# CS495 Software Project Proposal: ClearView Process Manager and Window Design Tool

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## 1 Client Information

By sharing this client information and the rest of this document, you are stating that this client has provided this project as something they want (not something you created and asked if they wanted), and that they are interested in having you complete this project for your capstone.

1. Client name: Deirdre Hammaker

2. Client title: CEO of ClearView Doors & Windows

3. Client email address: deirdre@getclearview.com

4. Client employer: ClearView Doors & Windows

5. How you know the client: Friend of Chris'

## 2 Project Description

### 2.1 Overview

This project aims at creating an internal web app for ClearView. The app's main purpose is to help sales representatives and installation crews better manage the job process. The app will let the sales rep show customers previews of their house with newly designed windows based on the customer's selections. These selections include a choice of multiple customization options for windows. This will also let the sales rep show the customer an estimated quote based on their selections. From there the job will go through a series of stages in which the customer will receive email and or text message notifications (customer's choice) about their job updates. At any point, the customer can see the status of their job through the app or a link sent with the notifications.

### 2.2 Key Features

The app's first key feature is the ability for the sales rep to take a picture of the customer's house using their company iPad, to allow for previews of the windows. This will put a border around the window as well as a tab for the sales rep to select individual windows and edit them to the customer's wants. During this mock up process, the pictures will preview the modified windows and calculate the estimated cost for each window to be used in an estimated quote. Once the sales rep's job is done and the job is accepted, the installation crew will be able to see the job details.

The app will have a status bar for both the customer and the office managers to view. The statuses, or stages, are listed below:

1. Created

2. Viewed

3. Accepted

4. Final Measurements

5. Final Review

6. Order Placed

7. In Production

8. Order Received

9. Installation in Progress

10. Complete

Under each stage will be either the date started, if it is in progress, or the date completed. The customer will be able to cancel their order with no penalties for 72 hours following the acceptance of the project. This will be the limit of the customers view. The office managers will be able to view details of the project surrounding the status: ClearView's cost, sale price and manufacturing details.

The project will have a log-in feature with several access levels. The highest is Admin. Admin accounts will be for office managers. Admins have access to all quotes and projects regardless of who the sales rep was. They will be able to view and change the status of a project. The next level will be Sales Rep. Sales reps will be able to view the status of their active jobs. They will only be able to edit their jobs in the initial stages. These are Created, Viewed, and Accepted. The last company access level will be the installation crew. The installation crew does not have access to the status bar, and is instead told by the office manager what jobs are assigned to them. The installation crew can access the details of the job. This includes things like the name of the customer and sales rep, the details of each window, and the images the sales rep took so that they know which window is which. They will then be able to input measurements and final pricing into the app. Customers are limited to viewing the status of their order and can cancel within 72 hours of the project being accepted.

## 2.3 Why this Project is Interesting

This project is interesting to us for a few reasons. The first reason is that this project is very practical. Many other companies in this field use apps similar to this. Another reason is that this project has some challenging aspects which intrigue both of us, including working with computer imaging and potentially LLMs. The last aspect that gets both of us excited to work on this project is the possibility that this app that we create could bring real value to the company.

## 2.4 Areas of CS required

This project will require many areas of CS including; database managing, computer/digital graphics & vision, the example that our client showed us uses an LLM which we will explore using.

## 2.5 Potential Concerns and Questions

Our potential concerns are mostly related to the feasibility of the project. This is the first time that my partner or I have worked on such a large and practical project. Although we are interested in working with an LLM, we are concerned that it might prove to be too difficult. One of the example sites that our client showed us says that it uses an LLM to do its imaging and mock-ups. Additionally, if we don't use an LLM, how will we accomplish the task of putting borders around windows for the sales reps.

# 3 Comparison to Draft

Fill out this section by answering the following questions in paragraph form (you can remove these instructions as you complete it):

- This project is the same as the one that **Chris** proposed in his draft.

- This project is not new although it is slightly altered.

- The client is not new.

- This project has changed in the usage of the app. Originally, it was designed for a customer to use. Now it's designed for internal staff of ClearView to use. Additionally, the focus is on windows instead of windows and doors.

# 4 Requirements

## 4.1 Functional Requirements - (82pts)

1. S1: Upload Picture (3pts)

   (a) As a Sales rep
   (b) I want to take a picture of a side of the house
   (c) So that I can start to edit the windows on that side

2. S2: Select Window (5pts)

   (a) As a Sales rep / Installation Crew
   (b) I want to select a specific window on the picture
   (c) So that I can customize the window

3. S3: Customize Window (8pts)

   (a) As a Sales rep
   (b) I want to customize the window
   (c) So that I can preview the finished product on the house

4. S4: Edit Border (2pts)

   (a) As a Sales rep
   (b) I want to edit the border of a window
   (c) So that I can make the border the proper size

5. S5: Manual Add (5pts)

   (a) As a Sales rep
   (b) I want to manually add a new window
   (c) So that I can select and preview changes to this window

6. S6: Remove Window (2pts)

   (a) As a Sales rep
   (b) I want to remove a window
   (c) So that the window's border is no longer on the preview

7. S7: Save Window (2pts)

    (a) As a Sales rep

    (b) I want to save an individual window

    (c) So that the window details are saved for later

8. S8: Save Project (2pts)

    (a) As a Sales rep

    (b) I want to save the entire set of windows

    (c) So that the entire set of windows are saved

9. S9: CRUD Client (8pts)

    (a) As a Sales rep / Admin

    (b) I want all CRUD functionality for client information

    (c) So that I have CRUD functionality for client information

10. S10: CRUD Project (8pts)

    (a) As a Sales rep / Admin

    (b) I want all CRUD functionality for projects

    (c) So that I have CRUD functionality for projects

11. S11: CRUD Project Detail (8pts)

    (a) As a Sales rep / Admin

    (b) I want all CRUD functionality for project details

    (c) So that I have all CRUD functionality for project details

12. S12: CRUD Account (8pts)

    (a) As an Admin

    (b) I want all CRUD functionality for employee accounts

    (c) So that I have all CRUD functionality for accounts

13. S13: Search Projects (2pts)

    (a) As an Admin

    (b) I want to search for a specific project

    (c) So that I can see information related to that project

14. S14: Compact View (3pts)

    (a) As an Admin

    (b) I want a compact view of some of the project's details

    (c) So that I can get a succinct view of the project's details

15. S15: Detailed View (3pts)

    (a) As an Admin

    (b) I want a detailed view of all of the project's details

    (c) So that I can see all information related to this project

16. S16: Assign Project (3pts)

    (a) As an Admin

     (b) I want to assign a project to an installation crew (member)

     (c) So that the project has a crew assigned to it for completion

17. S17: View Assigned Projects (2pts)

     (a) As an Installation Crew

     (b) I want to view all projects assigned to me / my crew

     (c) So that I can see which projects are assigned to me / my crew

18. S18: Select Project (2pts)

     (a) As an Installation Crew

     (b) I want to select a project that has been assigned to me / my crew

     (c) So that I can select which project me / my team is going to work on

19. S19: Input Final Window Measurements (3pts)

     (a) As an Installation Crew

     (b) I want to input the final measurements for specific windows in the project

     (c) So that the project has accurate measurements

20. S20: View Project Status (3pts)

     (a) As a Customer

     (b) I want to view my project's status bar given the link (email / text message)

     (c) So that I can be kept up to date with my project's progression

## 4.2 Non-Functional Requirements

1. NFR1: The UI shall have colors matching the company's colors (white & blue).

2. NFR2: The Window Designer shall have automated pricing that will generate a rough estimate of how much that window will cost.

3. NFR3: The Window Designer shall have automated measuring that will generate a rough estimate of the dimensions of the window.

4. NFR4: The System shall use PostgreSQL as a database.

5. NFR5: The CRM shall have push notifications that tell the customer when their project's status has updated.

6. NFR6: The System shall have a front-end programmed in JavaScript, React, and HTML/CSS.

7. NFR7: The System shall have a back-end programmed in Python.

## 4.3 Iteration Planning

- Sprint 1 - (11pts)
    - S1: Upload Picture
    - S9: CRUD client

- Sprint 2 - (21pts)
    - S2: Select Window
    - S10: CRUD Project

- – S11: CRUD Project Details

- Sprint 3 - (21pts)

  - – S3: Customize Window
  - – S4: Edit Border
  - – S5: Manual Add
  - – S6: Remove Window
  - – S7: Save Window
  - – S8: Save Project

- Sprint 4 - (17pts)

  - – S12: CRUD Account
  - – S13: Search Projects
  - – S16: Assign Project
  - – S17: View Assigned Projects
  - – S18: Select Project

- Sprint 5 - (12pts)

  - – S14: Compact View
  - – S15: Detailed View
  - – S19: Input Final Window Measurements
  - – S20: View Project Status