



# Beta Presentation

## 3D Analysis of Dental Patient History

The Capstone Experience

Team Delta Dental 3DADPH

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*From Students...  
...to Professionals*

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# Project Overview

- Delta Dental of Michigan, Indiana, and Ohio.
  - Headquartered in Okemos, MI
  - Processes millions of claims per year
- Claim approval could require human review
  - Adjudicators handle massive amounts of data
  - Viewing and editing this data is time consuming
- This project allows users to:
  - Upload and edit patient dental records
  - View a 3D mouth model based on dental records





# Team Member's Technical Tasks

## Technical Tasks Assigned

- Ben Crimmins
  - Three.js integration with frontend
  - Tooth selection on model and tooth selection viewer
  - Visual Indicators on mouth model and timeline
- Lance Stemple
  - Creating the home page
  - Upload page for claims and ability to upload CSVs
  - Timeline (selecting claims and grouped claims menu)
  - Photos page table
- Jacob Robson
  - Upload page for patient information
  - Procedure data being viewable and editable in data page
  - Added viewable data to tooth selection viewer
  - Added in models for crowns and tooth removals
- Thomas Toaz
  - Create 3D adult and baby mouth models
  - Camera interface to snap users around the mouth
  - Create base materials/key for procedure classes
  - Create zoomable timeline
  - Allow user to highlight tooth surfaces
- Jasen Van Acker
  - Add UX features for photos page
  - Configure photo upload/view on photos page and database
  - Mouth model tooth details dialog for claim information
  - Tooth code mapping to display correct tooth names
- Sanju Kona
  - Data table with filtering capabilities
  - Data page CSV export
  - Patient typeahead and auto generation

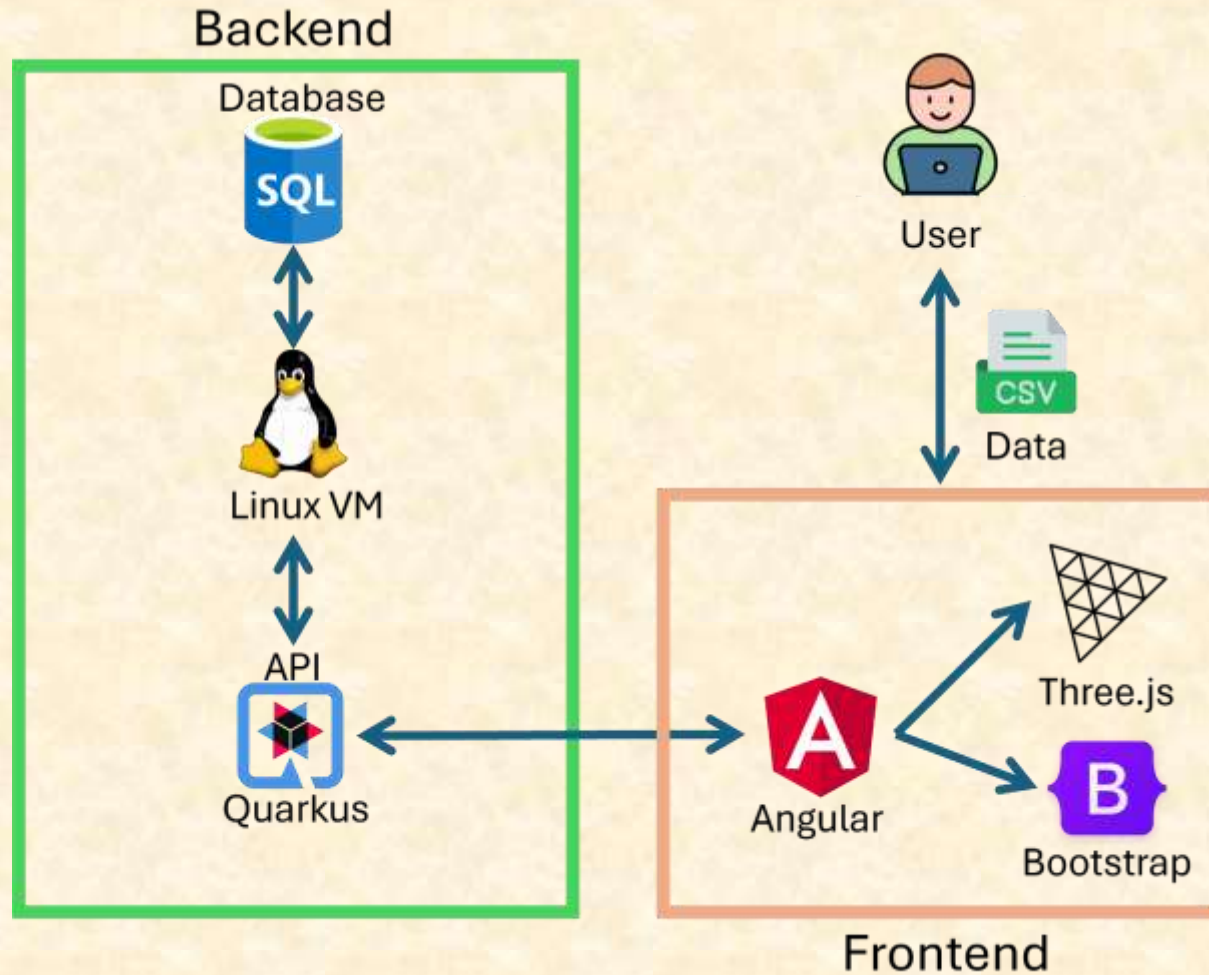
## Technical Tasks Completed

- Ben Crimmins
  - Three.js integration with frontend
  - Tooth selection on model and tooth selection viewer
  - Visual Indicators on mouth model and timeline
- Lance Stemple
  - Creating the home page
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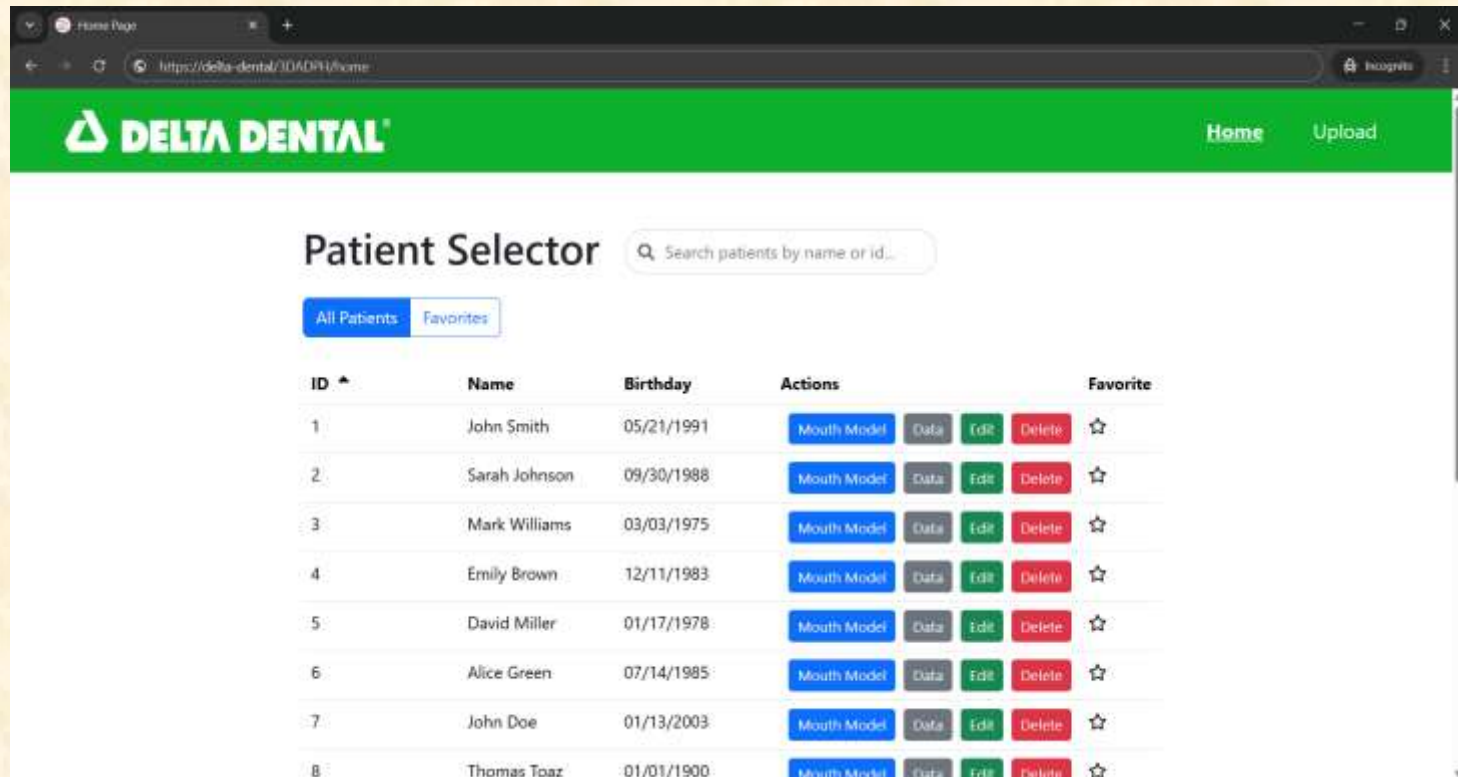


# System Architecture



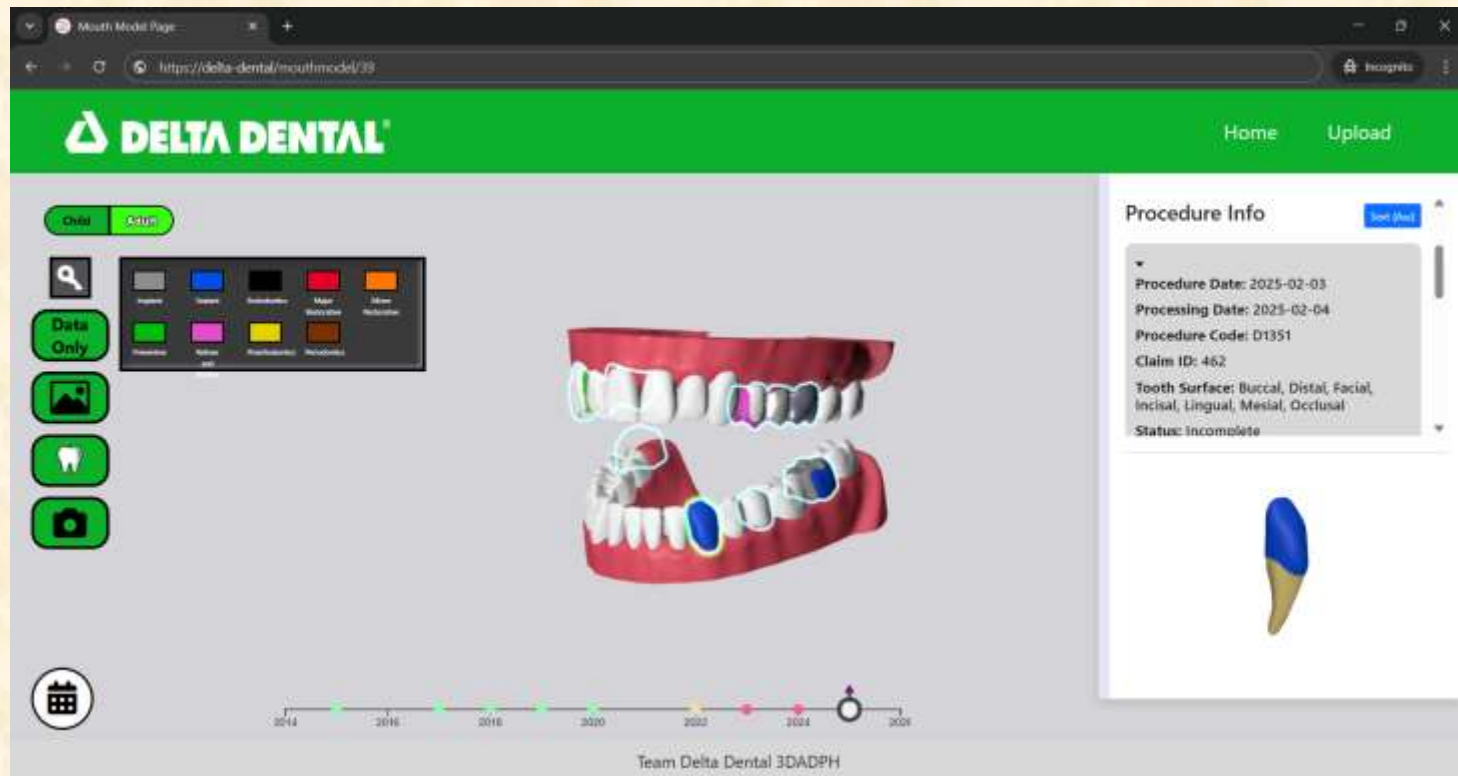


# Home Page





# Mouth Model





# Upload Patient/Procedure

The screenshot shows a web browser window with the URL <https://delta-dental/upload.htm>. The page has a green header with the Delta Dental logo and navigation links for "Home" and "Upload". Below the header, there are two tabs: "Upload Procedure" (active) and "Upload Patient". The main form is divided into two columns. The left column contains fields for "Patient ID" (39), "Procedure Date" (04/02/2025), "Processing Date" (04/04/2025), and "Procedure Code" (D5875). The right column contains fields for "Tooth Code" (2), "Tooth Surface" (None, Buccal, Distal), "Status" (Incomplete), and "Notes" (Enter notes). A green "Submit" button is at the bottom of the form. Below the form is a "Select CSV File" button.

Patient ID	Tooth Code
39	2

Procedure Date	Tooth Surface
04/02/2025	None x Buccal x Distal x +5

Processing Date	Status
04/04/2025	Incomplete

Procedure Code	Notes
D5875	Enter notes

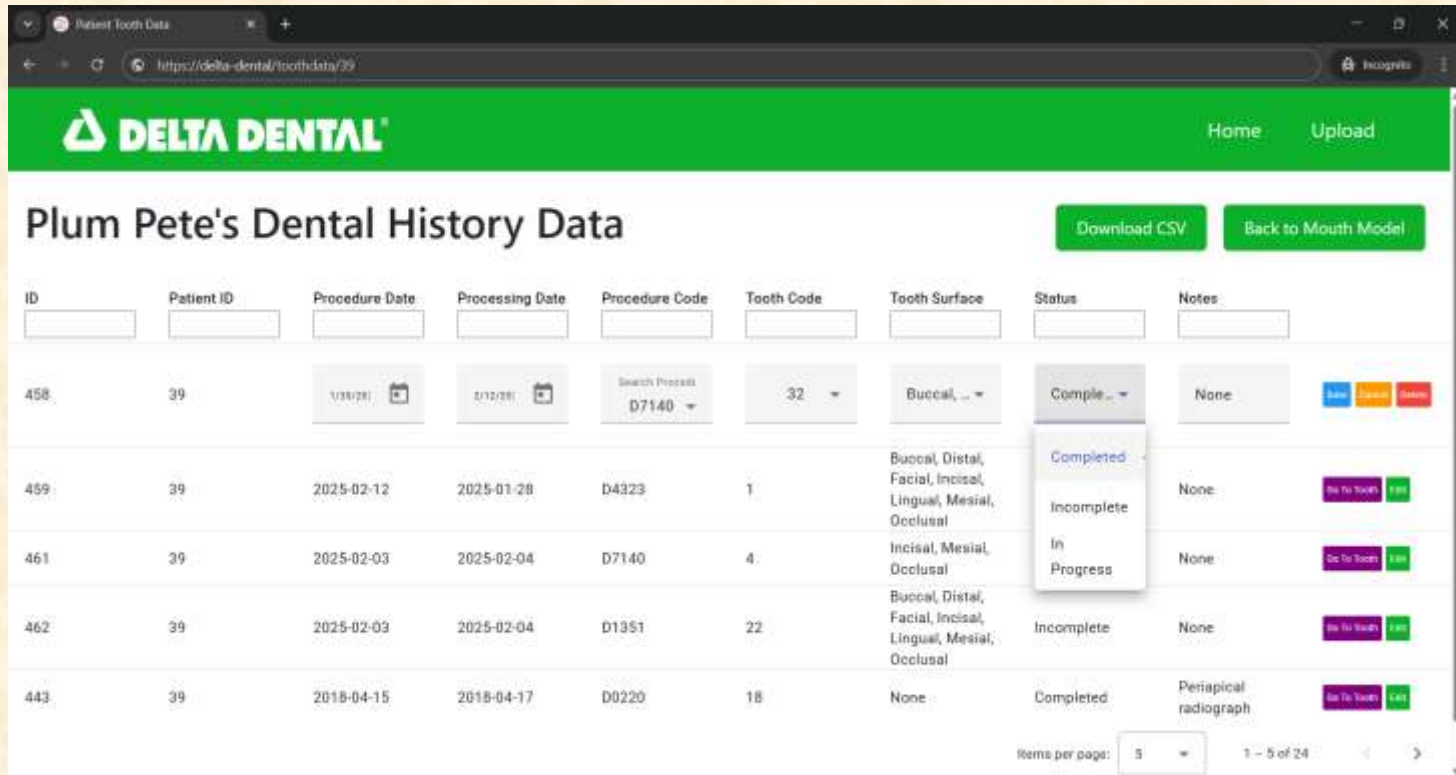
Submit

Select CSV File





# Patient Procedures Page



Delta Dental

Home Upload

### Plum Pete's Dental History Data

Download CSV Back to Mouth Model

ID	Patient ID	Procedure Date	Processing Date	Procedure Code	Tooth Code	Tooth Surface	Status	Notes
458	39	1/30/25	2/12/25	Search Process D7140	32	Buccal, ...	Complete	None
459	39	2025-02-12	2025-01-28	D4323	1	Buccal, Distal, Facial, Incisal, Lingual, Mesial, Occlusal	Incomplete	None
461	39	2025-02-03	2025-02-04	D7140	4	Incisal, Mesial, Occlusal	In Progress	None
462	39	2025-02-03	2025-02-04	D1351	22	Buccal, Distal, Facial, Incisal, Lingual, Mesial, Occlusal	Incomplete	None
443	39	2018-04-15	2018-04-17	D0220	18	None	Completed	Periapical radiograph

Items per page: 5 1 - 5 of 24





# What's left to do?

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- Features
- Stretch Goals
  - Dark mode
- Other Tasks
  - Bug fixes
  - User interface updates



# Questions?

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