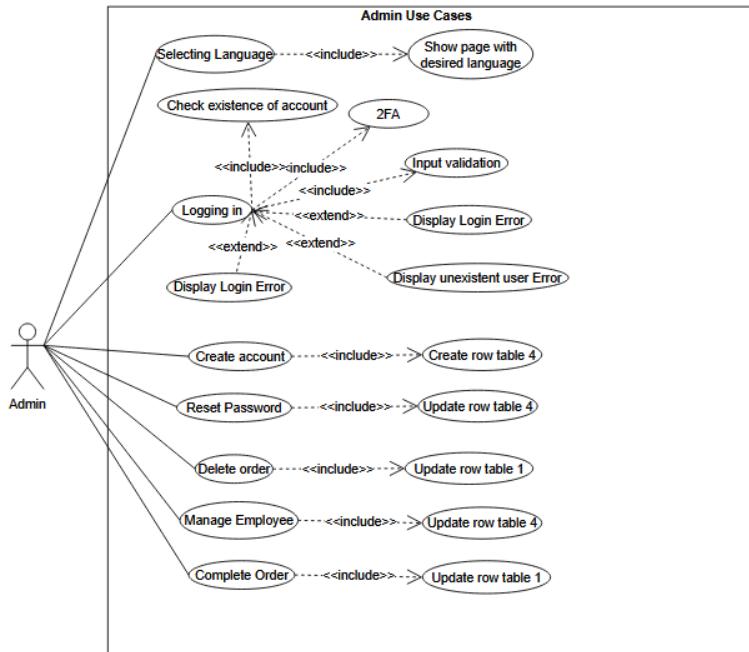
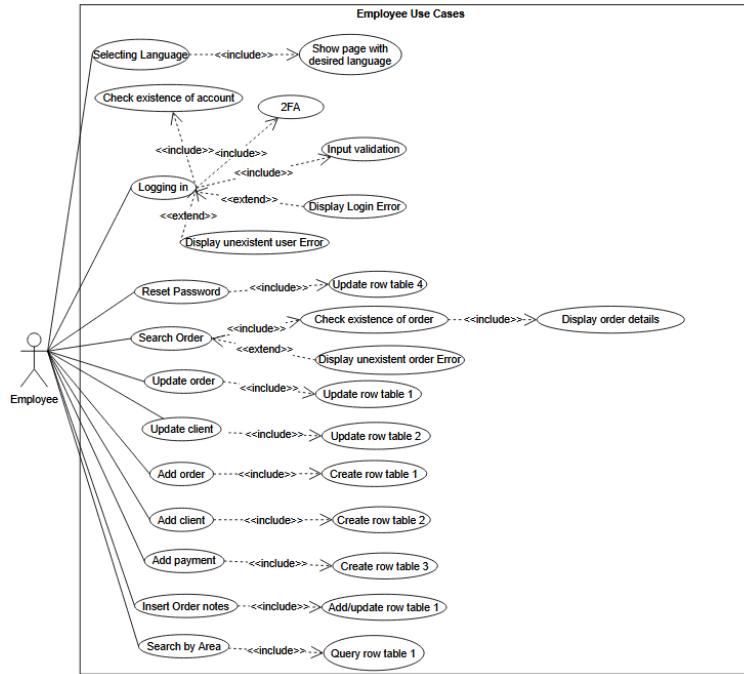


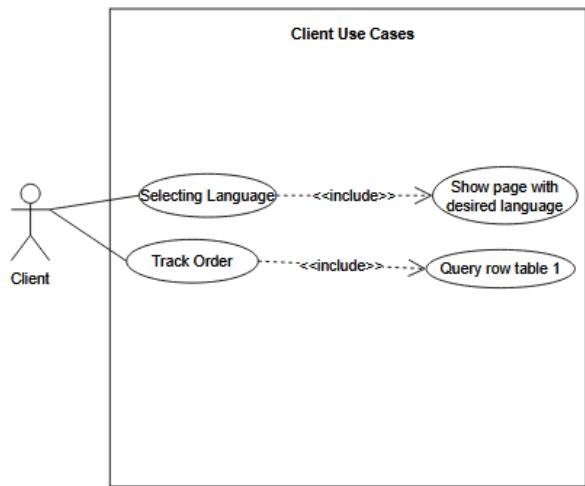




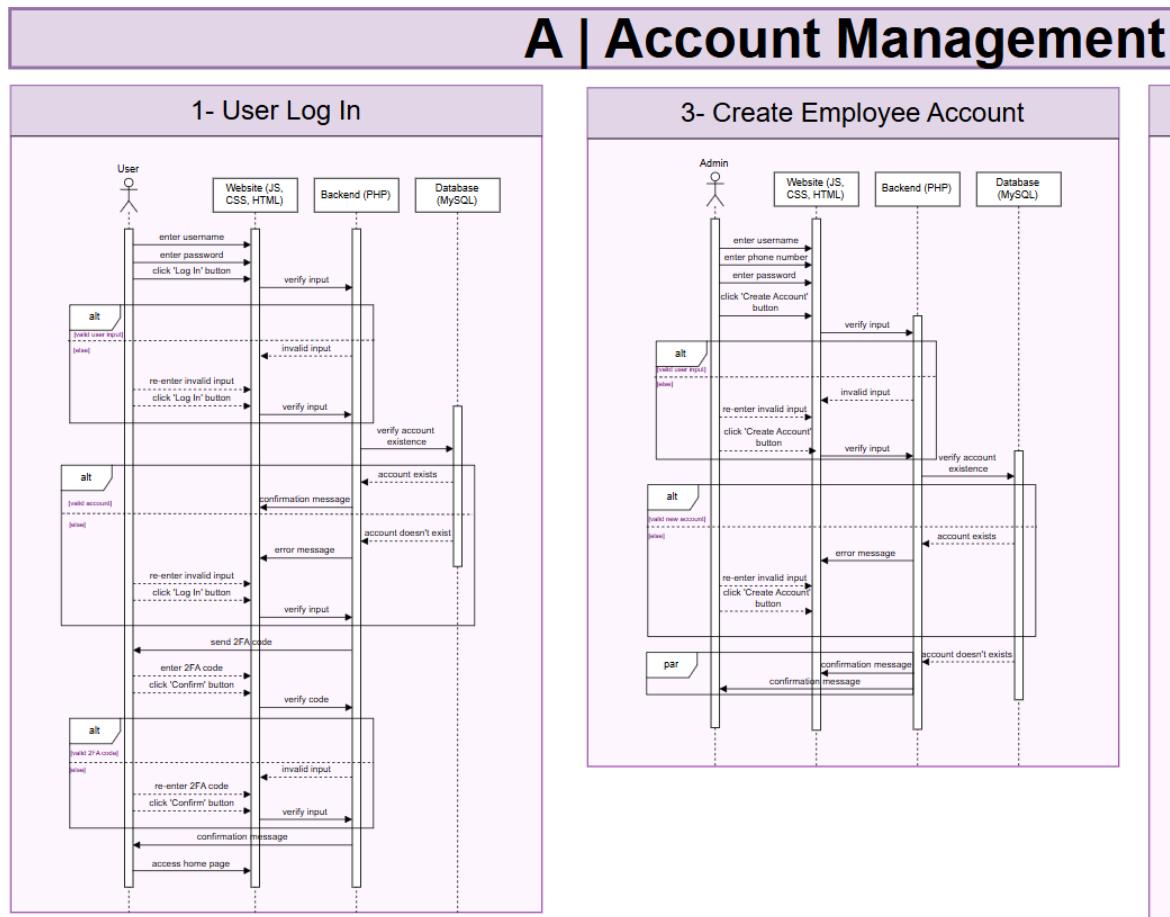
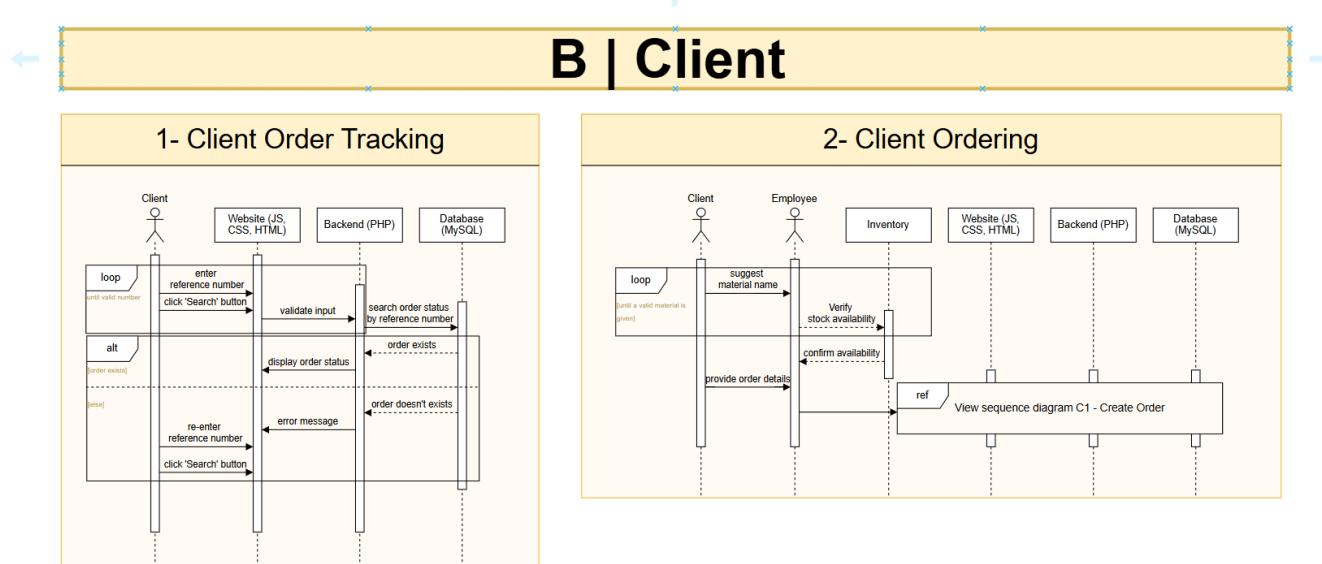


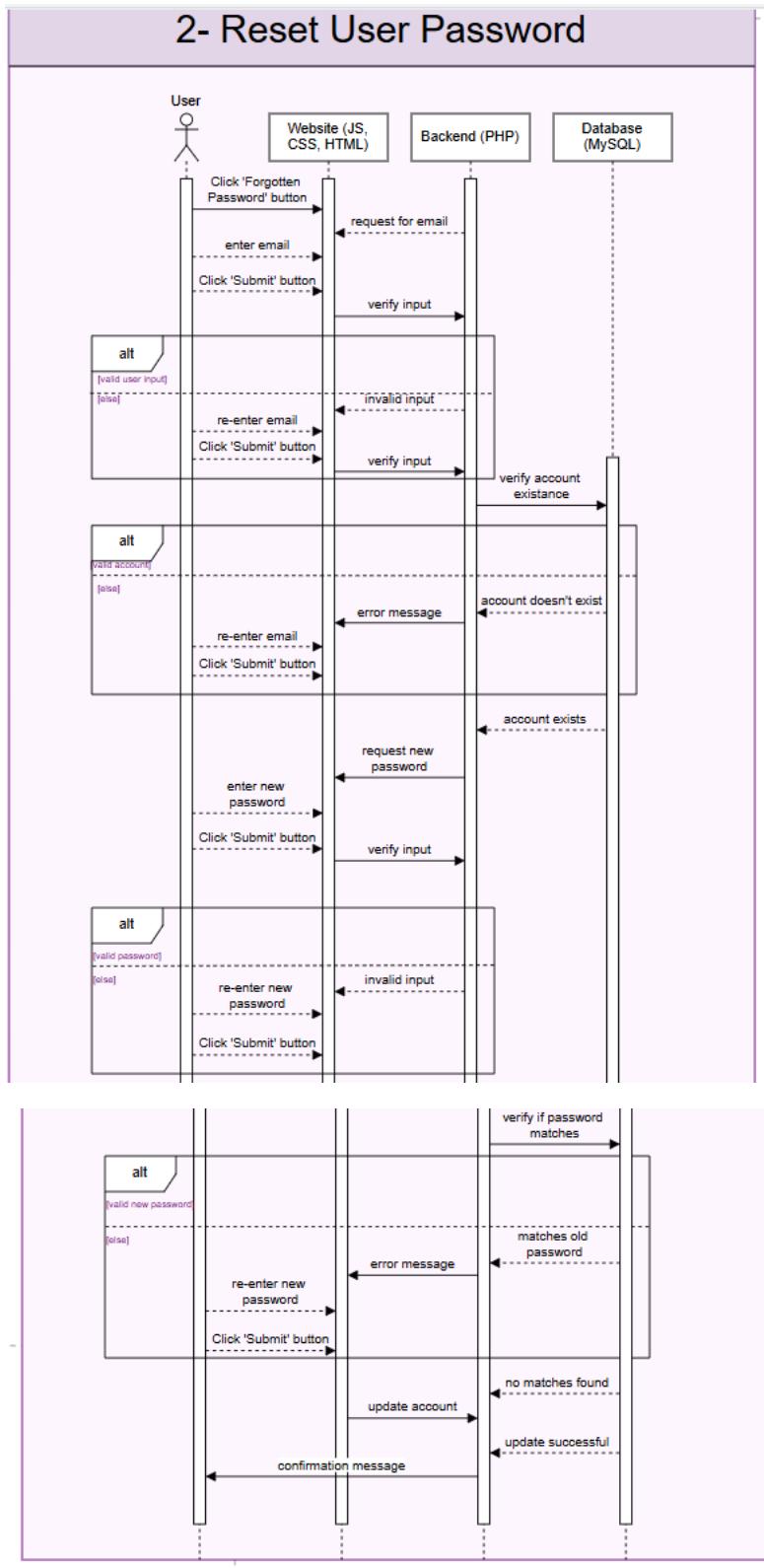
Appendix 2: Use Case Diagram



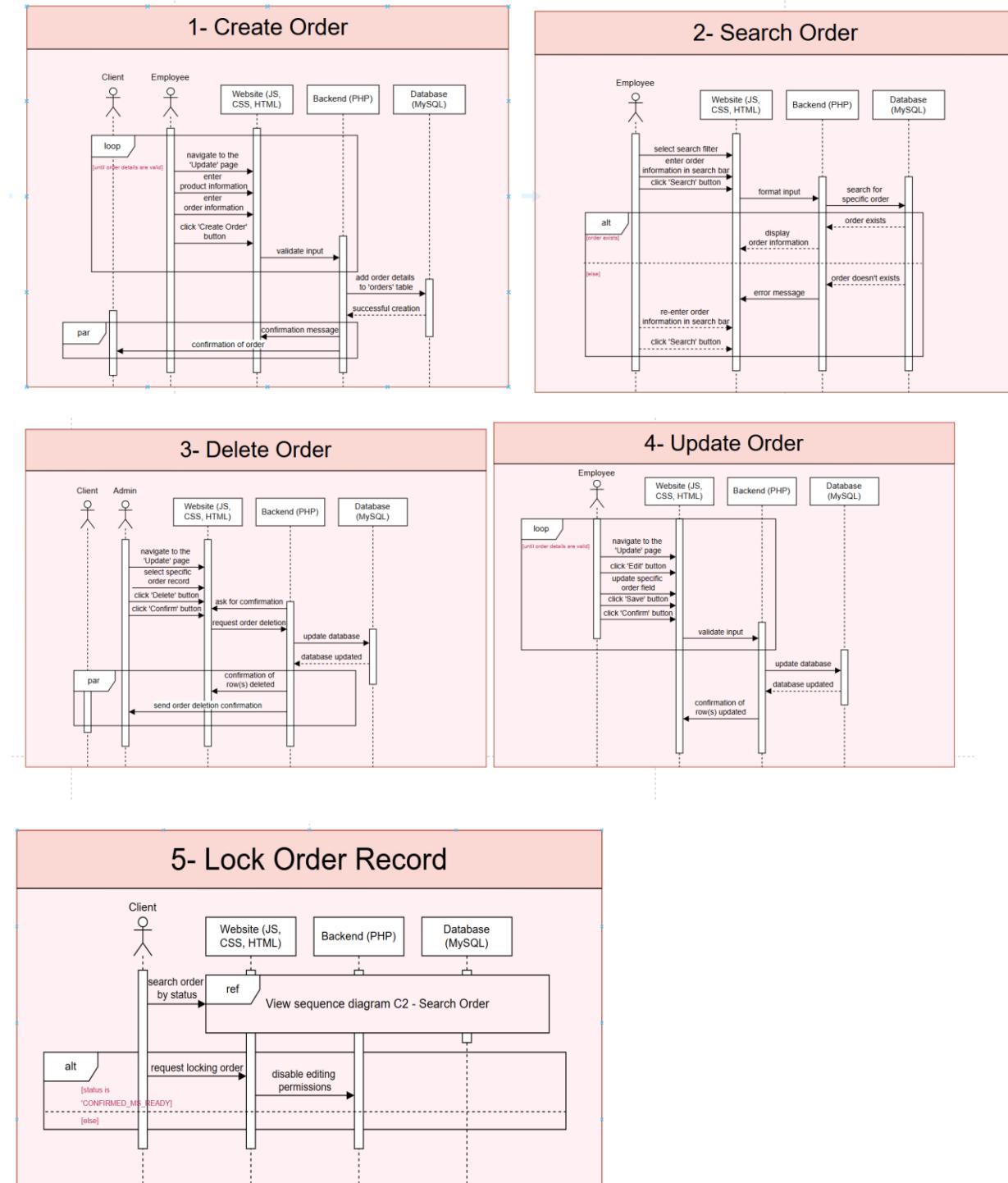


Appendix 3: Sequence Diagram



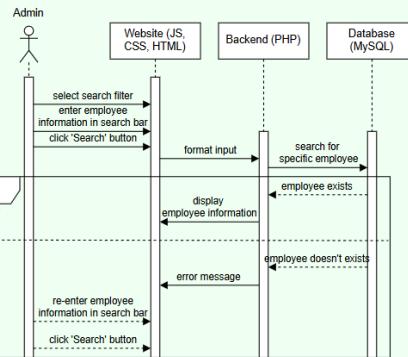


C | Order Management

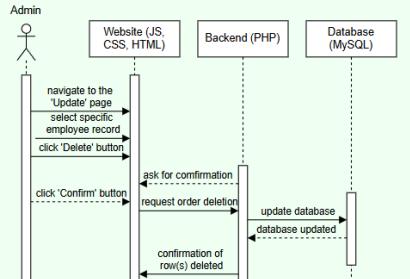


D | Employee Management

1- Search Employee

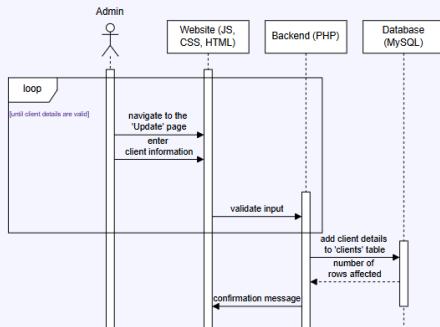


2- Delete Employee

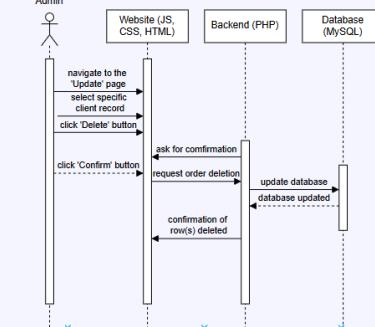


E | Client Management

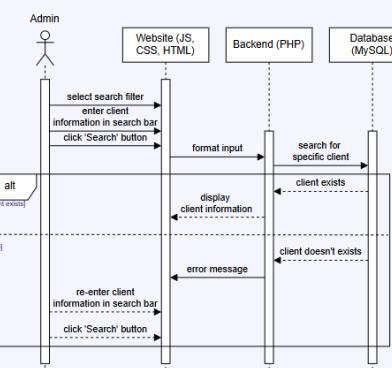
1- Create Client



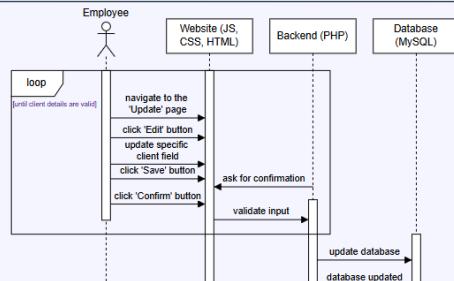
3- Delete Client



2- Search Client

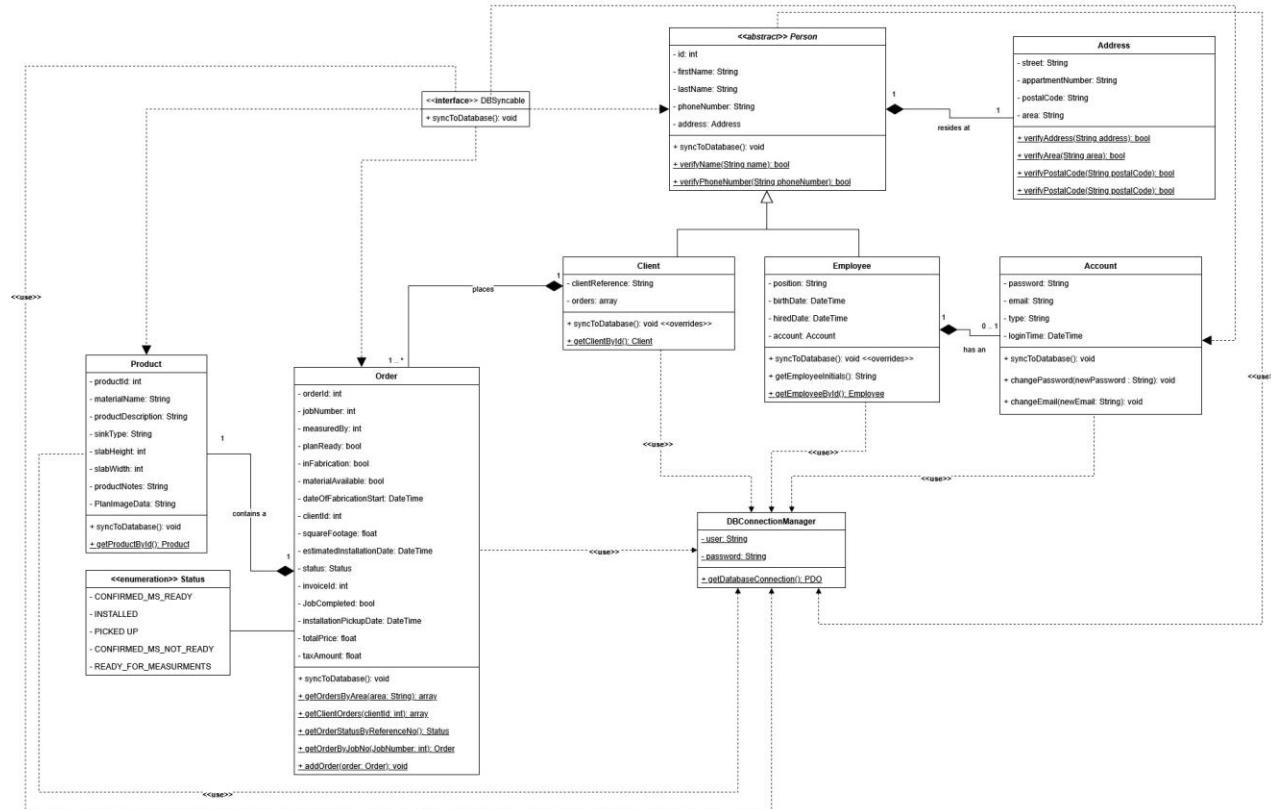


4- Update Client



Appendix 4: Class Diagram

Order Tracking | Class UML Diagram



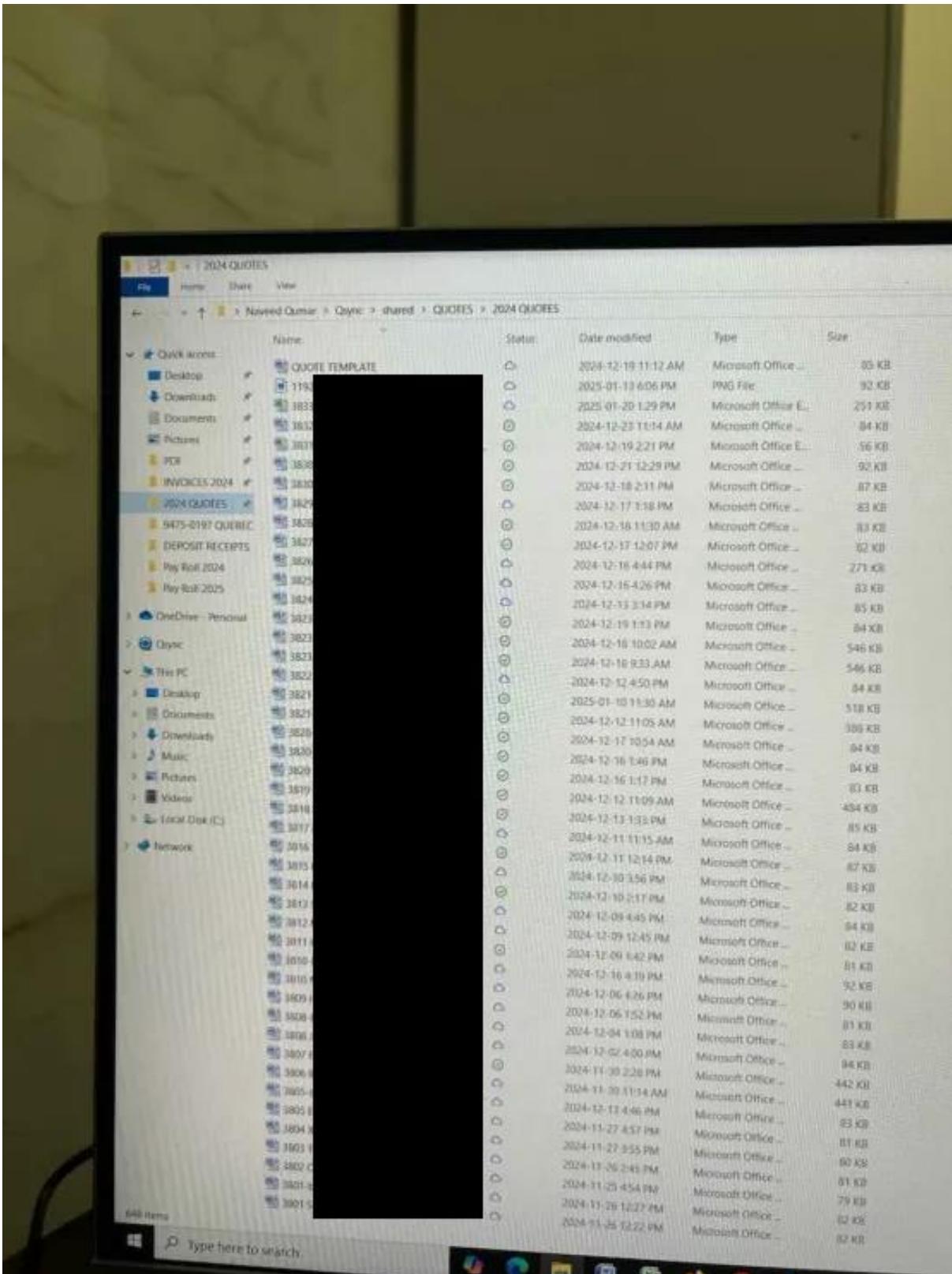
Appendix 5: Client Forms and Documents

Measurement Sheet (Payment information):

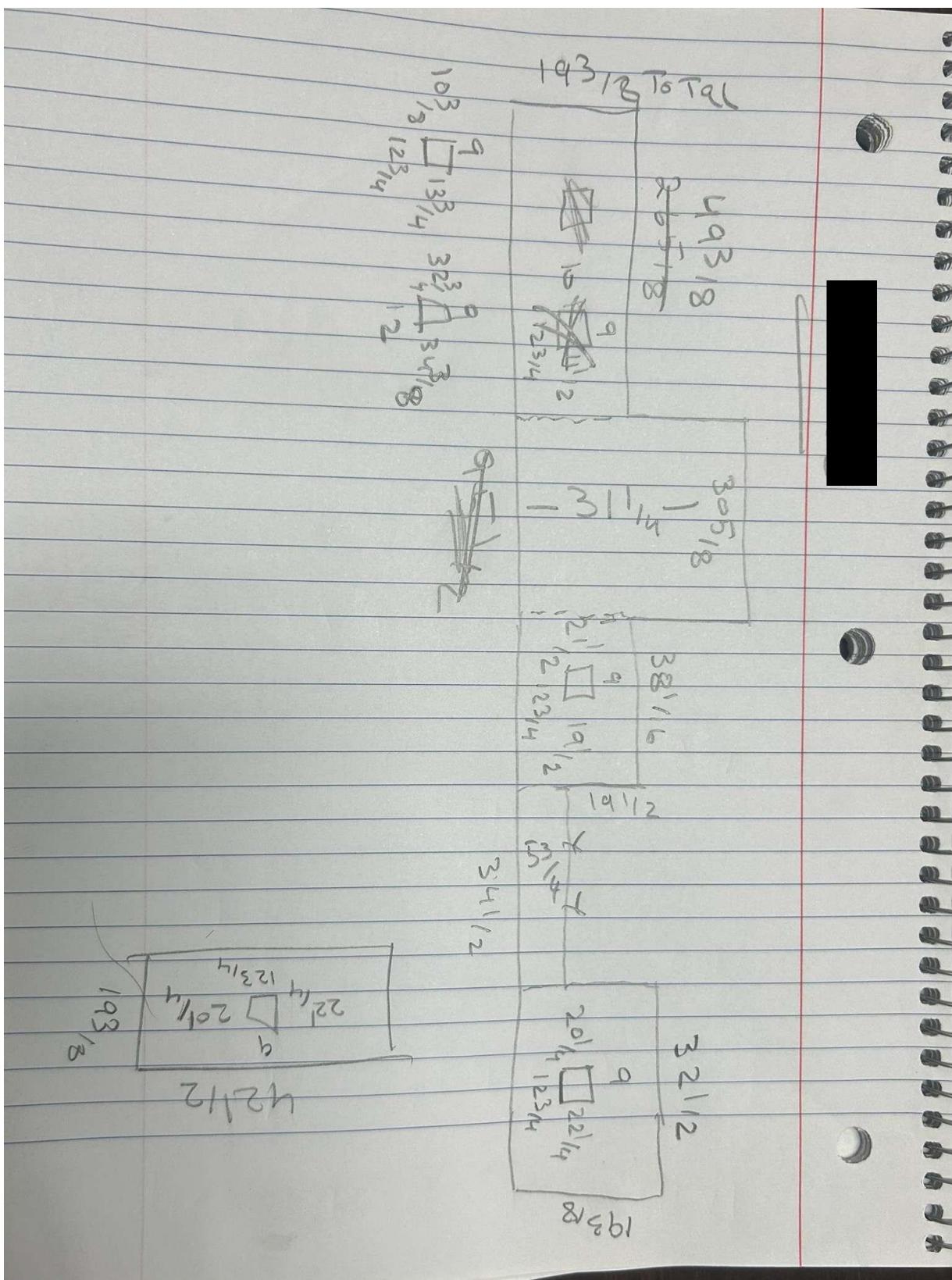
The screenshot shows a Google Sheets document titled "MEASUREMENTS(12/07/2023)". The spreadsheet has columns labeled A through J. Column A contains row numbers from 1 to 129. Column B is labeled "MATERIAL STATUS" and "QUOTE". Column C is labeled "SO/ INVOIC". Column D is labeled "TOTAL". Column E is labeled "DEPOSIT". Column F is labeled "PAYMENT". Column G is labeled "BALANCE". Column H is labeled "JOB #". Column I is labeled "CONFIRM". Column J is labeled "INSTALLATION". The data includes several entries for different jobs, such as "CUC2318- B706 (BIG RO" and "READY SATUR". Some rows have red or blacked-out data. The bottom of the screen shows the Mac OS X dock with icons for税计算器 (tax calculator), Counter-2022, Counter-2023, Counter-2024, Counter-2025, and other applications.

A	B	C	D	E	F	G	H	I	J	
1							CUC2318- B706 (BIG RO		MONDAY	
2										
3										
4										
5	MATERIAL STATUS	QUOTE	SO/ INVOIC	TOTAL	DEPOSIT	PAYMENT	BALANCE	JOB #	CONFIRM	INSTALLATION
94							\$ -			
95				\$ 2,985.00	\$ 1,500.00		\$ 1,485.00			
96							\$ -			
97							\$ -			
98							\$ -			
99							\$ -		READY SATUR	
100							\$ -			
101		E-MAIL		\$ 3,275.00			\$ 3,275.00			
102							\$ -			
103							\$ -			
104				\$ 3,271.04	\$ 1,149.75		\$ 2,121.29			
105							\$ -			
106				\$ 1,775.00			\$ 1,775.00			
107				\$ 5,349.00			\$ 5,349.00		WAITING FOR	
108							\$ -			
109							\$ -			
110							\$ -			
111							\$ -			
112										
113									CABINET NOT INSTALL YET I CALL 2/13/2024	
114									CABINET NOT INSTALL YET I CALL 2/5/2024	
115										
116										
117										
118										
119										
120										
121										
122										
123										

Listing of Quotes Word Documents:



Fabrication Plan of a Countertop:



Measurement Sheet (Data Fields):

Fabrication Sheet (Data Fields):

JOB #	M	F	I	A	E	U	H	W	O	R	S	T	U	V	W	X	Y	Z	INSTALLATION IN FABRICATION									
																			READY	REF#	DATE	CLIENT	TO DO	WAITING ON FIELD				
6000	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H98125	B100	CARVING	3CM	VANITY	45	1/21/2025	INSTALLED	1 SLAB
6001	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H98125	B100	COTÉ DE RHAMANTE	3CM	VANITY	45	1/20/2025	INSTALLED	1 SLAB
6002	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7L6C5	LAVAL	ALASKA BLANCA	3CM	COUNTER	60.25	1/21/2025	INSTALLED	extra \$200, 1 slab and leftoyer
6003	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9C1N9	ILE-INIZARE COLORADO	3CM	2CM	5 SILLS	60	1/21/2025	PICK UP	
6004	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9A4C2	REPENTIGNS CARRARA DEEP	3CM	COUNTER & ISLAND	60	1/28/2025	INSTALLED	extra for the island : \$200+ tax	
6005	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7C5R1	BLAINVILLE COFE FOAM	3CM	COUNTER	52.0	1/29/2025	INSTALLED	\$3,995.00 \$ 598.75	
6006	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H5Y2E3	Regentville RHIMESTONE	3CM	COUNTER	24	1/29/2025	INSTALLED	1 SLAB AND LEFTOVERS	
6007	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9L1B1	LAVAL BLANCO ANGELICA 54	2CM	COUNTER & B/S	60	1/29/2025		\$ 7,700.00	
6008	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9P1A1	HAMPSTEDE MAHAGAN	2CM	COUNTER / B/S	60	1/20/2025		\$ 12,300.00	
6009	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9L1B1	MONT ST-JOSEPH	2CM	4 x COUNTERS	60	1/30/2025			
6010	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9A25B	DOO CALACATTA LEON	3CM	COUNTER	55.5	1/31/2025		\$ 2,800.00	
6011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9835	ST-JOSEPH BASTIA	2CM	VANITY	60	1/21/2025	PICK UP	\$ 1,100.00	
6012	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7W1P1	ILE-PERROIS ISLAND STEEL GREY	3CM	COUNTER	70.5	1/31/2025			
6013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7V2W6	ILE PERROIS ALLURING-RADIANZ	3CM	COUNTER	44.5	1/31/2025			
6014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7R3M8	ST-JOSEPH-BASTIA	3CM	COUNTER	41.65	1/31/2025		Island: 70.5/8m 33.5	
6015	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7E1Y3	SAINTE-MARIE COFE FOAM	3CM	COUNTER	55.5	1/31/2025			
6016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9X1E5	BROSSARD NORTHERN LIGHT	3CM	COUNTER	55.75	1/31/2025		1 PC FROM (352) LEFTOVER, EXTRA \$200 DELIVERY	
6017	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H9N1M0	ST-JOSEPH-BASTIA	3CM	COUNTER	54.5	1/31/2025		COOKTOP, EXTRA \$200 LPI	
6018	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H1E2H5	RDP KSI CARRARA WHITE	3CM	COUNTER	54.5	1/31/2025		COOKTOP, EXTRA SOAP HOLE	
6019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H7V2S3	VALDREA COLORADO	3CM	COUNTER	38.25	1/30/2025			
6020																												
6021																												
6022																												
6023																												
6024																												
6025																												
6026																												

References

All the pictures of diagrams have been created by us and taken from our draw.io file. The file can be found here: [Order Tracking UML Diagrams.drawio](#)

All the pictures from the Client Forms and Documents were taken by our Point of Contact and have been censored to hide all sensitive information.

DELIVERABLE 4

Orange Team

Team Leader

&

Scrum master:

Ibrahim Abdel Monem El Zeftawy

Minute Taker:

Lydia Ayala Hernandez

Main point of contact:

Danat Ali Muradov

SIGNATURES

We certify that this assignment is our own work

I, **Alexandru Circlan, student ID #6235277**, certify that I have contributed to this deliverable, A-C

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I, **Lydia Ayala Hernandez, student ID #2264230**, certify that I have contributed to this deliverable, L-A-H

Executive Overview

When a client wants to order from Crown Granite, he must first contact the company, usually by visiting the showroom, though he can call for small clarifications. In the showroom, an employee discusses the client's needs, helps choose the material, and explains the ordering process. If the client needs more time, the chosen material can be put on hold. When the client is ready, his details and preliminary measurements are taken, and a quotation is generated. A 50% deposit is normally required unless the client is trusted. Later, accurate measurements are taken, adjustments are made if needed, and the order is placed in production.

Once the slab is cut (taking about 7 to 10 days), the remaining payment is collected, and the client can either pick up the order or have it installed. The business problem is that Crown Granite currently uses multiple Excel spreadsheets to track orders, clients, and payments, which causes data inconsistencies, synchronization issues, and lacks advanced functionalities like complex searches or order tracking. To solve these problems, the new web application will have an expanded database to include client, payment, and employee data. Additionally, it will have a secure login with two-factor authentication and different account levels to restrict access to sensitive information.

Three user stories related to managing client records have been removed: instead of creating clients separately, a client record is automatically created when an order is placed, and clients are never deleted directly to avoid breaking existing order references. Payment-related stories have been updated to allow both employees and admins to search for payments using keywords based on either the client or the order. The story for deleting employees has also been changed to focus on removing employee accounts to restrict access. Two new stories have been added: one where an admin creates an employee account to allow certain employees to manage orders, and another where an admin deletes the account entirely when the employee leaves the company.

Revised Summary Narrative

When a client wishes to order from Crown Granite, he must get in contact with the company. Usually, the client must come to the showroom location. However, for minor clarifications before seeing an employee, the client can call the company.

Once the client comes to the showroom, he discusses his needs with an employee. The employee will help the client decide on the choice of material and clarify the process of ordering with the company. If the client needs additional time to decide, he can request that the material he might choose from be put on hold. This will allow the client to decide without worrying about issues concerning the availability of the material. When the client decides the choice of material, he must get in contact with an employee so that the employee can take his personal information as well as preliminary measurements. Preliminary measures can be taken if the client is not able to provide good plans.

Once the client's information is taken, Crown Granite generates a quotation for the Client's order. The company then requests a 50% deposit on the order to order and deliver the appropriate material. In cases where the client is trusted by the owner (a family friend, etc.), the deposit can be omitted. While the material is arriving, if it has not been done so previously, an employee is sent to the client to take definitive and accurate measurements of the countertop to fabricate. If the measurements are bigger than expected, adjustments are made. The price is increased, and the client is notified of the change and chooses to accept. Once the material arrives and the plans are ready, the order is placed in production.

Once in production, it takes approximately 7 to 10 days for the slab to be cut according to the plans taken. When fabrication is completed, Crown Granite requests the rest of the payment from the client. When the payment is made, the client can choose to pick up the order or have it installed by the company.

Finally, if the client requests an installation, arrangements are made with him, and the countertop is installed.

Business Problem

The business problem of our client, Crown Granite, remains very similar to what we have known from the beginning. Our client needs a system to manage and track his orders. They are currently using a multitude of excel spreadsheets to track orders, clients, and payments.

This is an inefficient way of tracking orders because those excel spreadsheets can lead to data inconsistencies since no data validation operations are executed on the input information. In addition, it can be quite troublesome to synchronize Excel files across multiple devices just as it is done right now. Furthermore, additional functionalities are impossible using this tracking order system. Complex search queries cannot be performed on the data. Other features like order tracking also cannot exist due to the nature of the spreadsheets.

During this delivery, however, additional business problems have come up. To track orders, our web application must also store additional data such as client information, payments, and employees. In addition, the client also needs the ability to archive older orders for long-term storage. Finally, a layer of security is needed to restrict access to personal data as much as possible and only allow authorized personnel to manipulate it.

These features will be implemented in the application by enlarging the database schema to include other data such as payments, clients, and employees. Business logic will be added to allow for the archiving of orders. Finally, to achieve information security, separate employee and administrative accounts will be created. Access to the web application will be secured by a login page that includes a mandatory two-factor authentication.

Usability Guidelines

For the design of our user interface and user experience, we decided to follow 10 usability guidelines. These guidelines helped ensure that the UI/UX stays consistent from page to page, and that the users and employees have an easy time using the application. This is important because the application aims to streamline the company's order tracking operations and not slow it down.

1. SIMPLICITY AND AESTHETIC INTEGRITY

Our website has a simple and aesthetic design. This makes it pleasant for the user to use our website because the interface looks well-made, which makes the user confident about the solution. The aesthetic integrity, or aesthetic consistency, ensures that the user knows what to expect when navigating from one page to another⁵.

We implemented this guideline through the modern look and feel of our application. We developed a color palette and reusable component designs to ensure that every page keeps a consistent look.

2. FORGIVENESS

Most actions that a user can do in our application can easily be reversed or stopped midway. This principle is called forgiveness. When a user is about to take an important action, like deleting an order or modifying order information, it is necessary to implement functionalities that will help the user in case they commit an error⁶.

⁵12 Important Usability Principles. (2022, November 10). UxDT. Retrieved April 7, 2025,

from <https://www.uxdt.nic.in/12-important-usability-principles/>

⁵

⁶12 Important Usability Principles. (2022, November 10). UxDT. Retrieved April 7, 2025,

from <https://www.uxdt.nic.in/12-important-usability-principles/>

We took into consideration this guideline when we added confirmation popups to actions. For example, when a user wishes to add a new order, a confirmation popup will prompt the user to decide whether they really want to add the order or if they wish to cancel, change some order information, and then add the order. We implemented the same functionalities for deleting or updating orders and employees.

3. THE BROWSING EXPERIENCE BEGINS WITH THE HOMEPAGE

The homepage is the first page the user will land on after logging in. That is why it is crucial for this page to be well designed. It must show all the main actions or pages that the user can do or navigate to. The design must be intuitive and pleasant to use⁷.

We followed this guideline when we designed our homepage. We did so by adding a sidebar to the left of the screen which shows the main sections of the web application. This is a good choice because the sidebar provides a clear repertoire of user actions. It is also convenient for the user as it allows him to expand or shrink the sidebar when needed, thus letting the user control how much space this bar will take up on the screen. Finally, to ease access to relevant orders, we added a recently viewed section and a next seven-day section to the main section of the homepage. This allows the user to get right back to working with the most relevant orders after having left the page or logged in from another device. The next seven-day section also helps the user know what orders should be completed first, which can help reduce delays.

4. CAREFULLY PLAN FORMS

Because we are developing an order tracking web application, we have added many forms for the employees to add orders, order information, client information, etc. However, filling up forms is a very tedious process which can take a lot of time. That is why it is important that forms only contain fields that are required⁸.

⁷ *The Best Practices and Key Principles of UX Design*. (n.d.). Baymard. Retrieved April 3, 2025, from <https://baymard.com/learn/ux-design-principles>

⁸ *The Best Practices and Key Principles of UX Design*. (n.d.). Baymard. Retrieved April 3, 2025, from <https://baymard.com/learn/ux-design-principles>

In our order tracking system, an order contains a lot of information. So, we decided to separate the form into smaller sub forms that categorize fields. For example, since a form contains order information, product information, payment information, and client information, we have four different forms for client, order, product, and payment. This makes it more pleasant to fill in forms. We also have different types of field inputs such as text inputs, images inputs, and drop-down lists which facilitate the process.

5. USE FILTERS TO IMPROVE PRODUCT LISTING UX

Our order tracking application features an order, client, employee, and payment listing functions. Those are necessary because the whole goal of the application is to allow employees to see and manage their orders. However, simply listing orders in any order is not a good design choice. Instead, applications should allow the users to select filters to find orders they are interested in⁹.

In our application, we allow users to sort items in a list using a variety of filters. For example, orders can be sorted by the client's name or order ID. They can also be filtered by the estimated date of installation so that an employee can look at orders that need to be taken care of the fastest. Another option allows employees to sort by the status of the order. For example, if an employee wants to see which orders are in fabrication, they can select this status and see those orders.

6. INTERNATIONALIZATION AND LOCALIZATION

Since the web application will be used mainly by clients living in the Montreal region, it is important that they can use the application in either French or English. That is why our application will implement the internationalization and localization principles which dictate that the application must be developed to accommodate various languages¹⁰.

The client pages will include a button that will change the language of the interface from English to French or vice versa. However, the employee pages of the application may

⁹ *The Best Practices and Key Principles of UX Design*. (n.d.). Baymard. Retrieved April 3, 2025, from <https://baymard.com/learn/ux-design-principles>

¹⁰ Wijekoon, C. (2023, November 15). *UI/UX Standards*. Medium.

<https://medium.com/@chathuswijekoonuom/ui-ux-standards-ddb4ad898ccc>

not necessarily implement i18n and l10n because the company internally operates in English.

7. RESPONSIVE DESIGN

Websites can be accessed from a variety of devices of varying screen sizes. Therefore, it is crucial to ensure that our order tracking application displays properly on a wide range of sizes. This means making the web pages responsive. This will increase user satisfaction as they will have a pleasant experience regardless of the device from which they are accessing the website¹¹.

In our order tracking application, we will utilize a variety of methods to ensure a responsive design. For example, font sizes will scale according to the size of the user's screen. For side panels or views, they will be hidden to maximize the size of the main screen. When a button is clicked, like a burger button, the side panels will slide into position thus giving access to all the app's functionalities.

8. EFFICIENT NAVIGATION

Our order tracking application is only effective if the user is able to efficiently navigate from page to page. That is why the navigation must be clearly organized and grouped. That will allow the user to easily access related actions. The structure and flow of the navigation is also important. That will allow the user to make an action, and then can make a subsequent, related action to the previous one¹².

In our application, we implemented this guideline when designing the view order pages. In fact, on the view order page, when an order is selected, subsequent actions are displayed. You can view client, employee, or payment information. You can also edit the order itself.

9. FEEDBACK

¹¹ Wijekoon, C. (2023, November 15). *UI/UX Standards*. Medium.

<https://medium.com/@chathuswijekoonuom/ui-ux-standards-ddb4ad898ccc>

¹² Wijekoon, C. (2023, November 15). *UI/UX Standards*. Medium.

<https://medium.com/@chathuswijekoonuom/ui-ux-standards-ddb4ad898ccc>

In any application, whether web, desktop or mobile, users enjoy receiving feedback after an action is taken. For example, when a user logs in successfully, they enjoy seeing a green success banner as that lets them know what is going on. Therefore, feedback for various kinds of events is important¹³.

We implemented this design guideline in our order tracking web application by adding popup banners when an employee creates, updates, or deletes orders. We also added this feature when an employee logs in successfully or unsuccessfully. Certain error messages are implemented using this design guideline

10. ERROR HANDLING

Any application will contain bugs. This is an inevitable reality of building software. Although there is no way to know whether all bugs have been fixed, errors can be handled. To make the user experience more pleasant, when an error occurs, the application would preferably be able to handle the error gracefully and notify the user instead of crashing¹⁴.

We implemented this guideline in our application in the case of HTTP related errors. For example, if an unknown resource is being accessed, a custom 404 not found page will be displayed to the user indicating that the page they are trying to access does not exist. For other types of errors, custom pages can be created, or popup messages can be displayed.

¹³ Wijekoon, C. (2023, November 15). *UI/UX Standards*. Medium.

<https://medium.com/@chathuswijekoonuom/ui-ux-standards-ddb4ad898ccc>

¹⁴ Wijekoon, C. (2023, November 15). *UI/UX Standards*. Medium.

<https://medium.com/@chathuswijekoonuom/ui-ux-standards-ddb4ad898ccc>

Client Prototype UI

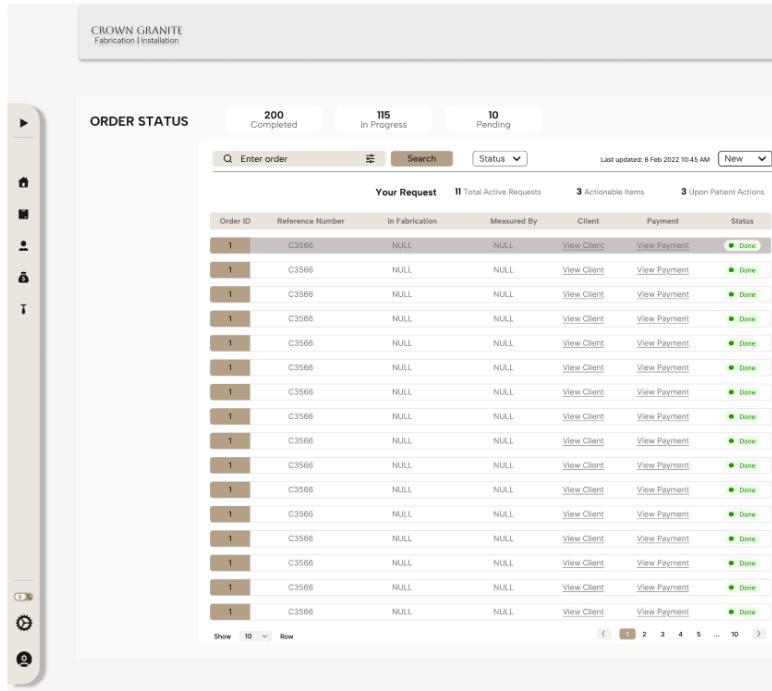
Computer Developed User Interface

The user interfaces were developed using Figma. All the pages of the web application can be viewed here:

<https://www.figma.com/design/sWlUYjnRNpZ4sPpJwRlWHc/OrderTracking?node-id=0-1&t=B6GStBDk8MAIpSKq-1>

Here are a few screenshots of the pages developed:

View order page:



The screenshot shows the 'ORDER STATUS' section of the application. At the top, it displays counts for 'Completed' (200), 'In Progress' (115), and 'Pending' (10). Below this is a search bar with a placeholder 'Enter order' and a 'Search' button. To the right of the search bar are 'Status' and 'New' dropdown menus. A message 'Last updated: 8 Feb 2022 10:45 AM' is shown. The main area contains a table with 15 rows, each representing an order. The columns are: Order ID, Reference Number, In Fabrication, Measured By, Client, Payment, and Status. The 'Status' column for all rows shows a green circle with a white dot and the word 'Done'. The 'In Fabrication' column shows 'NULL' for all rows.

VIEWING ORDER DETAILS

ORDER ID	0001
Client and Employee Information	
Client	Nathan Smith
Measured Made By	MJ
Order Details	
Reference Number	Null
Invoice Number	Null
Status	Null
Order Progress	
Plan is Ready	Null
In Fabrication	Null
Order Completed	Null
Timeline and Dates	
Fabrication Start Date	Null
Estimate Installation/Pickup Date	Null
Financial Information	
Price	Null
Taxes	Null
More	View Payments

[Edit](#)

Update order page:

CROWN GRANITE
Fabrication | Installation

EN Log out

Client Order Product Payment

Order ID: 0001 Client ID: 2424

Edit Client Information

Measured By	Job Number	Invoice ID
Null	Null	Select
Square Footage	In Fabrication	Job Completed
Null	Select	Select
Schedules		
Fabrication Start Date	Estimated Installation Date	Installation/Pickup Date
Null	Null	Null

Delete Order Save Cancel

Client track order status page:

CROWN GRANITE
Fabrication | Installation

EN

CROWN GRANITE
Fabrication | Installation

ORDER TRACKING

Please enter your reference number to track your order status. If you need help finding it, check your confirmation email or contact our support team.

Order ID
Reference Number

Track Order

Client view order status page:

CROWN GRANITE
Fabrication | Installation

EN

Client ID: 2424
Shipment Tracking Number: 23124JAS34

Order Details

Client Name: John Doe	Order Number: 7N3A12JJ3
Shipping Address: Null	Date Ordered: Aug 27, 2020
Email Address: John.Doe@granite.com	Contact Number: Null

[Print Receipt](#)

Order Status

Order Status: Installed

Phase 1 Phase 2 Phase 3 **Installed**

Product Details

Size: 50 x 40	Color: Ashen Gray
Slab Width: 2cm	Sink: null
Material Name: Granite	Finishing: null

[View Status Timeline](#)

Order Total

Payment	\$000.00
Payment	\$000.00
Installation	\$000.00
Other	\$000.00
Subtotal	\$000.00
Taxes	\$000.00
Total	\$000.00

Contact Us

SEND US A MESSAGE

Name Email
 Subject
 Message:

[Send](#)

Our Contact Details

Address
 Store Location (Fabrication)
 2091 Ave Charter, Donet, DC, H9P9H3

Contact Details
 Phone Number: (314) 538-4343
 Email Address: Info@crowngranite.ca

Search payment page:

Description of the Interaction

The interaction with our client was straightforward. We started by developing a few main pages of the user interface. We also decided to develop a few variations of the same user

interface, but with certain key changes like the addition of a side bar, or a side window for displaying order information. The design was also slightly different across each version.

Then, we showed the different version of the same interface to the client. We asked him to pick the version he liked the most. He picked two versions that contained one specific design choice he really enjoyed. It was the side window that displays order information when an order is selected.

Since we personally preferred another version of the interface, we proposed to add the side window to the version we preferred. The client agreed, we added the side window, and we showed him again. The client liked our new version more than what he had initially picked.

Throughout the design process, we sent screenshots to keep our client updated on the way the interface looks. The client was satisfied with our work.

Comments on Computer Developed Interface

The client said that he really liked the user interface. He found it very visually appealing and clean. He believed that it looked professional and polished. He really liked the side window that displays order information and requested it be present in the final design.

Description of the User Interface Changes

The first versions of the user interface did not include a side window that displays the order information. Since the client really liked that feature, we added it to the design of the subsequent versions of the interface. In the initial versions of the search orders page, every row contained most of the data stored for an order. However, we realized that adding all of the fields would make the UI cluttered as there will be a lot of information on the screen. Therefore, we decided to remove many unnecessary fields. For example, we removed the tax field as it is not something that is particularly useful to clients when searching for an order. In addition, at the beginning of the design process, we had two different fonts. One was used by Lydia and the other by Alexandru. However, because that violates the consistency design guideline, we decided to opt for one font only. We chose Lydia's font and applied to all text. Another design aspect that changed a few times is the left side bar. We had two of them, one by Lydia, and the other by Alex. Lydia's sidebar looked more consistent with the overall design of the interface. However, the icons representing the different actions an employee can do weren't relevant to the functionalities that we would offer. Therefore, we decided to pick Alex's side bar, but adapt its design so that it looks more consistent with the overall look and feel of the application.

Prototype Changes

In the Order pages (for clients only):

There were 8 prototypes in total initially. The client liked prototype 3 and 5. But then he added that he wants an order panel that shows the order info, and it should be on the side right of the screen. In the first version of 3 and 5, there wasn't a side bar, so he asked for one. Then we showed him 6 options in version 3, and he chose 1 and 5.

Appendices

Appendix 1 – Revised User Stories and Tests:

Deleted User Stories:

After reviewing the requirements of the web application, three user stories will be deleted. These user stories concern the creation and deletion of clients in the client table of the database. These user stories are: “**As an employee I want to create clients, so that I can keep track of the information of new clients,**” “**As an admin I want to create client information to the client information table, so that we can keep track of new clients or recurring clients,**” and “**As an admin I want to delete client information, so that if a client cancels a contract with us we can remove them.**”

These user stories will be removed because of two reasons. First, a client must always be associated with an order. It is pointless to store a client that has never placed an order. In addition, the database schema itself does not allow a client to possess no orders. This is why the create client user story will be removed. Instead of creating clients directly, the client record is created when the order form is filled out by the employee. Second, because every order references a client to know which client placed what order, deleting a client directly would break this reference and lead to incomplete data regarding orders. Instead, when an order referencing a client is deleted, if the client has not placed other orders, the client will be safely deleted.

Updated User Stories:

The user stories concerning searching for payment records will be updated to indicate that payments should be searched based on payments made by a client or payments associated with an order. These user stories are: “**As an admin I want to read payment information, so that I can get the information from it in case I ever need it,**” “**As an employee I want to search (read) payment information using keywords, so that I can find the payment information for the right job.**”

Title: Search Payment
User Story: <u>As an Employee</u>
<u>I want to read payment information based on a client or an order</u>

So that I can see the payments for a client or check if an order was paid for completely.

Gherkin Syntax: Search Payment

Feature: Search payment

Scenario for employee searching for a payment

Scenario: Employee searches for a payment

Given an employee is on the search payment page

When the employee enters his search keywords in the client or order text field

And the employee clicks on the search button

Then the list of payments matching the search query should be displayed

Title: Search Payment

User Story:

As an Admin

I want to read payment information based on a client or an order

So that I can see the payments for a client or check if an order was paid for completely.

Gherkin Syntax: Search Payment

Feature: Search payment

Scenario for admin searching for a payment

Scenario: Admin searches for a payment

Given an admin is on the search payment page

When the admin enters his search keywords in the client or order text field

And the admin clicks on the search button

Then the list of payments matching the search query should be displayed

The user story regarding the deletion of employees which is meant to delete employee accounts will be updated so that it reads as deleting employee accounts to

remove an employee's access to the web application. This user story is the “**As an admin I want to delete the employees, so that I don't have any unnecessary accounts.**”

Title: Delete Employee Account**User Story:**

As an Admin

I want to delete an employee's account

So that I can restrict employee access to the web application and the data it contains.

Gherkin Syntax: Delete Employee Account

Feature: Delete employee account

Scenario for admin deleting an employee account

Scenario: Admin deletes employee account

Given an admin is on the view employee page

When the admin clicks on the delete employee account button

Then a confirmation popup should appear.

Scenario for admin confirming the deletion of an employee account

Scenario: Admin confirms employee account deletion

Given an employee is prompted to confirm the deletion of an employee account

When the admin clicks on the confirm button

Then the employee's account should be deleted

And the employee should no longer be able to manage orders via the web application.

Added User Stories:

A first user story will be added to describe the action of an administrator creating an employee account. This is complementary to the creation of an employee. All employees are present in the system. However, only certain employees chosen by the administrator will have an account that will allow them to access the web application, and the data stored in the database.

Title: Create Employee Account**User Story:**

As an Admin

I want to create an employee account

So that I can give an employee the ability to manage orders.

Gherkin Syntax: Create Employee Account

Feature: Create employee account

Scenario for admin creating an employee account

Scenario: Admin creates an employee account

Given an admin is on the view employee page

When the admin clicks on the create employee account button

Then a popup should appear prompting the employee to enter a
provisionary password for the account.

Scenario for admin successfully adding a temporary password to the account

Scenario: Admin successfully adding a temporary password to the account

Given the admin is prompted to enter a temporary password for the
Account

When the admin enters the password in the password field

And the admin confirms the password in the confirm password field

And the two passwords entered match

And the admin clicks on the create account button

Then an employee account should be created

And the employee should be able to login and use the web application

A second user story will be added to describe the action of an administrator deleting an employee, which will correspond to indicating that an employee has left the company. This will allow the administrator to filter out unwanted employee data.

Title: Delete Employee

User Story:

As an Admin

I want to delete an employee

So that I can remove employees that no longer work for the company.

Gherkin Syntax: Delete Employee

Feature: Delete Employee

Scenario for an admin deleting an employee

Scenario: Admin deletes an employee

Given an admin is on the view employee page

When the admin clicks on the delete employee button

Then a confirmation popup should appear requesting confirmation

Scenario for an admin confirming the deletion of an employee

Scenario: Admin confirms employee deletion

Given an admin is prompted to confirm the deletion of an employee

When the admin clicks on the confirmation button

Then the employee should be deleted

And the employee should no longer be able to access the application

And any current sessions established with the employee should be ended.

Appendix 2 – Revised Story Map:

We separated the epics based on tables and purpose.

Login System	Orders Table	Clients Table	Payments Table	Employees Table	Client Order Tracking
As an employee I want to be able to enter my login information & 2FA so that I can view our current orders [OT-1]	As an employee I want to create orders, so that I can keep all orders and their information saved [OT-8]	As an admin I want to update client information, so that if a client changes contact information it will be up to date. [OT-39]	As an Employee, I want to read payment information based on a client or an order so that I can see the payments for a client or check if an order was paid for completely. [OT-22]	As an admin I want to create employees, so that we keep track of new employees. [OT-15]	As a client I want to be able to change the website's language, so that I can understand their products and advertisement [OT-18]
As an employee I want to be able to reset my password so that I can log back into my account [OT-3]	As an employee I want to update orders, so that I can keep all fields related to that order updated with the most recent data. [OT-6]	As an admin I want to read client information, so that I can always use the client's contact information if need be. [OT-40]	As an employee I want to create payment information attached to an order, so that I can track their payment history and confirm the fabrication and installation steps [OT-9]	As an admin I want to read employee account information, so that I may always have access to their information in case I need to contact them. [OT-31]	As a client I want to be able to track my order, so that I can estimate the date of the product installation [OT-19]
As an admin I want to login to the website, so that I can view our current orders [OT-13]	As an employee I want to search (read) orders using keywords, so that I can find all the information related to that order [OT-5]	As an employee I want to update the client table, so that their contact information is always correct. [OT-27]	As an employee I want to update payment information, so that the information can always be up to date and correct. [OT-10]	As an admin I want to set an employee as an admin, so that he can have admin privileges. [OT-35]	
As an admin I want to reset my password, so that I can log back into my account [OT-14]	As an admin I want to create orders to the orders table, so that I can add new orders to keep track of their information. [OT-32]	As an employee I want to search (read) clients using keywords, so I can find their contact information. [OT-28]	As an admin I want to delete payment information, so that I can remove information if an order is cancelled. [OT-42]	As an admin I want to delete an employee's account so that I can restrict employee access to the web application and the data it contains. [OT-29]	
	As an admin I want to delete cancelled orders, so that I keep the order records accurate [OT-16]		As an admin I want to create payment information to the payment information table, so that I can keep track of the payments. [OT-41]	As an admin I want to update the employees, so that their information is always up to date and I can contact them. [OT-30]	
	As an admin I want to update orders, so that their information is correct in case we need to provide the client with any information. [OT-33]		As an admin I want to update payment information, so that I can make sure the information is up to date in case any changes were made. [OT-43]	As an Admin, I want to create an employee account so that I can give an employee the ability to manage orders. [OT-48]	
	As an admin I want to read orders, so that I can always check an order's information in case something comes up. [OT-34]		As an Admin, I want to read payment information based on a client or an order so that I can see the payments for a client or check if an order was paid for completely. [OT-44]	As an Admin, I want to delete an employee so that I can remove employees that no longer work for the company. [OT-49]	
	As an admin I want to restrict updates (archive) to orders that are completed , so that no further modifications can be made. [OT-21]				

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DELIVERABLE 5

Orange Team

Team Leader

&

Scrum master:

Danat Ali Muradov

Minute Taker:

Lydia Ayala Hernandez

Main point of contact:

Danat Ali Muradov

SIGNATURES

We certify that this assignment is our own work

I, **Alexandru Circlan, student ID #6235277**, certify that I have contributed to this deliverable, A-C

I, **Danat Ali Muradov, student ID #2357647**, certify that I have contributed to this deliverable, D-A-M

I, **Ibrahim Abdel Monem El Zeftawy, student ID #6257643**, certify that I have contributed to this deliverable, I-A-M-E-Z

I, **Lydia Ayala Hernandez, student ID #2264230**, certify that I have contributed to this deliverable, L-A-H

Executive Overview

Crown Granite is a Montreal company that sells, cuts, and installs granite and marble. Right now, they keep track of orders, clients, payments, and employees using multiple Excel files. This way of doing things causes a lot of problems like data being repeated, mistakes in the information, and difficulty finding or updating things. It also makes it hard to keep everything organized as the business grows.

We will be creating a proper database system that puts all the important info in one place. Instead of separate spreadsheets, everything will be connected in one system: clients, orders, employees, and payments. The system includes different access levels for employees and admins so only certain people can see or edit sensitive info. It's also built to be fast and easy to search by using smart database techniques like indexing and limiting the number of rows shown.

To make the database clean and efficient, we followed the normalization process. We started by identifying the business problems and understanding what kind of data is being used. Then, we split the tables step by step to remove repeated data and make sure everything depends only on the right key. For example, addresses are now stored in a separate table so that they aren't repeated for every employee or client. We also made it so that clients and employees aren't deleted directly to avoid breaking important links in the system.

By organizing the database properly, the system is easier to manage, less likely to have mistakes, and works better as more data is added. Later on, we also plan to add login security with two-factor authentication and activity tracking to protect important information.

Business Problem

The business challenge faced by Crown Granite has largely remained unchanged since the start of our discussions. The core issue stems from the inefficiencies in their current approach to managing and tracking orders. They rely on numerous Excel spreadsheets to keep track of orders, clients, and payments, which introduces significant limitations to their operational workflow.

This is an inefficient way of tracking orders because relying on Excel spreadsheets for order management creates a fragile ecosystem where human errors can easily slip through. Without automated checks in place, inaccuracies like duplicate entries, and many more can lead to data inconsistencies since no data validation operations are executed on the input information, leaving the team to manually identify and resolve these issues, which is a time-consuming and frustrating process.

In addition, it can be quite troublesome to synchronize Excel files across multiple devices just as it is done right now. Furthermore, additional functionalities are impossible using this tracking order system. Complex search queries cannot be performed on the data. Other features like order tracking also cannot exist due to the nature of the spreadsheets.

Switching to our tailored management system could resolve many of these issues. It would not only ensure data consistency and streamline collaboration across devices but also enable advanced features. This transformation would be instrumental in optimizing operations and supporting Crown Granite's growth trajectory.

Narrative Description of the Database Design

System Actors and Management Overview

There are two types of actors who will interact with the system: administrators and employees. While certain actions, such as updating or deleting specific records, may be available to both actors, sensitive operations will be reserved for administrators to ensure the privacy and security of essential information.

Employees are required to maintain records of clients who purchase their products. These records must include the client's personal information, product details and payment information. Administrators will also have the capability to log client, order, product and payment data

Additionally, the company must manage and maintain records of their employees, including their personal information. However, to protect employee privacy and maintain data security, access to employee records will be restricted exclusively to administrators. This includes the ability to create, update and delete employee records.

Employees will be able to change their passwords independently, however, to ensure the integrity of their employee information (phone number, department, addresses, government name, etc.), employees must submit a modification request. These requests will be reviewed and processed by the administrator, since they have the ability to modify employee data.

Database interaction

Employee: Employee actors will have access to read, update, and delete orders from the Order database. However, if a related payment record exists, the ability to delete the associated order will be omitted. Additionally, employees can view, update, and delete payment records from the Payment database. They also have the right to view, update, and delete clients from the Client database, however, if a related order exists in the Order database, the option to delete the client will be disabled. Lastly, employees will not have permission to view, update, or delete employee records from the Employee table. The only employee modification they are allowed to do is to change their password.

Administrator: As mentioned above, administrators will have similar abilities as the employees, nevertheless, they also possess additional responsibilities, such as viewing, updating, and deleting employee data from the Employee database. Past employee information should be stored in the system for a certain period for any security/legal reasons.

In addition, administrators are responsible for handling modification requests submitted by employees who wish to change information regarding their account or other personal data.

Records Overview

When creating a new client record, the employee or administrator must enter the client's full name, phone number, and address. Additional information, such as client references, may be added in the future.

When creating a new order record, the employee or administrator must provide the total amount of the order, fabrication details, installation dates, and a reference to the client associated with the order. Additional information, such as order status, reference numbers, and additional dates will be implemented at a later stage.

When creating a new product record, the employee or administrator must enter the product dimensions, a product description, and a reference to the order associated with the product.

When creating a new employee record, the administrator must enter the employee's full name, position, personal information, title, and a reference to the address related to the current order being implemented.

Employees and administrators will be able to view the most recent activities performed within the system, along with the employee associated with each activity.

Appendices

Appendix 1 – Data Dictionary:

Table 1: Data Dictionary of the Address table

Field Name	Data Type	Data Format	Field Size	Description	Example
address_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all addresses.	3
street_name	VARCHAR	TEXT	75 characters	The street name of the address.	Rue Jean-Talon
appartment_number	VARCHAR	TEXT	15 characters	The apartment number of the address, if applicable.	3345
postal_code	VARCHAR	CNC NCN	10 characters	The postal code of the address.	J8R 2T9
area	VARCHAR	TEXT	50 characters	The city or area where the address is located	Laval

Table 2: Data Dictionary of the Client table

Field Name	Data Type	Data Format	Field Size	Description	Example
client_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all clients.	3
first_name	VARCHAR	TEXT	50 characters	The first name of the client.	Paul
last_name	VARCHAR	TEXT	50 characters	The last name of the client.	Jenkins
client_reference	VARCHAR	TEXT	100 characters	A reference string that	ZHF B123

				helps identify the client.	
phone_number	VARCHAR	+N (NNN) NNN-NNNN	25 characters	The phone number of the client.	+1 (514) 763-9933
address_id	INTEGER	N...	Integer from 1 to 2147483647	The address ID of the address where the client resides.	2

Table 3: Data Dictionary of the Employee table

Field Name	Data Type	Data Format	Field Size	Description	Example
employee_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all employees.	3
initials	VARCHAR	TEXT	10 characters	The initials of the employee.	P.JK.
first_name	VARCHAR	TEXT	50 characters	The first name of the employee.	Paul
last_name	VARCHAR	TEXT	50 characters	The last name of the employee.	Jenkins
position	VARCHAR	TEXT	25 characters	The job position of the employee.	Stone mason
phone_number	VARCHAR	+N (NNN) NNN-NNNN	25 characters	The phone number of the employee.	+1 (514) 763-9933
email	VARCHAR	TEXT	75 characters	The email of the employee.	Paul.jenkins@gmail.com
is_admin	BOOLEAN	True/False	1 byte	Field indicating	True

				whether the employee is an admin or not.	
has_set_up_2fa	BOOLEAN	True/False	1 byte	Field indicating whether the employee has set up two-factor authentication.	False
password_hash	VARCHAR	TEXT	500 characters	The hashed password of the employee.	Random characters.
secret	VARCHAR	TEXT	500 characters	The TOTP secret used for generating two-factor authentication codes.	Random characters.
address_id	INTEGER	N...	Integer from 1 to 2147483647	The address ID of the address where the employee resides.	2

Table 4: Data Dictionary of the Order table

Field Name	Data Type	Data Format	Field Size	Description	Example
order_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all orders.	3
reference_number	VARCHAR	TEXT	100 characters	The order tracking number.	ORD-1-1-U1AS
price	DECIMAL	NNNNNNN N.NN	Precision: 10 Scale: 2	The total price of the order	675.50

				including taxes.	
status	VARCHAR	TEXT	25 characters	The current processing status of the order.	FABRICATING
invoice_number	VARCHAR	TEXT	100 characters	The number of the invoice of this order.	SO827
creation_date	DateTime	YYYY-MM-DD hh:mm:ss	Date and Time from 1000-01-01 00:00:00 to 9999-12-31 23:59:59	The date and time when the order was created.	2021-03-27 13:55:34
fabrication_start_date	Date	YYYY-MM-DD	Date from 1000-01-01 to 9999-12-31	The date when the order started being fabricated.	2021-03-27
estimated_install_date	Date	YYYY-MM-DD	Date from 1000-01-01 to 9999-12-31	The date when order is estimated to be installed	2021-03-27
order_completed_date	Date	YYYY-MM-DD	Date from 1000-01-01 to 9999-12-31	The date when the order was completed.	2021-03-27
client_id	INTEGER	N...	Integer from 1 to 2147483647	The client ID of the client that placed the order.	3
measured_by	INTEGER	N...	Integer from 1 to 2147483647	The employee ID of the employee that took the order's measurements.	3

Table 5: Data Dictionary of the Product table

Field Name	Data Type	Data Format	Field Size	Description	Example
order_id	INTEGER	N...	Integer from 1 to 2147483647	The primary key of the table and the order ID of the order the product is fulfilling.	3
material_name	VARCHAR	TEXT	100 characters	The name of the countertop material.	Marble
slab_height	DECIMAL	NNNNNN.N N	Precision: 8 Scale: 2	The height of the slab to order.	127
slab_width	DECIMAL	NNNNNN.N N	Precision: 8 Scale: 2	The width of the slab to order.	87
slab_thickness	DECIMAL	NNN.NN	Precision: 5 Scale: 2	The thickness of the slab to order.	3
slab_square_footage	DECIMAL	NNNNNN.N N	Precision: 8 Scale: 2	The square footage of the slab.	11 049
plan_image_path	VARCHAR	TEXT	75 characters	The path to the file that contains the image of the fabrication plan.	/app/plan_images/image_12_34.jpg
sink_type	VARCHAR	TEXT	100 characters	The name of the sink's model.	Kitchen sink n56
product_description	TEXT	TEXT	N characters where N < 65 536 characters	The description of the product.	Marble countertop with kitchen sink n56.
product_notes	TEXT	TEXT	N characters where N < 65	The notes added by	This order must be

			536 characters	employees for additional order information.	prioritized before all others.
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Table 6: Data Dictionary of the Payment table

Field Name	Data Type	Data Format	Field Size	Description	Example
payment_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all payments.	3
amount	DECIMAL	NNNNNNN N.NN	Precision: 10 Scale: 2	The amount paid by the payment.	345.00
type	VARCHAR	DEPOSIT/IN STALLMENT	50 characters	The type of payment made. Could be deposit or installment.	DEPOSIT
method	VARCHAR	TEXT	50 characters	The payment method used.	CREDIT
payment_date	DATE	YYYY-MM- DD	Date from 1000-01-01 to 9999-12-31	The date when the payment was made.	2021-03-27
order_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all payments.	3

Table 7: Data Dictionary of the Activity table

Field Name	Data Type	Data Format	Field Size	Description	Example
activity_id	INTEGER	N...	Integer from 1 to 2147483647	Unique ID for all activities.	3

activity_type	VARCHAR	VIEWED/EDITED	6 characters	The type of activity done. Either VIEWED or EDITED.	VIEWED
log_date	DATE	YYYY-MM-DD	Date from 1000-01-01 to 9999-12-31	The date when the activity was done.	2021-04-04
order_id	INTEGER	N...	Integer from 1 to 2147483647	The order ID of the order viewed or edited.	3
employee_id	INTEGER	N...	Integer from 1 to 2147483647	The employee ID of the employee that did the activity.	3

Appendix 2 – ER Diagram and Differences with Class Diagram:

Resemblance:

- They both use rectangle boxes to contain data
- They can both represent relations like one to many, many to many, etc . Class diagram uses composition, association and multiplicity and the ERD uses cardinality

Difference:

- ERD and class diagram can feel kind of similar from the first look, but they are very different. Their purpose is different too: ERD focuses on data modeling and the structure of a database, while class diagram models the blueprint of a system by describing the classes, attributes, methods, and relationships.
- ERD cannot properly represent OOP and especially inheritance (because you need to merge all together in one) that is in class diagram
- Stuff like abstract, enum, and interfaces cannot be put in ERD

Appendix 3A– Description of Query Optimization:

Optimization by Indexing:

The most common queries concerning order management we will be executing in our order tracking system are fetching orders ordered by the order status, searching orders by area, name, order ID or Client ID. We will also apply filtered operations such as filtering by status. For ordering, we will order in ascending or descending order. These queries are like the ones we have for employee management. We will be executing queries to search for employees by ID, name or position. For clients, it will be by ID or name.

Because these queries are simple in themselves, but require processing the values of the same columns, letting the database management system organize the data in the columns in an efficient manner is crucial to speed up the queries. That is why we decided to create many indexes for our tables.

To efficiently fetch orders:

A full-text index will be created on the area column.

To efficiently fetch clients:

A full-text index will be created on the first_name and last_name columns.

To efficiently fetch employees:

A full-text index will be created on the first_name, last_name, and position columns.

To efficiently fetch activities:

A simple index will be created on the log_date column.

To efficiently fetch payments:

A simple index will be created on the date column.

SQL Syntax to search by fields:

To utilize the full-text indexes provided by MySQL, queries cannot use the LIKE syntax for searching. Instead, the MATCH()... AGAINST()... syntax will be used for searching.

Optimization by Query Construction and Query Reuse:

There are many other methods to optimize the queries that will be used. For example, restricting the number of columns to retrieve in a SELECT statement will reduce the amount of data that needs to be fetched and transmitted back to the server which will speed up the execution of the queries.

Furthermore, limiting the number of rows returned by the database is necessary to ensure that only the strict minimum number of rows needed to continue processing user requests are transmitted. For example, if you want to list all orders, but the browser's window can only display a maximum of 15 records before overflowing, only 15 records should be fetched from the database, and not all of the records in existence.

Moreover, certain queries are executed more often than others. In this example, fetching a listing of all orders ordered by their status will most probably be the query the most used. As a result, the back end will be sending out the same query over and over again. That is why caching commonly used queries can optimize this specific process.

This is why, in our project, we will be using the PHP ORM library, Doctrine. This object relational mapper makes it very easy to implement all of these optimizations. In fact, the library actively uses lazy loading of associations when fetching records. This means that the data in the records are only fetched when they are accessed in the code by the object. The library also comes with pagination as an in-built feature. This means that it is easy to limit the number of records fetched to only those that are necessary. Finally, query caching is automatically managed by Doctrine, meaning that commonly used queries will be reused to speed up common operations.

Appendix 3B – Database Normalization:

Non-Normalized Table:

A table that is not normalized is very hard to use. This is because it contains a lot of data redundancy as well as data inconsistencies. For example, a column could theoretically contain data of various data types. In addition, it could contain lists of data instead of single values. As for data redundancy, the same information could be found in different records making updating and deleting data very difficult.

Here is an example of a non-normalized table for our order tracking system:

Client Name	Material	Dimensions	Employee Name	Payment Amount	Payment method
John	Granite, Marble	10;20	Jack	688	Credit, e-transfer

John	Granite	30;40	Ronald	1099.99	e-transfer
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First Normal Form (1NF):

In first normal form, the table must abide by the following rules:

- 1- Each cell must be single valued.
- 2- Entries in a column must be of the same data type.
- 3- Rows must be uniquely identified by either an identifier value or a combination of columns that, when grouped, act as an identifier.

Here is what the previous table will look like in first normal form:

Order ID	Client Name	Material	Dimensions	Employee Name	Payment Amount	Payment method
1	John	Granite	10,20	Jack	688	Credit
2	John	Marble	25,30	Elizabeth	720	e-transfer
3	John	Granite	30,40	Ronald	1099.99	e-transfer

In this table, all cells are single valued. All entries in each column are also of the same data type. Finally, every row can be uniquely identified using the Order ID as a primary key.

Second Normal Form (2NF):

In second normal form, the table must abide by the following rule:

- 1- All attributes (columns that aren't keys/identifiers) must be dependent on a key.

Here is what the previous table will look like in second normal form:

In these tables, orange columns represent the primary keys, green columns represent the foreign keys, and purple columns represent transitive dependencies.

Order Table

Order ID	Client ID	Employee ID	Material	Dimension
1	1	1	Granite	10,20
2	1	2	Marble	25,30
3	1	3	Granite	30,40

Client Table

Client ID	First Name	Last Name	Street	Apartment Number	Postal Code
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1	John	Doe	777 Nowhere Street	677	K9L 7O7
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Employee Table

Employee ID	First Name	Last Name	Street	Apartment Number	Postal Code
1	Jack	Smith	778 Nowhere Street	677	K9L 7O7
2	Elizabeth	Brown	303 Apple Street	1234	A0K 8H7
3	Ronald	Anderson	876 St-Johns Street	826	R5G M9Q

Payment Table

Payment ID	Client ID	Payment Method	Payment Amount
1	1	Credit	688
2	1	e-transfer	720
3	1	e-transfer	1099.99

In these tables, all non-key attributes are dependent on a key. In fact, all client information is dependent on the client ID, all order information is dependent on the Order ID, etc.

Third Normal Form (3NF):

In third normal form, the following rule must be true for all tables in the database:

- 1- All columns can be determined only by the primary column in the table and no other column.

This means that all transitive dependencies must be eliminated. Transitive dependencies are non-key columns that depend on another non-key column which in turn depends on the primary key.

Here is the result of applying the third normal form:

Client Table

Client ID	First Name	Last Name	Address ID
1	John	Doe	1

Employee Table

Employee ID	First Name	Last Name	Address ID
1	Jack	Smith	2
2	Elizabeth	Brown	3
3	Ronald	Anderson	4

Address Table

Address ID	Street	Apartment Number	Postal Code
1	777 Nowhere Street	677	K9L 7O7
2	778 Nowhere Street	677	K9L 7O7
3	303 Apple Street	1234	A0K 8H7
4	876 St-Johns Street	826	R5G M9Q

In the third normal form, the address transitive dependency is relocated into its own, separate table. This is important because if a client possesses the same address as somebody else, the street, apartment number, and postal code fields will be repeated, thus leading to data redundancy.

References

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DELIVERABLE 6

Orange Team

Team Leader

&

Scrum master:

Lydia Ayala Hernandez

Minute Taker:

Alexandru Cirlan

Main point of contact:

Danat Ali Muradov

SIGNATURES

We certify that this assignment is our own work

I, **Alexandru Circlan, student ID #6235277**, certify that I have contributed to this deliverable, A-C

I, **Danat Ali Muradov, student ID #2357647**, certify that I have contributed to this deliverable, D-A-M

I, **Ibrahim Abdel Monem El Zeftawy, student ID #6257643**, certify that I have contributed to this deliverable, I-A-M-E-Z

I, **Lydia Ayala Hernandez, student ID #2264230**, certify that I have contributed to this deliverable, L-A-H

Executive Overview

Crown Granite is a countertop manufacturing and installation business operating out of Dorval and Mont-Royal. Previously, their operations were managed manually using Google Sheets, which led to inefficiencies, data inconsistencies, and security concerns. To resolve these issues, a tailored web application was developed to replace the spreadsheet-based workflow.

The system supports three user roles: clients, employees, and administrators — each with specific access privileges. Clients can check their order status using a reference number without needing to log in. Employees can access and manage orders, clients, and payments, while administrators have full control, including the ability to manage employee accounts. The application was built using Laravel, MySQL, Doctrine, and plain HTML/CSS/JavaScript, following modern design standards and Figma mockups approved by the client.

Security was a key concern throughout development, with measures like CSRF protection, hashed passwords, and input validation implemented. However, certain advanced features such as rate limiting, HTTPS enforcement, encrypted file storage, employee deletion, and order cancellation were proposed but not yet implemented due to time constraints. Things like blocking too many login attempts and adding more detailed roles are listed as recommendations in the security appendix for future development.

Testing included unit tests and live client feedback, which highlighted strengths in the UI and overall usability, while suggesting improvements in mobile responsiveness and more efficient workflows. While all core features were completed and deployed, some non-critical components (such as employee deletion and order cancellation) remain unfinished and are documented clearly. There is a detailed user guide and a set of user stories that explain the steps users should take on each page, along with a general overview of each page's purpose.

Summary Description of the Client

Our client is Crown Granite, a company that specializes in countertop manufacturing and installation. They have two locations. The Dorval location is a factory where stone masons obtain order information, fabrication plans, and product-specific instructions to cut granite or marble slabs into custom countertops. The Mont-Royal location is a showroom where clients can come into the store, speak with employees about the renovations they would like to do, look at the available materials, and place orders. In addition to offering premium quality countertops, Crown Granite also offers various types of sinks, outdoor and indoor tiles, backsplashes, as well as installation services for each of these products.

Currently, Crown Granite uses a very basic method to keep track of their orders: Google Sheets, an equivalent of Microsoft Excel. Every single order is tracked inside numerous excel sheets. This is problematic because it is very limited in terms of usability, data consistency, and security. First, Google Sheets offers primitive features that are not suitable for the business. If an employee wishes to look up an order, they might need to go through two or even three different files and manually search for an order, which is time consuming. Second, columns in Excel files are not validated. This means that employees can make mistakes when inputting data, and they won't realize that an error was made. The invalid data will stay inside the files until the mistake is found and corrected. Third, security measures are not present. Any employee can accidentally delete a file or modify orders that should not be modified. Any employee can also view any information. This can lead to data loss or data breaches. In addition, Google Sheets cannot allow clients to view the status of their orders. This is problematic because clients are then forced to constantly call the company to find out when they can expect to receive their orders. This wastes the client's time as well as employees' time.

To solve these problems, we developed a web application that keeps track of client orders and allows clients to view the status of their order via an order reference number. The application allows employees to create new orders that contain information about a client, about client payments, and about the product. The system keeps track of the status of the order, which will be useful for clients and employees alike. Additional data about orders such as creation date, estimated installation date, fabrication start date, and order completed date are provided to allow employees to identify which orders they should prioritize. In addition, powerful search and order features are offered to allow employees to easily find the information they are looking for. As for clients, a simple and convenient way

to see the status of their order is implemented. It is a page with a one-field form that asks the user to enter their order tracking number to fetch the status of their order.

Revised Summary Description of the System

The current system allows three types of users to interact with the web application. The three users are clients, employees, and administrators. In short, clients, employees, and administrators. Each type of user can interact with the order data in different ways, where some may have more permissions than others.

Clients: The client is the user that has the most restrictive permissions. Clients are only able to view status and basic information of an order for which they have the reference number. In fact, they do not even have any sort of account which would allow them to log into the web application.

Employees: Employees have a lot of permissions. They are able to view, edit, update, and create orders, clients, and payments. Employees have an account associated with them that has an email and a password which allows them to log into the web application and proceed with day-to-day tasks. Employees cannot view employee data, and they cannot update, nor create employees. Their account can be enabled or disabled at any time by the administrator.

Administrators: Administrators have all the permissions. They can do anything that an employee is able to do such as creating, deleting, updating, and viewing orders, clients, and payments. In addition, administrators can manage employee records. They can create and update new employees, and they can manage employee accounts by enabling or disabling them.

The system uses the relational database MySQL to keep track of all information. The database contains 7 tables which are the payment, order, product, client, address, employee, and activity tables. Every table contains order specific information, except for the activity table which is a table created so that employees can view their own, recent activity.

Client Comments

The client has viewed the development of the project twice throughout this deliverable. Each time, the client has left positive comments on our current progress and expressed satisfaction with the current application.

UI Comments: The first time the client saw the progress of the web application was when the front-end was almost fully developed. The client was able to see the navigation bar and buttons, the order, client, employee, and payment listings, the details side panel, as well as the create and edit forms. The client said the UI looked very good and very professional. He liked the fact that the navigation panel could be opened or closed to expand the main content area. He also liked the fact that order details are neatly displayed on a side panel instead of on a different page. He believed that it would make it easier to find the right order to modify. One constructive criticism he gave was to make the front-end more responsive to changes in screen size or content size. He noticed that the web page would not display on mobile devices, and that visual bugs would be introduced the smaller the screen size got.

Functionality Comments: The second time the client saw the progress of the web application was when the database was fully implemented and when some of the features of the application were implemented. The client could now see actual sample data being loaded from the database for orders, clients, and payments. The client said that the loading of the data was seamless, and that he enjoyed that. However, the client did mention that the workflow for creating new orders seemed a bit awkward. For example, he did not like the fact that you needed to know the ID of the client prior to creating an order. He would have liked to be able to either create the client at the same time as the order or add an order to an existing client.

Design and Implementation

Visual Design:

For the visual design of the web application, we decided to closely follow the Figma mockups we developed. This is because, when we presented the design of our UI to our client, he said that he was really pleased with how it looked. Therefore, we tried to implement the front-end to be as exact as the mockups as possible.

We went with a modern look for this web application. This is because Crown Granite's current website features modern design principles, and because their company focuses on renovating and reviving older architectures, which gives a modern aura to the company. We chose to go with a neutral color palette that is pleasant to the eye without being overly sharp. We also choose to go with UI elements that have rounded corners to enhance the modern look. Finally, we opted for an interface with as little different screens as possible. This makes the UI look well thought through and polished. Furthermore, we included the logo of Crown Granite on the top left corner of every page to give the application a unique look tailored to the company. Moreover, we heavily relied on consistent icons to make the UI more attractive, and to help users properly navigate throughout the application.

In addition, we decided to follow the usability guidelines we defined in the fourth deliverable. For example, we made sure to use a consistent color palette and UI elements on every page of our application. This helps the user navigate the application with confidence. Because the interface is consistent, users know what to expect. Every button has the same styling applied to it, and every major UI component is colored in a way that creates a strong contrast between it and other elements. This makes the interface easily readable.

In short, we chose to go with the mockups we created on Figma because the client really liked them. We chose to go for a modern look to match the company's values. We made sure to use consistent, pleasant, and attractive UI elements to help users use the website.

Software Design:

We made major choices concerning the choice of libraries and tools to use to develop our web application. Those choices shaped the way we worked on the application. It gave us certain advantages and eased the development of the functionalities. However, it also brought their own set of challenges which we had to work through.

Type of application: The very first choice we made was choosing the type of application we would develop. We had the choice between a mobile application, a desktop application using Java or C#, or a web application. We chose to go for a web application because this was the application that was required of us for our Ecommerce course. We also chose it because it allowed our clients to directly access the application without having to download, install, or configure any program. In addition, thanks to the Internet Programming course we had last semester, making good looking websites was a skill that we already possessed.

Database: The choice of database we used was one of the first choices we made. We had the choice of using a local database, a no SQL database such as firebase, or a traditional relational database. We were not sure which database would be the best choice for our use case, so we decided to contact our Ecommerce teacher. He proposed to use MySQL as the relational database. This is because MySQL is straightforward to use, offers many features, is very stable, and it is very performant for small projects. He also noted that in the future, if we decide to host the order tracking application, many hosting providers will come with out-of-the-box support for MySQL.

Backend: To develop our backend, we were required to use PHP for our Ecommerce course. This programming language is used specifically to develop the backend of a website which made it suited for our use case. We also had the choice between implementing everything from scratch or using the full-stack web development library Laravel. We chose to go with Laravel because it took care of a lot of low-level operations that we would normally have to manage if we were to implement everything from scratch.

Database Integration: To integrate the database into our backend, we had the choice between using primitive PHP PDO drivers or using an Object Relational Mapper. We chose to go for Doctrine, an Object Relational Mapper, for a variety of reasons. First, using an ORM means not having to manage raw connections with the database, not having to manage fetching and mapping data, deleting rows, updating rows, nor creating rows. The mapper takes care of everything. The ORM also provides powerful methods to create custom queries efficiently and with as little code as possible.

Frontend: For the frontend of our website, we had the choice between using a frontend library or using normal HTML, CSS, and JavaScript. This time, we decided to go with using plain HTML, CSS, and JavaScript. This is because we already need to learn two different libraries (Doctrine for database and Laravel for backend), and we would not have enough time to learn a third library. We also believed that the amount of HTML, CSS, and JavaScript would be minimal enough and simple enough to not require additional help from a library.

Current Security Measures

Thanks to **Laravel** and **Doctrine**, our web application is protected from a variety of security vulnerabilities.

First, we implemented **authentication** and **authorization**. Only signed in employees and administrators can view, create, update, or delete orders, clients, and payments. In addition, only administrators are allowed to view employee data, create new employees, and manage employee accounts by enabling or disabling them. Furthermore, our authentication process uses **two-factor authentication** for additional robustness. In the case where an attacker guesses an employee's password, they will have to provide a time-based one-time password (**TOTP**) which only the employee knows.

Second, thanks to Laravel's blade templating language used to dynamically generate HTML pages, **cross-site scripting attacks** are completely prevented because injected strings are **automatically sanitized** by the library. This makes it easy to develop HTML pages without having to manually sanitize every single value inserted into the page.

A third protection mechanism we have implemented is **CSRF protection**. Laravel provides easy to use CSRF protection using **tokens** that have to be added to every form.

Fourth, the Doctrine ORM allows you to use **prepared statements** for SQL queries. This protects the application from **SQL injection attacks** since the strings injected are properly escaped as to avoid running arbitrary SQL queries.

Fifth, the last security measure implemented is the **validation of input data**. This is done in two steps in our application. First, Laravel provides a convenient method to **validate incoming data** from forms or from query strings. It allows you to check values against common formats and constraints such as integers, floats, strings, minimum length, maximum length, etc. Then, additional data validation is done according to the **business rules** defined through the requirements gathering step we did with the client earlier during the project.

Having implemented all these security measures means that our application is much harder to hack and much more secure. Using Laravel is a big advantage in this part of the project because it provides so many out-of-the-box security measures that plain PHP applications just do not have.

Future Work

User Interface Improvements:

The main improvement in the user interface is its responsiveness. The current UI works well for desktop computers with large screen sizes. However, it is not very dynamic, and the user interface will glitch out when the screen size gets too small, for example, when using a mobile device like a phone or tablet.

Here is how the website looks like on an iPhone 12:



Consequently, we should make sure that whenever the screen size gets smaller, the font size also scales down. In addition, side panels should be closed by default and opened on command as well as take up the full width and height of the screen. Additionally, the layout should be modified to show the information as compact as possible.

Unimplemented user stories and functions:

In the Orders functionalities, the following stories have not yet been implemented:

As an admin I want to delete cancelled orders, so that I keep the order records accurate

 OT-16

As an admin I want to restrict updates (archive) to orders that are completed, so that no further modifications can be made.

 OT-21

In the Payments functionalities, the following stories have not yet been implemented:

As an admin I want to delete payment information, so that I can remove information if an order is cancelled.

 OT-42

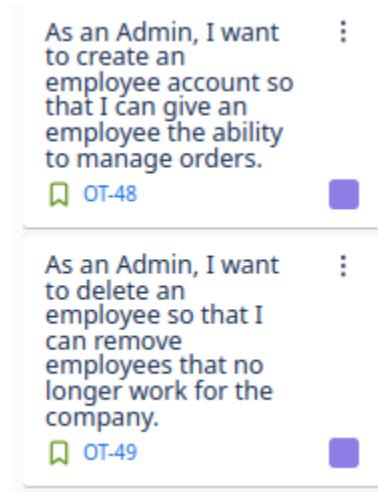
In the Employees functionalities, the following stories have not yet been implemented:

As an admin I want to set an employee as an admin, so that he can have admin privileges.

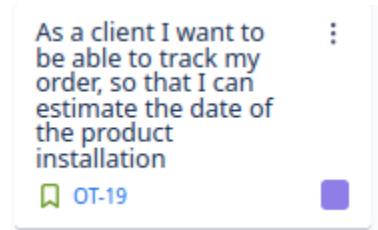
 OT-35

As an Admin, I want to delete an employee's account so that I can restrict employee access to the web application and the data it contains.

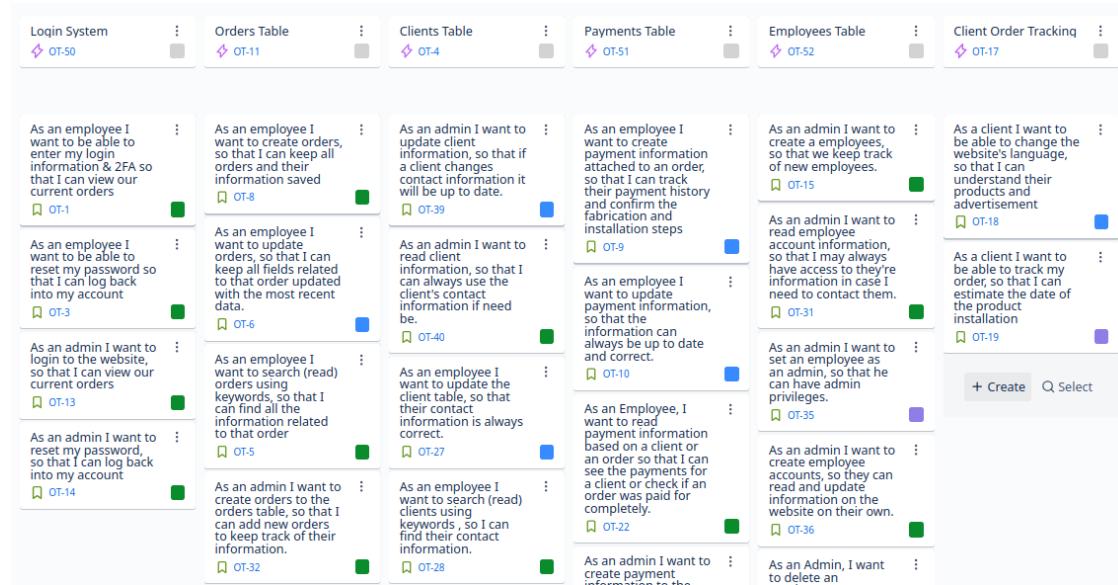
 OT-29



In the Client Order Tracking functionalities, the following stories have not yet been implemented:



Here is the overall completion of the story map:





Recommendations regarding future security measure to be taken:

Although our application already possesses many security measures, there are still an array of them left to be added.

HTTPS: The most important security measure to be implemented next is HTTPS. This makes all communication between the client and server encrypted which avoids third parties from sniffing network packets and viewing the contents of the requests which may contain sensitive information like session cookies, order data, emails and passwords, etc.

Encrypted Storage: Additionally, data stored on our instance of MySQL should be encrypted using strong encryption algorithms. This is so that in the case that the database's contents get leaked, attackers will have a hard time figuring out what information is actually there.

Rate Limiting: Moreover, a specific type of attack can be avoided by implementing rate limiting. This type of attack is brute force attacks. Attackers may try to brute force passwords by sending hundreds of login attempts every second. To avoid this type of attack, Laravel comes with rate limiting functionalities, but those have to be manually implemented.

Recommendations regarding unit and integration test strategies to be used:

Unit testing should be used to thoroughly test every singular method used in the application. This mostly applies to validation methods, Model methods, as well as methods used to fetch,

update, delete, and create data in the database. Unit tests are perfect for that purpose since they can easily check the output of singular methods. Laravel also provides a special unit testing framework which allows testing more complex methods that may be hard to test normally. Methods that return specific HTML can be tested that way. In this project, due to time constraints, minimal unit testing was performed. Around 20 unit tests were performed, mainly concerning database methods.

Integration tests should also be used to verify that when various systems interact with each other, they behave correctly. For example, an integration test can be used to see whether clicking a button on the front end causes the application to send a redirect. In another example, an integration test could check whether submitting a create form will trigger a create statement in the database and successfully create the resource. In this project, due to time constraints, no formal integration tests were created. However, although not ideal, functionalities were manually tested to ensure that they performed appropriately.

Appendices

Appendix 1 – Revised User Interface:

Create order page:

Current:

The current Create Order page is a single-page form divided into several sections:

- Order Details:** Contains fields for Employee ID, Invoice Number, Total Price, and Status (Measuring).
- Date Details:** Contains fields for Fabrication Start Date and Estimated Installation Date.
- Product Details:** Contains four groups of fields for Material Name, Slab Height, Slab Width, and Slab Thickness.
- Client Information:** A sidebar on the right containing sections for Client Details (First Name, Last Name, Address, Phone Number), Contact Details (Reference Number, Phone Number), and Area (Neighborhood).

Mockup:

The revised Create Order mockup features a more organized layout:

- Client Information:** A sidebar on the left containing fields for ClientID, Measured by (initials), Reference Number, Invoice Number, Total price, and Order status (with options like Select, Confirmed ms not ready, Confirmed ms ready, Ready for ms, Picked up, and Installed).
- Product Details:** A central area containing fields for Fabrication_start date, Installation date, Picked_up date, Material name, Slab height, Slab width, Slab square footage, Sink type, and Product Notes.
- Image Area:** A dashed box labeled "Fabrication plan image" with a file upload icon.
- Buttons:** A "Create" button located at the bottom right.

The create order interface was changed from the mockup to make it simpler and easier to use. In fact, the new UI looks less crowded than the mockup, and it features an additional side panel for users to enter client information at the same time as creating orders.

Client details side panel:

Current:

CLIENT DETAILS

Client ID:	1
First Name:	John
Last Name:	Doe
Reference Number:	JD-001
Phone Number:	+1 (555)-123-4567
Address:	Apt 101 Maple Street
Postal Code:	A1B 2C3
Area (Neighborhood):	Downtown

Edit **Add Order**

Mockup:

VIEWING CLIENT DETAILS

CLIENT ID	00001
First name	Null
Last name	Null
Reference number	Null
Phone number	Null
Address	Null
Postal code	Null
City	Null
Province	Null
Area(neighborhood)	Null

Edit

In addition, the client details side panel was modified to include an additional button at the bottom. This button is an add order button and it allows employees to add an order directly to an existing client.²

Appendix 2 – User Guide:

Enter your email and password. Then click on login button to go to next page.

CROWN GRANITE
Fabrication | Installation

Login

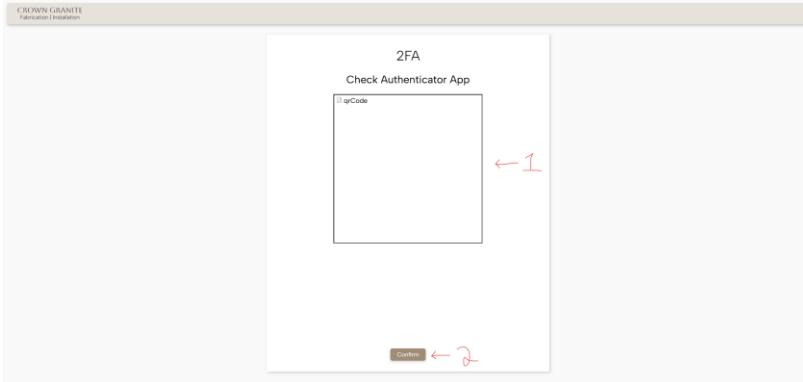
Username: jane.doe@example.com ↵1

Password: ██████████ ↵2

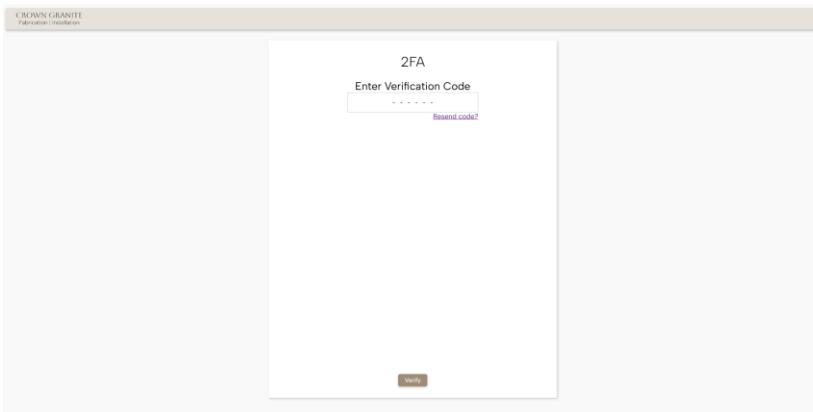
[Forgot Password?](#)

Login ↵3

You need to first scan the QRCode to share the secret key with the authenticator app easily, then click on confirm. Then you enter the OTP code that is generated with that secret key in Enter Verification Code page.



Type the 6 digit OTP code in the box. If you did not receive the OTP in your authenticator app, click on Resend code



If you clicked on “Reset password” in the login page, you will be directed to the Confirmation Contact page where you will have to enter your email to verify if you are a real user (if you exist in the system or not). Type your email in the box, and then click on check existence

CROWN GRANITE
Fabrication / Installation

Enter Confirmation Contact

Enter Email or Phone Number
(Enter Email or Phone Number...)

Check existence

Once you are found in the system, type the 6 digit OTP code in the box. If you did not receive the OTP in your authenticator app, click on Resend code.

CROWN GRANITE
Fabrication / Installation

2FA

Enter Verification Code
.....

Resend code?

Verify

Enter your new password twice, they must both match before you click Confirm button.

CROWN GRANITE
Fabrication / Installation

Enter New Password

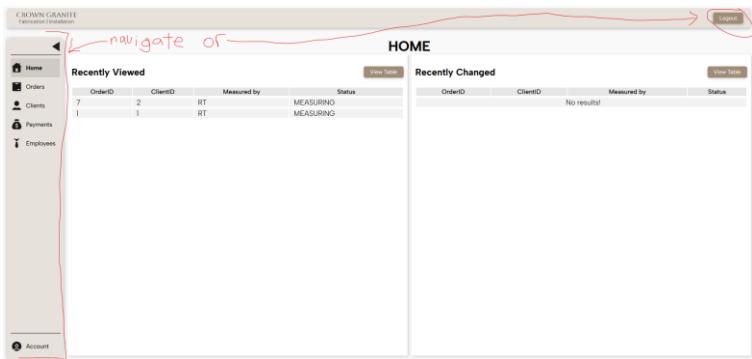
New Password
(New Password...)

Confirm Password
(Confirm Password...)

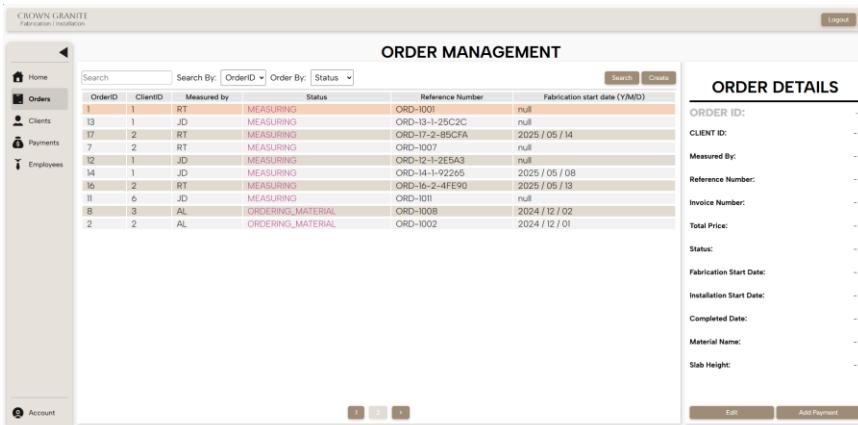
Confirm

In this home page, you can see the most recently viewed orders(including those that just got created) and the recently changed ones. If you click on a row from any of the 2 tables, then you click on view table, you will be redirected to Order management page and the filters order by order Id will be used. If you want to logout, you click on the logout button in

the top right corner of the screen. If you want to go to the other pages, make sure to use the sidebar that is on the left side of the screen.



You either search by a specific option(by choosing from Search by dropdown) and you can apply filtering(by choosing an Order by option from the dropdown). You can create an order by clicking on Create button. You can edit the currently selected order by clicking on the button Edit and you can create a payment by clicking on Add payment button at the bottom right of the screen. You can navigate to the second paginated group of orders that are in the table, by clicking on the arrow next to numbers in the bottom center of the screen.



Here, you can create an order (by filling in the client information and clicking Enter Client ID, which automatically assigns the client ID with the order) and the client at the same time (since no clients should exist without an order).

CREATING ORDER

Order Information

Order Details

Employee ID	Invoice Number	Total Price	Status:
Employee ID	Invoice Number	Total Price	Measuring

Fabrication Plan Image: Choose File No file chosen

Date Details

Fabrication Start Date:	Estimated Installation Date:
mm/dd/yyyy	mm/dd/yyyy

Product Details

Material Name	Slab Height	Slab Width	Slab Thickness	Slab Square Footage
Material Name	Slab Height	Slab Width	Slab Thickness	Slab Square Footage

Sink Type	Product Description	Product Notes
Sink Type	Product Description	Product Notes

Client Information

Client Details

First Name	Last Name
First Name	Last Name

Street Name	Apartment Number
Street Name	Apartment Number

Postal Code	Area (Neighborhood)
Postal Code	Area (Neighborhood)

Contact Details

Reference Number	Phone Number
Reference Number	Phone Number

Enter Client ID

Create Cancel

Here you search by a specific option (by choosing an option of the Search by dropdown). You can edit the currently selected client by clicking on the button Edit and you can create an order for a client by clicking on Add Order button at the bottom right of the screen

CLIENT MANAGEMENT

ClientID	First Name	Last Name	Phone Number	Client Reference #
1	John	Doe	+1 (555)-123-4567	JD-001
2	Emily	Clerk	+1 (555)-234-5678	EC-202
3	Michael	Nguyen	+1 (555)-345-7899	MN-333
4	Sofia	Martinez	+1 (555)-456-7890	
5	Liam	O'Connor	+1 (555)-567-8900	LOC-999
6	Just	Some	+1 (555)-567-8901	REF

CLIENT DETAILS

Client ID: 1

First Name: John

Last Name: Doe

Reference Number: JD-001

Phone Number: +1 (555)-123-4567

Street Name: Maple Street

Apartment Number: Apt 101

Postal Code: A1B 2C3

Area (Neighborhood): Downtown

Edit Add Order

Fill in the information and then click on Save to confirm changes. Click Cancel button to not apply the changes. You can click Go Back button to go to previous page, which is Client Management.

EDIT CLIENT

Client Information

First Name	John
Last Name	Doe
Address	Maple Street
Reference Number	JD-001
Phone Number	+1(555)-123-4567
Postal Code	A1B 2C3
City	Downtown
Province	
Area (Neighborhood)	Downtown

Save Cancel

Here you either search by a specific option(by choosing an option of the Search by dropdown). You can create a payment by clicking on Create button. You can edit the currently selected payment by clicking on the button Edit and you can delete it by clicking on Delete button at the bottom right of the screen.

The screenshot shows the 'PAYMENT MANAGEMENT' page. On the left, there's a sidebar with icons for Home, Orders, Clients, Payments (which is selected), and Employees. Below the sidebar is an 'Account' icon. The main area has a title 'PAYMENT MANAGEMENT' with a search bar and a 'Create' button. A table lists 10 payments with columns for Payment ID, Order ID, Date, and Amount. To the right, a 'PAYMENT DETAILS' panel shows a single payment with ID 1, Order ID 1, Date 2024/10/01, Amount 1250.00, Type DEPOSIT, and Method CARD. At the bottom right of the details panel are 'Edit' and 'Delete' buttons.

Fill in the information and then click on Create to create the payment or click on cancel to go back to Payment management page. You can also click Go Back button to go to the previous page, which is Payment management.

The screenshot shows the 'CREATING PAYMENT' page. It has a title 'CREATING PAYMENT' and a sub-section 'Payment Information'. The sidebar on the left is identical to the one in the previous screenshot. The main form includes fields for 'Order ID' (with a dropdown menu for 'Order ID'), 'Date' (a date picker), 'Amount' (a numeric input field), 'Type' (a dropdown menu set to 'DEPOSIT'), and 'Method' (a dropdown menu set to 'Method'). At the bottom are 'Create' and 'Cancel' buttons.

Here you either search by a specific option(by choosing an option of the Search by dropdown). You can create an employee by clicking on Create button. You can edit the currently selected employee by clicking on the button Edit at the bottom right of the screen.

The screenshot shows the 'EMPLOYEE MANAGEMENT' section of the application. On the left, there's a sidebar with icons for Home, Orders, Clients, Payments, Employees (selected), and Account. The main area has a search bar and a table titled 'EMPLOYEE MANAGEMENT' with columns: EmployeeID, First name, Last name, Email, and Phone number. The table contains six rows of sample data. To the right, a detailed view of an employee record is shown in a panel titled 'EMPLOYEE DETAILS'. The record includes fields for Initials (JD), First Name (Jane), Last Name (Doe), Position (Manager), Email (jane.doe@example.com), Phone Number (+1 (555) 123-4567), Street Name (Victoria Blvd), Apartment Number (Unit 4B), Postal Code (JBK 9L0), Area (Neighborhood) (Uptown), and Account Status (false). A 'Logout' button is at the top right.

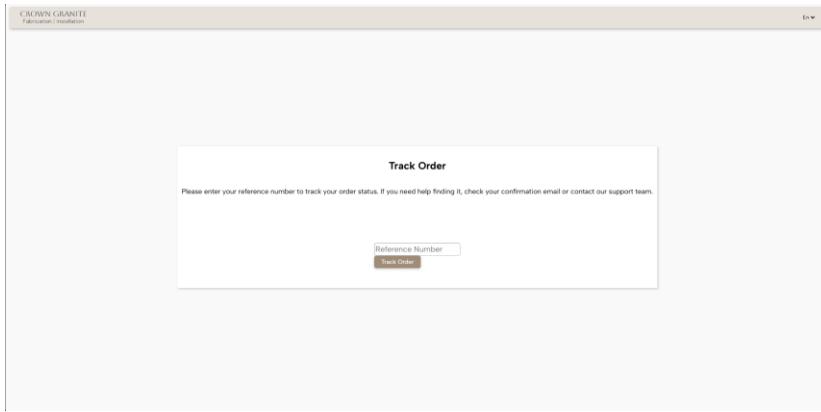
Fill in the information and then click on Create to create or cancel to go back to Employee management page. You can click Go Back button to go to previous page, which is Employee management.

The screenshot shows the 'CREATING EMPLOYEE' screen under 'Employee Information'. It has a sidebar with the same navigation as the previous screen. The main form is titled 'Employee Details' and contains fields for Initials, First Name, Last Name, Email, Phone Number, and Position. Below it is the 'Address Details' section with fields for Street Name, Apartment Number, Postal Code, and Area. A note at the bottom states: 'Please note that created employee accounts are disabled by default.' At the bottom are 'Create' and 'Cancel' buttons.

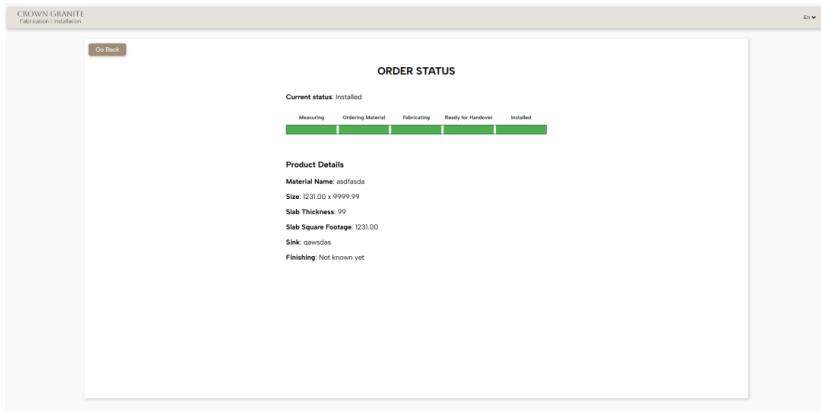
Fill in the information and then click on Apply changes so it updates successfully your account information.

The screenshot shows the 'ACCOUNT' screen. The sidebar is identical to the previous screens. The main area contains a form with fields for First name, Last name, Address, Postal code, City, Province, Email, and Phone number. At the bottom is an 'Apply changes' button.

Enter the reference number of the order then click on track order button. You can also click on the dropdown on the top right or the screen, if you are more familiar with french. The displayed text will be translated into the selected language.



You can also click on the dropdown at the top right side of the screen, if you are more familiar with french. The displayed text will be translated into the selected language. Click on Go Back button to go back to the Track Order page .

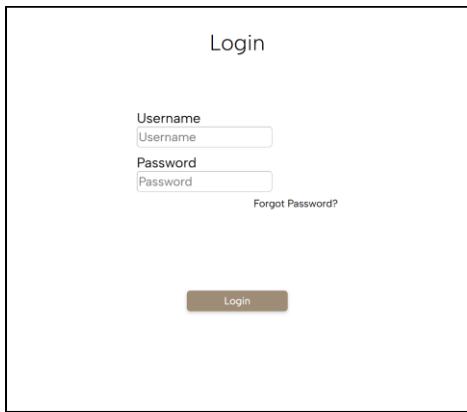


Appendix 3 – Implementation of user stories:

-----1st User story-----

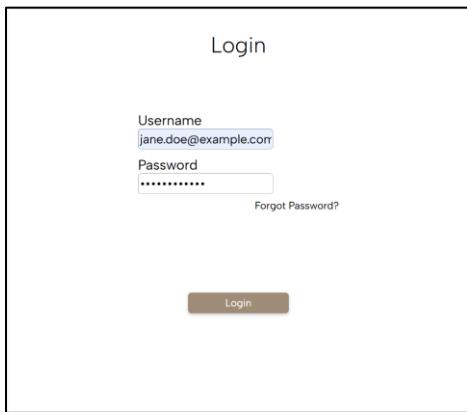
Title: Logging In**User Story:**As an EmployeeI want to be able to enter my login information & 2FASo that I can view our current orders.

1- Login Page



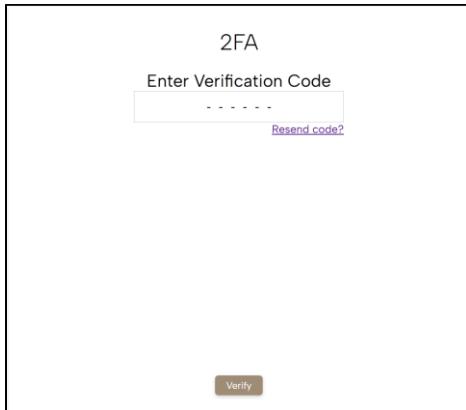
The image shows a simple login interface titled "Login". It features two input fields: "Username" and "Password", both with placeholder text ("Username" and "Password" respectively). Below the password field is a "Forgot Password?" link. At the bottom center is a brown "Login" button.

2- Enter valid user credentials



The image shows the same login interface as above, but with valid credentials entered. The "Username" field contains "jane.doe@example.com" and the "Password" field contains a series of asterisks ("*****"). The "Forgot Password?" link is still visible below the password field.

3- User gets directed to the code verification page



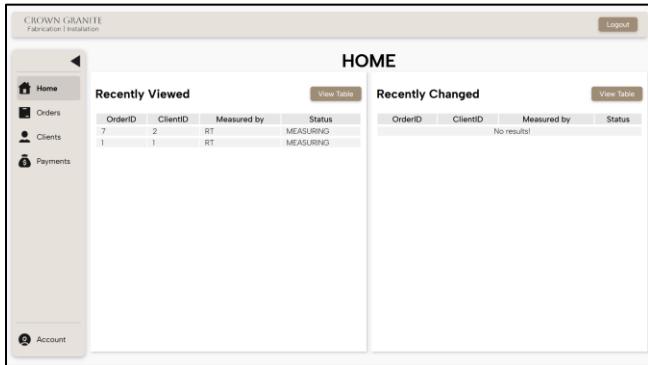
A screenshot of a 2FA verification code entry screen. The title "2FA" is at the top. Below it is a label "Enter Verification Code" with a text input field containing a dashed code. A link "Resend code?" is below the input field. At the bottom is a "Verify" button.

- 4- User enters the valid verification code sent to their authenticator application



A screenshot of a 2FA verification code entry screen, identical to the previous one but with a different code entered in the input field: "5 0 5 9 4 7". The "Verify" button is at the bottom.

- 5- Employee gets directed to their home page where they can view the most recent activities



A screenshot of the employee's home page. The header shows "CROWN GRANITE Fabrication | Installation" and a "Logout" button. On the left is a sidebar with links: "Home", "Orders", "Clients", "Payments", and "Account". The main area has two sections: "Recently Viewed" and "Recently Changed". The "Recently Viewed" section contains a table:

OrderID	ClientID	Measured by	Status
7	2	RT	MEASURING
1	1	RT	MEASURING

The "Recently Changed" section contains a table:

OrderID	ClientID	Measured by	Status
No results!			

-----2nd User story-----

Title: Reset Password
User Story: <u>As an Employee</u>
<u>I want to reset my password</u>
<u>So that I can log back into my account</u>

1- Login Page

The image shows a simple login form titled "Login". It contains two input fields: "Username" and "Password", each with a placeholder text ("Username" and "Password" respectively). Below the password field is a link labeled "Forgot Password?". At the bottom center is a dark brown rectangular button labeled "Login".

2- Click on “Forgot Password?”

This image is identical to the one above, showing the login form. However, the "Forgot Password?" link has been highlighted with a red rectangle, indicating it is the target of the second step in the process.

3- Verify users' existence

Enter Confirmation Contact

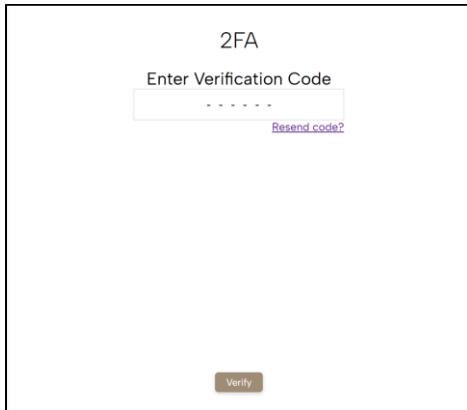
Enter Email or Phone Number

4- Enter a valid and existent email address

Enter Confirmation Contact

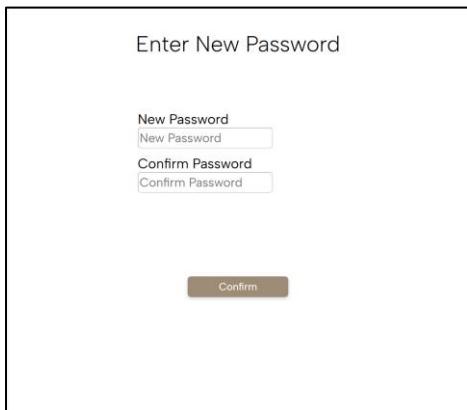
Enter Email or Phone Number

5- Enter verification code sent to the user's authenticator application



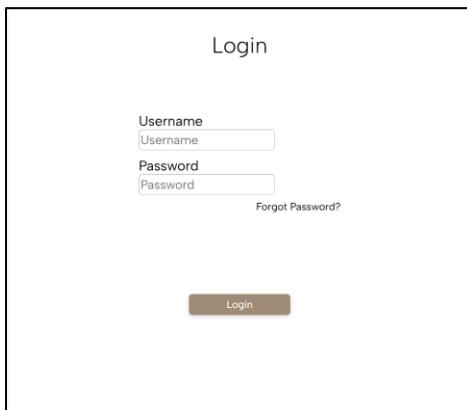
A screenshot of a 2FA verification code input form. The title "2FA" is at the top. Below it is the instruction "Enter Verification Code" followed by a text input field containing a series of dots ("....."). Underneath the input field is a link "Resend code?". At the bottom is a brown "Verify" button.

6- Enter a valid password and confirms it



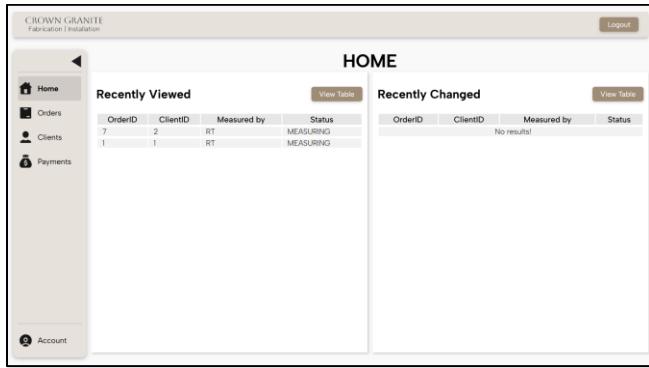
A screenshot of a new password input form titled "Enter New Password". It contains two text input fields: "New Password" and "Confirm Password", both currently empty. Below the fields is a brown "Confirm" button.

7- Enter account credentials using the user's new password



A screenshot of a login form titled "Login". It has two text input fields: "Username" and "Password", both currently empty. Below the fields is a link "Forgot Password?". At the bottom is a brown "Login" button.

8- Employee can log into their account after resetting their password



-----3rd User story-----

Title: Search Order
User Story: <u>As an Employee</u>
<u>I want to search a specific order</u>
<u>So that I can find all the information related to that order.</u>

- 1- While filtering orders by OrderID, the user enters an existent OrderID and clicks on the search button. Employee can view the details related to the searched order

The screenshot shows a web-based application for 'CROWN GRANITE' focused on 'Fabrication | Installation'. The main header includes the company name and a 'Logout' button. On the left, a sidebar menu lists 'Home', 'Orders' (which is selected and highlighted in blue), 'Clients', and 'Payments'. Below the sidebar is an 'Account' section with a user icon. The main content area is titled 'ORDER MANAGEMENT' and displays a table of orders. The table has columns for OrderID (10), ClientID (5), Measured by (JD), Status (INSTALLED), Reference Number (ORD-1010), and Fabrication start date (Y/M/D) (2024 / 11 / 25). Above the table are search and filter options: 'Search By:' dropdown set to 'OrderID', 'Order By:' dropdown set to 'Status', and 'Search' and 'Create' buttons. To the right of the table is a panel titled 'ORDER DETAILS' containing various input fields for editing an order. These fields include 'CLIENT ID', 'Measured By', 'Reference Number', 'Invoice Number', 'Total Price', 'Status', 'Fabrication Start Date', and 'Installation Start Date'. At the bottom right of the details panel are 'Edit' and 'Add Payment' buttons.

 4th User story

Title: Update Order
User Story:

As an Employee

I want to update a specific order detail([Table 1](#))

So that I can keep all fields related to that order updated with the most recent data.

- 1- Navigate to orders dashboard

The screenshot shows the 'ORDER MANAGEMENT' page. On the left, a sidebar menu includes 'Home', 'Orders' (which is selected), 'Clients', 'Payments', and 'Account'. The main area has a search bar and a table with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). The table contains 10 rows of data. To the right, a 'ORDER DETAILS' panel displays fields for Order ID (ORD-1001), Client ID (1), Measured By (RT), Reference Number (ORD-1001), Total Price (null), and Status (null). Buttons for 'Edit' and 'Add Payment' are at the bottom.

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
7	2	RT	MEASURING	ORD-1007	null
11	6	JD	MEASURING	ORD-1011	null
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08
4	4	MK	READY_TO_HANDOVER	ORD-1004	2024 / 12 / 10
5	5	JD	INSTALLED	ORD-1005	2024 / 11 / 20
10	5	JD	INSTALLED	ORD-1010	2024 / 11 / 25

2- Click on a specific order and click the “Edit” button to modify a specify order

The screenshot shows the 'ORDER MANAGEMENT' page. The 'Orders' menu item is selected. The main area has a search bar and a table with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). The table contains 10 rows of data. The row for OrderID 12 is highlighted. To the right, a 'ORDER DETAILS' panel displays fields for Order ID (12), Client ID (1), Measured By (RT), Reference Number (ORD-12-I-2996E), Total Price (100.00), and Status (MEASURING). Buttons for 'Edit' and 'Add Payment' are at the bottom.

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
7	2	RT	MEASURING	ORD-1007	null
12	1	RT	MEASURING	ORD-12-I-2996E	2025 / 05 / 17
11	6	JD	MEASURING	ORD-1011	null
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08
4	4	MK	READY_TO_HANDOVER	ORD-1004	2024 / 12 / 10
5	5	JD	INSTALLED	ORD-1005	2024 / 11 / 20

3- Employee gets directed to the order modification page

CROWN GRANITE
Fabrication | Installation

Edit ORDER Order Information

Order Details

Invoice Number	Total Price	Status:	Fabrication Plan Image :
123124	100.00	Measuring	<input type="button" value="Choose File"/> No file chosen

Date Details

Fabrication Start Date:	Estimated Installation Date:
05/17/2025	05/24/2025

Product Details

Material Name	Slab Height	Slab Width	Slab Thickness	Slab Square Footage	Sink Type
lol	11.11	11.11	11	11.11	lol

Product Description	Product Notes
Product Description	Product Notes

Account

Update **Cancel**

4- Employee updates an order detail

CROWN GRANITE
Fabrication | Installation

Edit ORDER Order Information

Order Details

Invoice Number	Total Price	Status:	Fabrication Plan Image :
123124	100.00	Fabricating	<input type="button" value="Choose File"/> No file chosen

Date Details

Fabrication Start Date:	Estimated Installation Date:
05/17/2025	05/24/2025

Product Details

Material Name	Slab Height	Slab Width	Slab Thickness	Slab Square Footage	Sink Type
lol	11.11	11.11	11	11.11	lol

Product Description	Product Notes
Product Description	Product Notes

Account

Update **Cancel**

5- Employee clicks on the “Update” button to apply their changes

CROWN GRANITE
Fabrication | Installation

[Logout](#)

Edit ORDER

Order Information

Order Details

Invoice Number	Total Price	Status:	Fabrication Plan Image :
123124	100.00	Fabricating	<input type="button" value="Choose File"/> No file chosen

Date Details

Fabrication Start Date:	Estimated Installation Date:
05/17/2025	05/24/2025

Product Details

Material Name	Slab Height	Slab Width	Slab Thickness	Slab Square Footage	Sink Type
lol	11.11	11.11	11	11.11	lol

Product Description	Product Notes
Product Description	Product Notes

[Update](#) [Cancel](#)

- 6- Employee gets redirected to the order dashboard page with a message indicating that their update was a success

CROWN GRANITE
Fabrication | Installation

[Logout](#)

ORDER MANAGEMENT

Edited Order 12

Search	Search By:	OrderID	Order By:	Status	Search	Create
1	1	RT	MEASURING	ORD-1001	null	
7	2	RT	MEASURING	ORD-1007	null	
11	6	JD	MEASURING	ORD-1011	null	
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01	
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02	
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05	
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08	
12	1	RT	FABRICATING	ORD-12-1-2996E	2025 / 05 / 17	
4	4	MK	READY_TO_HANDOVER	ORD-1004	2024 / 12 / 10	
5	5	JD	INSTALLED	ORD-1005	2024 / 11 / 20	

[Edit](#) [Add Payment](#)

ORDER DETAILS

ORDER ID:	-
CLIENT ID:	-
Measured By:	-
Reference Number:	-
Invoice Number:	-
Total Price:	-
Status:	-
Fabrication Start Date:	-
Installation Start Date:	-
Completed Date:	-
Material Name:	-
Slab Height:	-

-----5th User story-----

Title: Update Client
User Story:
<u>As an Employee</u>
I want to update a specific client's information (Table 2) <u>So that I can keep all clients' information up to date.</u>

1- Employee navigates to the client dashboard page

The screenshot shows the 'CLIENT MANAGEMENT' section of the application. On the left, a sidebar menu includes 'Home', 'Orders', 'Clients' (selected), 'Payments', and 'Employees'. Below the menu is an 'Account' icon. The main area has a search bar with dropdown options for 'Search By' (set to 'Area') and a 'Search' button. A table titled 'CLIENT MANAGEMENT' lists six clients with columns: ClientID, First Name, Last Name, Phone Number, and Client Reference #. The first client, John Doe, is selected. To the right, a 'CLIENT DETAILS' panel displays the selected client's information: Client ID: 1, First Name: John, Last Name: Doe, Reference Number: JD-001, Phone Number: +1 (555)-123-4567, Street Name: Maple Street, Apartment Number: Apt 101, Postal Code: A1B 2C3, and Area (Neighborhood): Downtown. Buttons for 'Edit' and 'Add Order' are at the bottom.

2- Employee clicks on a specific client

This screenshot is similar to the previous one but shows client ID 6, Just Some, as the selected item. The 'CLIENT DETAILS' panel now displays: Client ID: 6, First Name: Just, Last Name: Some, Reference Number: REF, Phone Number: +1 (555)-567-8901, Street Name: Another Rd, Apartment Number: , Postal Code: HBU 2R4, and Area (Neighborhood): View Another. The 'Edit' and 'Add Order' buttons are visible at the bottom.

3- Employee clicks on the “Edit” button of the chosen client

The screenshot shows the 'CLIENT MANAGEMENT' screen. On the left is a sidebar with icons for Home, Orders, Clients (selected), Payments, Employees, and Account. The main area has a search bar with 'Search' and 'Search By: Area'. A table lists clients with columns: ClientID, First Name, Last Name, Phone Number, and Client Reference #. The table rows are numbered 1 to 6. Row 6 is highlighted in orange and corresponds to the client details on the right. The 'CLIENT DETAILS' panel shows fields for Client ID (6), First Name (Just), Last Name (Some), Reference Number (REF), Phone Number (+1 (555)-567-8901), Street Name (Another Riad), Apartment Number, Postal Code (HBU 2R4), and Area (Neighborhood) (View Another). Buttons for 'Edit' and 'Add Order' are at the bottom.

4- Employee updates the client's information

The screenshot shows the 'EDIT CLIENT' screen under 'Client Information'. The sidebar is identical to the previous screenshot. The main form has a 'First Name' field containing 'Justin' (highlighted in red). Other fields include Last Name (Some), Address (Another Riad), Reference Number (REF), Phone Number (+1 (555)-567-8901), Postal Code (HBU 2R4), City (View Another), Province (View Another), and Area (Neighborhood) (View Another). Buttons for 'Save' and 'Cancel' are at the bottom.

5- Employee clicks on the “Save” button to apply their changes

The screenshot shows the 'EDIT CLIENT' form under the 'Client Information' section. The form includes fields for First Name (Justin), Last Name (Some), Address (Another Riad), Reference Number (REF), Phone Number (+1 (555)-567-8901), Postal Code (HBU 2R4), City (View Another), Province (View Another), and Area (Neighborhood) (View Another). There are 'Save' and 'Cancel' buttons at the bottom.

- 6- Employee gets redirected to the client dashboard with a message indicating that their update was a success

The screenshot shows the 'CLIENT MANAGEMENT' page. On the left, there's a search bar and a table titled 'Edit Client' with columns: ClientID, First Name, Last Name, Phone Number, and Client Reference #. The table contains 6 rows of data. On the right, there's a 'CLIENT DETAILS' panel with fields: Client ID (JD-001), First Name (John), Last Name (Doe), Reference Number (JD-001), Phone Number (+1 (555)-123-4567), Street Name (Maple Street), Apartment Number (Apt 101), Postal Code (A1B 2C3), and Area (Neighborhood) (Downtown). There are 'Edit' and 'Add Order' buttons at the bottom of the details panel.

-----6th User story-----

Title: Add Order	
User Story: <u>As an Employee</u>	
I want to store a new order	
So that I can keep all orders, and their information saved.	

OPTION 1:

- Employee navigates to the order dashboard page

The screenshot shows the 'ORDER MANAGEMENT' page. On the left is a sidebar with navigation links: Home, Orders (selected), Clients, Payments, Employees, and Account. The main area has a search bar and dropdown menus for 'Search By' (OrderID) and 'Order By' (Status). A table lists 12 orders with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). To the right is an 'ORDER DETAILS' sidebar with fields for ORDER ID, CLIENT ID, MEASURED BY, REFERENCE NUMBER, INVOICE NUMBER, TOTAL PRICE, STATUS, FABRICATION START DATE, INSTALLATION START DATE, COMPLETED DATE, MATERIAL NAME, and SLAB HEIGHT. Buttons for 'Edit' and 'Add Payment' are at the bottom.

- Employee clicks on the “Create” button

This screenshot is identical to the previous one, showing the 'ORDER MANAGEMENT' page. The 'Create' button in the top right corner of the main area is highlighted in red, indicating it is the next step for the employee.

- 3- Employee enters valid order information, along with valid client information. The order will be associated to the new client

The screenshot shows the 'Creating Order' interface. On the left, a sidebar menu includes Home, Orders (selected), Clients, Payments, and Employees. The main area is titled 'CREATING ORDER' and contains three sections: 'Order Information', 'Client Information', and 'Product Details'. In 'Order Information', fields include Employee ID (2), Invoice Number (I2321), Total Price (100.00), Status (Measuring), and a 'Fabrication Plan Image' section with a 'Choose File' button. In 'Client Information', 'Client Details' show First Name (Justin) and Last Name (Rogue). 'Contact Details' show Reference Number (JD-001) and Phone Number (+1 (555)-567-8901). In 'Product Details', fields include Material Name (rock), Slab Height (11.11), Slab Width (11.11), Slab Thickness (11.11), Slab Square Footage (11.11), Sink Type (lol), Product Description (Product Description), and Product Notes (Product Notes). Buttons at the bottom right are 'Create' (highlighted in red) and 'Cancel'.

- 4- Employee clicks on the “Create” button to successfully create a new order that is assigned to a new client

This screenshot is identical to the previous one, but the 'Create' button at the bottom right is highlighted in red, indicating it has been clicked. All other fields and sections remain the same as in the first screenshot.

- 5- Employee gets redirected to the order dashboard and views the new order created

The screenshot shows the 'ORDER MANAGEMENT' section of the application. On the left, a sidebar menu includes Home, Orders (selected), Clients, Payments, Employees, and Account. The main area has search and filter options ('Search By: OrderID', 'Order By: Status'). A table lists 13 orders with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). Order 13 is highlighted. To the right, a detailed view for Order 13 is shown with fields: ORDER ID (13), CLIENT ID (7), Measured By (RT), Reference Number (ORD-13-7-374AA), Invoice Number (I23124), Total Price (100.00), Status (MEASURING), Fabrication Start Date (2025 / 05 / 17), Installation Start Date (2025 / 05 / 24), Completed Date (-), Material Name (rock), and Slab Height (11.11). Buttons for Edit and Add Payment are at the bottom.

OPTION 2:

- 1- Employee navigates to the client dashboard page

The screenshot shows the 'CLIENT MANAGEMENT' section. The sidebar menu is identical to the previous screen. The main area has search and filter options ('Search By: Area'). A table lists 7 clients with columns: ClientID, First Name, Last Name, Phone Number, and Client Reference #. Client 1 (John Doe) is highlighted. To the right, a detailed view for Client 1 is shown with fields: Client ID (1), First Name (John), Last Name (Doe), Reference Number (JD-001), Phone Number (+1 (555)-123-4567), Street Name (Maple Street), Apartment Number (Apt 101), Postal Code (A1B 2C3), and Area (Neighborhood) (Downtown). Buttons for Edit and Add Order are at the bottom.

2- Employee clicks on “Add order” button

The screenshot shows the 'CLIENT MANAGEMENT' screen. On the left, a sidebar menu includes Home, Orders, Clients (selected), Payments, Employees, and Account. The main area displays a table of clients with columns: ClientID, First Name, Last Name, Phone Number, and Client Reference #. A search bar at the top allows filtering by Area. To the right, a 'CLIENT DETAILS' panel shows the selected client's information: Client ID (JD-001), First Name (John), Last Name (Doe), Reference Number (JD-001), Phone Number (+1 (555)-123-4567), Street Name (Maple Street), Apartment Number (Apt 101), Postal Code (A1B 2C3), and Area (Neighborhood) (Downtown). Buttons for Edit and Add Order are at the bottom.

3- Employee enters valid order information

The screenshot shows the 'CREATING ORDER' screen. The 'Order Information' section is displayed. It includes fields for Order Details: Client ID (1), Employee ID (2), Invoice Number (123124), Total Price (\$100.00), Status (Ordering material), and a Fabrication Plan Image input field with a 'Choose File' button. Below this are sections for Date Details (Fabrication Start Date: 05/24/2025, Estimated Installation Date: 05/31/2025) and Product Details (Material Name: rock, Slab Height, Slab Width, Slab Thickness, Slab Square Footage, Sink Type). Buttons for Create and Cancel are at the bottom.

- 4- Employee enters “Create” button to save the new order

- 5- Employee gets redirected to the order dashboard with a message indicating that their creation was a success

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
13	7	RT	MEASURING	ORD-13-7-374AA	2025 / 05 / 17
7	2	RT	MEASURING	ORD-1007	null
11	6	JD	MEASURING	ORD-1011	null
14	1	RT	MEASURING	ORD-14-1-3767E	null
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08
12	1	RT	FABRICATING	ORD-12-1-2996E	2025 / 05 / 17

-----7th User story-----

Title: Add Client

User Story:
As an Employee

I want to store a new client in our system

So that I can save their details for future orders.

1- Employee navigates to the order dashboard page

The screenshot shows the 'ORDER MANAGEMENT' section of the CROWN GRANITE application. On the left, there's a sidebar with links for Home, Orders, Clients, Payments, and Employees. The main area displays a table of orders with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). The table contains 12 rows of data. To the right, a detailed 'ORDER DETAILS' panel is open for the first order (ORD-1001), showing fields like ORDER ID, CLIENT ID, Measured By, Reference Number, Invoice Number, Total Price, Status, Fabrication Start Date, Installation Start Date, Completed Date, Material Name, and Slab Height. Buttons for Edit and Add Payment are at the bottom of this panel.

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
13	7	RT	MEASURING	ORD-13-7-374AA	2025 / 05 / 17
7	2	RT	MEASURING	ORD-1007	null
11	6	JD	MEASURING	ORD-1011	null
14	1	RT	MEASURING	ORD-14-1-3767E	null
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08
12	1	RT	FABRICATING	ORD-12-1-2996E	2025 / 05 / 17

2- Employee clicks on “Create” button

The screenshot shows the 'ORDER MANAGEMENT' screen. On the left, a sidebar menu includes 'Home', 'Orders' (selected), 'Clients', 'Payments', and 'Employees'. Below the menu is an 'Account' icon. The main area has a search bar with dropdowns for 'Search By: OrderID' and 'Order By: Status'. A 'Search' button and a red 'Create' button are at the top right. A table lists 12 orders with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). The 'Status' column shows values like 'MEASURING' and 'FABRICATING'. The 'Measured by' column shows values like 'RT' and 'JD'. The 'Reference Number' column contains unique identifiers such as 'ORD-1001' through 'ORD-1009'. The 'Fabrication start date' column shows dates like '2025 / 05 / 17' and '2024 / 12 / 02'. To the right, a 'Logout' button is at the top, followed by a 'Logout' link. The 'ORDER DETAILS' section on the right displays fields for Order ID, Client ID, Measured By, Reference Number, Invoice Number, Total Price, Status, Fabrication Start Date, Installation Start Date, Completed Date, Material Name, and Slab Height. Buttons for 'Edit' and 'Add Payment' are at the bottom.

3- Employee enters valid order and client information

The screenshot shows the 'CREATING ORDER' screen. On the left, a sidebar menu includes 'Home', 'Orders' (selected), 'Clients', 'Payments', and 'Employees'. Below the menu is an 'Account' icon. The main area has a 'Go Back' button at the top left. The 'Order Information' section on the left contains fields for 'Employee ID' (2), 'Invoice Number' (123124), 'Total Price' (100.00), and 'Status' (Picked up). It also includes a 'Fabrication Plan Image' input field with a file selection button. The 'Date Details' section below it has fields for 'Fabrication Start Date' (05/24/2025) and 'Estimated Installation Date' (05/31/2025). The 'Product Details' section has fields for 'Material Name' (rock), 'Slab Height' (11.11), 'Slab Width' (11.11), 'Slab Thickness' (11.11), 'Slab Square Footage' (11.11), 'Sink Type' (lol), 'Product Description' (Product Description), and 'Product Notes' (Product Notes). The 'Client Information' section on the right contains 'Client Details' with fields for First Name (Nathan) and Last Name (Mendez), Street Name (123 Street), Apartment Number (123), Postal Code (HBU 2R4), and Area (Neighborhood) (View Another). It also has 'Contact Details' with fields for Reference Number (JD-001) and Phone Number (+1 (555) 456-7890). A 'Create' button is at the bottom right, and a 'Cancel' button is just below it.

4- Employee clicks on “Create” button to create a client and an order

5- Employee gets redirected to the order dashboard page (order and client created)

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
13	7	RT	MEASURING	ORD-13-7-374AA	2025 / 05 / 17
7	2	RT	MEASURING	ORD-1007	null
11	6	JD	MEASURING	ORD-1011	null
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08
12	1	RT	FABRICATING	ORD-12-1-2996E	2025 / 05 / 17
4	4	MK	READY_TO_HANDOVER	ORD-1004	2024 / 12 / 10

-----8th User story-----

Title: Add Payment
User Story: <u>As an Employee</u>
<u>I want to record client payments linked to specific orders (Table 3)</u>
<u>So that I can track their payment history and confirm the fabrication and installation steps.</u>

- 1- Employee navigates to the payment dashboard page

The screenshot shows the 'PAYMENT MANAGEMENT' section of the application. On the left, a sidebar menu includes 'Home', 'Orders', 'Clients', 'Payments' (which is selected and highlighted in grey), and 'Employees'. Below the sidebar is an 'Account' icon. The main area has a search bar with dropdown options for 'Search' and 'Search By: Payment ID'. A table lists 11 payment entries with columns for PaymentID, OrderID, Date, and Amount. The second row (PaymentID 2) is highlighted in orange. To the right of the table is a 'PAYMENT DETAILS' panel. It displays the following information for PaymentID 2:

PAYMENT DETAILS	
Payment ID:	2
Order ID:	2
Date:	2024 / 10 / 03
Amount Payed:	1600.25
Type:	DEPOSIT
Method:	TRANSFER

At the bottom right of the main area are 'Edit' and 'Delete' buttons.

2- Employee clicks on “Create” button

This screenshot is identical to the one above, showing the 'PAYMENT MANAGEMENT' section. The 'Payments' option in the sidebar is still selected. The table shows 11 payment entries, and the second row (PaymentID 2) is highlighted. The 'PAYMENT DETAILS' panel on the right shows the same information for PaymentID 2:

PAYMENT DETAILS	
Payment ID:	2
Order ID:	2
Date:	2024 / 10 / 03
Amount Payed:	1600.25
Type:	DEPOSIT
Method:	TRANSFER

3- Employee enters valid payment information

The screenshot shows a software interface titled "CREATING PAYMENT" under the heading "Payment Information". On the left is a vertical navigation menu with icons for Home, Orders, Clients, Payments (which is selected and highlighted in grey), and Employees. At the top right are "Logout" and "Logout" buttons. The main form has fields for "Order ID" (1), "Date" (05/24/2025), "Amount" (10.00), "Type" (DEPOSIT), and "Method" (Transfer). At the bottom are "Create" and "Cancel" buttons.

4- Employee clicks on “Create” button to create a payment

This screenshot is identical to the one above, showing the "Creating Payment" form. However, the "Create" button at the bottom left of the form is now highlighted with a red rectangle, indicating it is the target of the user's click.

- 5- Employee gets redirected to the payment dashboard page with a message indicating that their creation was a success

The screenshot shows a web-based application for payment management. The main interface is titled "PAYMENT MANAGEMENT" and displays a table of "Created Payment" records. The table has columns for PaymentID, OrderID, Date, and Amount. A specific row is highlighted in orange, corresponding to the payment ID shown in the details panel.

PaymentID	OrderID	Date	Amount
2	2	2024/10/03	1600.25
3	3	2024/10/05	2250.00
4	4	2024/10/06	2600.00
5	5	2024/10/07	1000.00
6	6	2024/10/09	1400.00
7	7	2024/10/10	1800.75
8	8	2024/10/11	1500.00
9	9	2024/10/12	1700.00
10	10	2024/10/13	2000.00
11	4	2024/10/01	2600.75

PAYMENT DETAILS

Payment ID:	2
Order ID:	2
Date:	2024 / 10 / 03
Amount Payed:	1600.25
Type:	DEPOSIT
Method:	TRANSFER

-----9th User story-----

Title: Insert Order Notes
User Story: <u>As an Employee</u>
<u>I want to keep notes regarding the final installation of the product</u>
<u>So that our company can improve its work efficiency.</u>

Process of inserting notes is the same as modifying an order. Process can be found in the fourth user story of this deliverable

-----10th User story-----

Title: Search by Area

User Story:
As an Employee

I want to manage the location of the orders

So that we can efficiently do installations for orders that are in similar areas.

1- Employee navigates to orders dashboard page

The screenshot shows the 'ORDER MANAGEMENT' screen. On the left, there's a sidebar with links for Home, Orders (selected), Clients, Payments, and Employees. The main area has a search bar and dropdowns for 'Search By' (OrderID or ClientID), 'Order By' (Status), and 'Status' (MEASURING, ORDERING_MATERIAL, FABRICATING). A table lists 12 orders with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). To the right, a detailed 'ORDER DETAILS' panel is open for Order ID 1, showing fields like Client ID, Measured By, Reference Number, Total Price, and various dates. Buttons for Edit and Add Payment are at the bottom.

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
13	7	RT	MEASURING	ORD-13-7-374AA	2024 / 05 / 17
7	2	RT	MEASURING	ORD-1007	null
11	6	JD	MEASURING	ORD-1011	null
14	1	RT	MEASURING	ORD-14-1-3767E	null
8	3	AL	ORDERING_MATERIAL	ORD-1008	2024 / 12 / 02
2	2	AL	ORDERING_MATERIAL	ORD-1002	2024 / 12 / 01
3	3	JD	FABRICATING	ORD-1003	2024 / 12 / 05
9	4	SC	FABRICATING	ORD-1009	2024 / 12 / 08
12	1	RT	FABRICATING	ORD-12-1-2996E	2024 / 05 / 17

2- Employee enters the specific area and sets the filter to Area and clicks on the "Search" button. The orders associated to the provided area will appear:

The screenshot shows a web-based application for managing orders. On the left, a sidebar menu includes Home, Orders (selected), Clients, Payments, and Employees. The main area has tabs for Downtown and Search By: Area, Order By: Status. A table lists orders with columns: OrderID, ClientID, Measured by, Status, Reference Number, and Fabrication start date (Y/M/D). The table contains five rows of data.

OrderID	ClientID	Measured by	Status	Reference Number	Fabrication start date (Y/M/D)
1	1	RT	MEASURING	ORD-1001	null
14	1	RT	MEASURING	ORD-14-1-3767E	null
12	1	RT	FABRICATING	ORD-12-1-2996E	2025 / 05 / 17
6	1	RT	PICKED_UP	ORD-1006	2024 / 12 / 01

ORDER DETAILS

Order ID: [dropdown]

Client ID: [dropdown]

Measured By: [dropdown]

Reference Number: [dropdown]

Invoice Number: [dropdown]

Total Price: [dropdown]

Status: [dropdown]

Fabrication Start Date: [dropdown]

Installation Start Date: [dropdown]

Completed Date: [dropdown]

Material Name: [dropdown]

Slab Height: [dropdown]

Buttons: Edit, Add Payment

-----11th User story-----

Title: Logging In
User Story: <u>As an Administrator</u>
<u>I want to</u> login to the website
<u>So that</u> I can view our current orders.

Process of inserting logging in is the same as logging in as an employee. Process can be found in the first user story of this deliverable

-----12th User story-----

Title: Reset Password

User Story:

As an Administrator

I want to reset my password

So that I can log back into my account.

***Process of resetting password is the same as resetting password as an employee.*

*Process can be found in the second user story of this deliverable***

-----13th User story-----

Title: Manage Employees
User Story:
<u>As an Administrator</u>
I want to manage all employee information (Table 4)
<u>So that</u> all records remain accurate and up to date, allowing effective management of all information related to the employees.

- 1- Administrator navigates to the employee dashboard page. This page is only accessible by administrators

The screenshot shows a web-based application for managing employees. On the left, a sidebar menu includes Home, Orders, Clients, Payments, and Employees (which is selected). The main area has a header "EMPLOYEE MANAGEMENT". A search bar at the top allows searching by Employee ID or Last name. Below is a table with columns: EmployeeID, First name, Last name, Email, and Phone number. The table contains 5 rows of sample data. To the right, a panel titled "EMPLOYEE DETAILS" displays the details for the employee with Employee ID 1. The details include Initials (JD), First Name (Jane), Last Name (Doe), Position (Manager), Email (jane.doe@example.com), Phone Number (+1 (555) 123-4567), Street Name (Victoria Blvd), Apartment Number (Unit 4B), Postal Code (JBK 9L0), Area (Neighborhood) (Uptown), and Account Status (false). An "Edit" button is at the bottom of this panel.

-----14th User story-----

Client User Stories

Title: Selecting Language

User Story:

As a Client

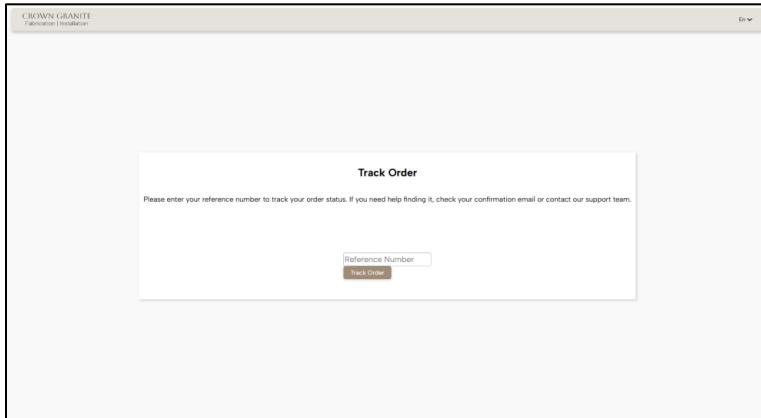
I want to be able to change the website's language

So that I can understand their products and advertisement.

1- Client navigates to the tracking page

2- Client press on the drop-down button and clicks on their preferred language

English:



French:



-----15th User story-----

Title: Tracking Order

User Story:

As a Client

I want to be able to track my order

So that I can estimate the date of the product installation.

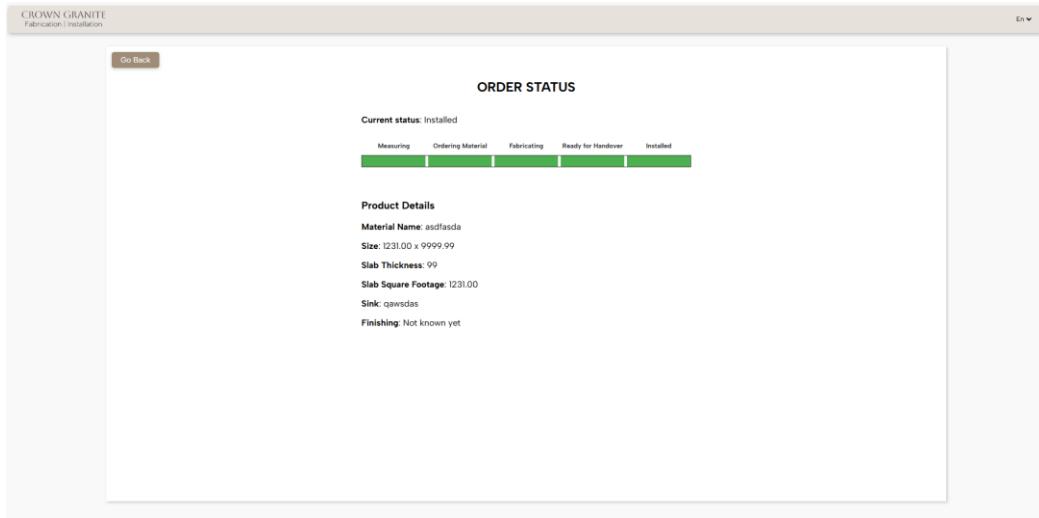
1- Client navigates to tracking page

The screenshot shows a web page titled "Track Order". At the top, there is a header bar with the text "CROWN GRANITE" and "Fabrication / Installation". On the right side of the header is a language selection dropdown set to "En". Below the header is a main content area with a white background. The title "Track Order" is centered at the top of this area. Below the title is a small instruction text: "Please enter your reference number to track your order status. If you need help finding it, check your confirmation email or contact our support team." Underneath this text is a text input field labeled "Reference Number". To the right of the input field is a dark brown rectangular button with the text "Track Order" in white.

2- Client enters their reference number and clicks “Track Order”

This screenshot is identical to the one above, but it includes visual feedback. The "Reference Number" input field now contains the text "JD-001". The "Track Order" button has been highlighted with a light gray border, indicating it is the active or selected element.

3- Client can now view their order status and the order details



References

No references were used for this deliverable