Project Plan Presentation
Smart Benefit Recommender Engine

The Capstone Experience
Team Delta Dental Data Science

Nicole Keller
Arden Knoll
Nick Lenaghan
Derek Nguyen

Department of Computer Science and Engineering
Michigan State University
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Functional Specifications

- Recommend personalized insurance plans
- Automate process of aggregating data
- For either individuals or small businesses
Design Specifications

• Create a simple web application that can be accessed via browser on any device
• Segment customers by having them answer a minimal number of questions
• User will fill in several blanks, and be placed into a cluster based on their attributes
  ▪ These clusters represent the optimal dental insurance plan for the end user to choose from
Screen Mockup: Choosing Path

So tell me about yourself

I am Choose One

Continue
Screen Mockup: Individual

Let me know a bit more so I can help you find the best plan

My name is name and I was born XX/XX/XXXX. My phone number is (XXX)XXX-XXXX. I live at Address. I'm looking to insure X people.
Screen Mockup: Small Business

Let me know a bit more so I can help you find the best plan

I'm the business owner of **name** we're located at **Address**.

Our phone number is **(XXX)XXX-XXXX**.

I'm looking to insure **number** of employees.
Screen Mockup: Recommend

This is the plan I think works best for you

$XX.XX per month

Start Date XX/XX

Pay Now

download quote
Screen Mockup: Mobile Web Version

Let me know a bit more so I can help you find the best plan

My name is name
and I was born XX/XX/XXXX
My phone number is (XXX)XXX-XXXX
I live at Address
I’m looking to insure X people.

Continue
Technical Specifications

• Front-End
  ▪ Collects information from user input.
  ▪ Displays a recommended benefit plan to user.
  ▪ Developed in Angular with HTML, CSS, and JavaScript.

• Back-End
  ▪ Back-end code pulls Delta Dental Customer data from database.
  ▪ K-means finds clusters in pre-existing customer data.
  ▪ New user data mapped to nearest cluster/best benefit plan.
System Architecture
System Components

• Hardware Platforms
  ▪ No specific hardware
    o Front-end runs in browser on any device.
    o Back-end runs in the cloud.

• Software Platforms / Technologies
  ▪ Front-End
    o Angular
    o HTML/CSS/JavaScript
  ▪ Back-End
    o Python: Jupyter Notebooks, Scikit Learn, and Pandas
    o Snowflake
Risks

- **Risk 1: Data Cleaning**
  - The individual dataset is extremely large dataset with few sparse columns making data cleaning less straightforward
  - Use additional factors (like column type) to determine whether to keep

- **Risk 2: Data Clustering**
  - The data might extremely similar and thus, there would not be many clear distinct segments to choose from.
  - During data exploration, identify and focus specifically on features that show a large distribution of data.

- **Risk 3: Data Security**
  - Malicious data like SQL injections entered into the data fields
  - Design architecture to minimize this risk and check input for SQL injections

- **Risk 4: Accessibility**
  - Making sure the website is accessible for both mobile and desktop user
  - Use website elements shared between both with a barebones version
Questions?