

MICHIGAN STATE
UNIVERSITY

Beta Presentation

Microsoft Excel Data Extractor/Modeler

The Capstone Experience

Team Delta Dental Knowledge Science

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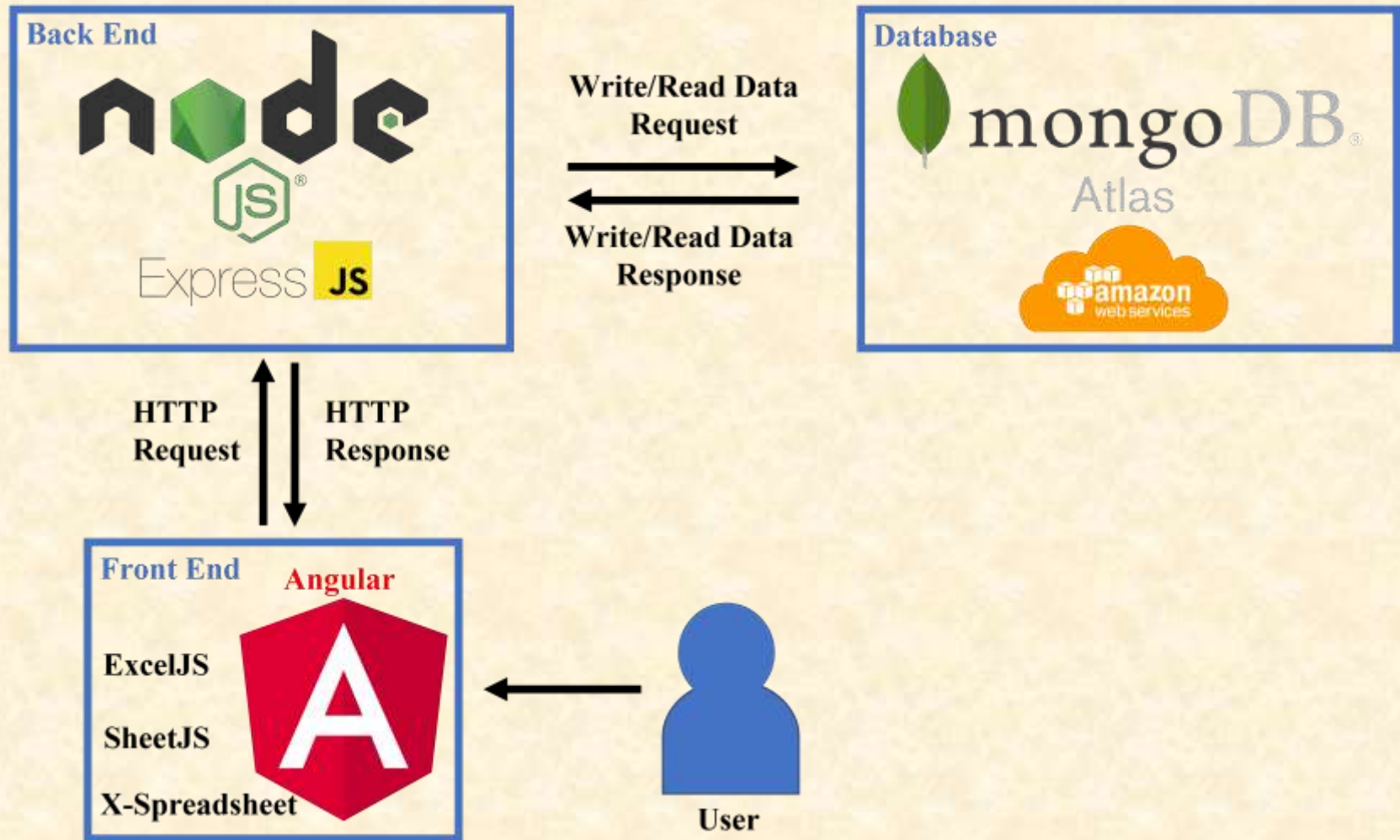
From Students...
...to Professionals

Project Overview

- Intuitive web application
- Adds implied context to Excel data
- Labels data based on user input
- Improve efficiency of Delta Dental employees
- Remove reliance on code developers
- Dynamic, functional for all data models



System Architecture



Edit

The screenshot shows a spreadsheet application with the following data structure:

	Michigan			Ohio			Indiana		
	Subscriber	Spouse	Dependent	Subscriber	Spouse	Dependent	Subscriber	Spouse	Dependent
Teeth Cleaning	54.58	54.58	54.58	77	77	77	72.8	72.8	72.8
Teeth Whitening	86.8	86.8	86.8	547.4	547.4	547.4	473.8	473.8	473.8
Extractions	473.8	473.8	473.8	1151.68	1151.68	1261.48	1038.4	1038.4	1137.4
Veneers	245.92	245.92	245.92	427	427	427	252.28	252.28	252.28
Fillings	427	427	427	1858.32	1858.32	1858.32	6143.85	6143.85	6143.85
Crowns	1858.32	1858.32	1858.32	218.36	218.36	218.36	5891.12	5891.12	5891.12
Root Canal	218.36	218.36	218.36	471.4	471.4	5186	236.81	236.81	236.81
Braces	471.4	471.4	471.4	386.25	386.25	386.25	486.25	486.25	486.25
Invisalign	5891.12	5891.12	5891.12	2741.44	2741.44	2741.44	2736	2736	2736
Bonding	5891.12	5891.12	5891.12						
Dentures	5891.12	5891.12	5891.12						
X-Rays	5891.12	5891.12	5891.12						
Bridge	5891.12	5891.12	5891.12						
Sealant	5891.12	5891.12	5891.12						
Wisdom Teeth	5891.12	5891.12	5891.12						

The right sidebar shows a list of labels for the spreadsheet cells:

- Label
- Michigan B1:D17
- Ohio E1:G17
- Indiana H1:J17
- Subscriber B2:B17
- Subscriber E2:E17
- Subscriber H2:H17
- Spouse C2:C17
- Spouse I2:I17
- Spouse F2:F17
- Dependent D2:D17
- Dependent G2:G17
- Dependent J2:J17
- Procedure A3:J17
- TeethWhitening A8:J4
- Veneers A6:J6
- Fillings A7:J7
- Crowns A8:J8
- RootCanal A9:J9
- Braces A10:J10
- Invisalign A11:J11
- Bonding A12:J12
- Dentures A13:J13
- X-Rays A14:J14
- Bridge A15:J15
- Sealant A16:J16



Label

The screenshot shows a web browser window with a spreadsheet application. The spreadsheet has columns for 'Michigan', 'Ohio', and 'Indiana', each with sub-columns for 'Subscribe', 'Spouse', and 'Dependent'. A 'Labeling' dialog box is open, showing 'Cell Range' as 'B1:B17' and 'Label' as 'Michigan'. The spreadsheet data is as follows:

	Michigan			Ohio			Indiana		
	Subscribe	Spouse	Dependent	Subscribe	Spouse	Dependent	Subscribe	Spouse	Dependent
Teeth Cleaning	34.16	34.16	34.16						
Tooth Whitening	66.8	66.8	66.8	77	77	77	72.8	72.8	72.8
Extractions	473.8	473.8	473.8	547.4	547.4	547.4	473.8	473.8	473.8
Veneers				1151.68	1151.68	1261.40	1038.4	1038.4	1137.4
Fillings	245.52	245.52	245.52				262.26	262.26	262.26
Crowns	427	427	427						
Root Canal	652.86	652.86	652.86						
Braces									
Wisdom									
Bonding	216.36	216.36	216.36						
Dentures				4714	4714				
X-Rays				246.76	246.76				
Seals	478.88	478.88	478.88				486.25	486.25	486.25
Sealant	296.9	296.9	296.9	306.25	306.25	306.25			
Wisdom Teeth				2545.44	2545.44	2761.44	2736	2736	2636



Query

Client

localhost:42700/query.aspx?state=MI&F1814d85cb64b242bd1b86f

Edit List Upload

Michigan

- Procedure
 - TeethCleaning
 - TeethCleaningMultiplier
 - TeethWhitening
 - TeethWhiteningMultiplier
 - Extractions
 - ExtractionsMultiplier
 - Veneers
 - VeneersMultiplier
 - Fillings
 - FillingsMultiplier
 - Crowns
 - CrownsMultiplier
 - RootCanal
 - RootCanalMultiplier
 - Braces
 - BracesMultiplier
 - Invisalign
 - InvisalignMultiplier
 - Bonding
 - BondingMultiplier
 - Dentures
 - DenturesMultiplier
 - X-Rays
 - X-RaysMultiplier
 - Bridge
 - BridgeMultiplier
 - Sealant
 - SealantMultiplier
 - WisdomTeeth
 - WisdomTeethMultiplier
 - MichiganMultiplier
 - SubscriberMultiplier
 - SpouseMultiplier

Enter a query:

TotalCoverage[^MichiganCoverage]=TeethCleaning[^PatientType]*TimesCovered+TeethWhitening[^PatientType]*TimesCovered+Extractions[^PatientType]*TimesCovered+Veneers[^PatientType]*TimesCovered+Fillings[^PatientType]*TimesCovered+Bridge[^PatientType]*TimesCovered+Sealant[^PatientType]*TimesCovered+WisdomTeeth[^PatientType]*TimesCovered

TotalCoverage[^IndianaCoverage]=TeethCleaning[^PatientType]*TimesCovered+TeethWhitening[^PatientType]*TimesCovered+Extractions[^PatientType]*TimesCovered+Veneers[^PatientType]*TimesCovered+Fillings[^PatientType]*TimesCovered+Bridge[^PatientType]*TimesCovered+Sealant[^PatientType]*TimesCovered+WisdomTeeth[^PatientType]*TimesCovered

TotalCoverage[^OhioCoverage]=TeethCleaning[^PatientType]*TimesCovered+TeethWhitening[^PatientType]*TimesCovered+Extractions[^PatientType]*TimesCovered+Veneers[^PatientType]*TimesCovered+Fillings[^PatientType]*TimesCovered+Bridge[^PatientType]*TimesCovered+Sealant[^PatientType]*TimesCovered+WisdomTeeth[^PatientType]*TimesCovered

TotalCoverage

Veneers

Fillings

Crowns

RootCanal

Braces

Invisalign

base VeneersMultiplier FillingsBase FillingsMultiplier CrownsBase CrownsMultiplier RootCanalBase RootCanalMultiplier BracesBase BracesMultiplier InvisalignBase InvisalignMultiplier Bonding



DSL

```
Pricing_Books_2016_01.xlsx - Notepad
File Edit Format View Help
# DSL for Pricing_Books.xlsx

# Relations

$Procedure : { TeethWhitening, Veneers, Fillings, Crowns, RootCanal, Braces, Invisalign, Bonding, Dentures, X-Rays, Bridge, Sealant, WisdomTeeth, Teeth Cleaning, Extractions, TeethCleaning, TeethWhitening, Extractions, Veneers, FJ
$Michigan : { Subscriber, Spouse, Dependent };
$Ohio : { Subscriber, Spouse, Dependent };
$Indiana : { Subscriber, Spouse, Dependent };
$BaseRate : { SubscriberBase, SpouseBase, DependentBase };
$Multiplier : { MichiganMultiplier, OhioMultiplier, IndianaMultiplier };

# Data

$Michigan_Subscriber : {
    54.56,
    86.8,
    473.8,
    1057.2800000000002,
    245.92,
    427,
    1650.06,
    5756.400000000001,
    5338.51999999999995,
    218.36,
    5232.540000000001,
    230.83999999999997,
    470.77
};

# Formulas

TotalCoverage["MichiganCoverage"]=TeethCleaning["PatientType"]*TimesCovered+TeethWhitening["PatientType"]*TimesCovered+Extractions["PatientType"]*TimesCovered+Veneers["PatientType"]*TimesCovered+Fillings["PatientType"]*TimesCovered+Crowns["PatientType"]*TimesCovered+RootCanal["PatientType"]*TimesCovered+Braces["PatientType"]*TimesCovered+Invisalign["PatientType"]*TimesCovered+Bonding["PatientType"]*TimesCovered+Dentures["PatientType"]*TimesCovered+X_Rays["PatientType"]*TimesCovered+Bridge["PatientType"]*TimesCovered+Sealant["PatientType"]*TimesCovered+WisdomTeeth["PatientType"]*TimesCovered
TotalCoverage["IndianaCoverage"]=TeethCleaning["PatientType"]*TimesCovered+TeethWhitening["PatientType"]*TimesCovered+Extractions["PatientType"]*TimesCovered+Veneers["PatientType"]*TimesCovered+Fillings["PatientType"]*TimesCovered+Crowns["PatientType"]*TimesCovered+RootCanal["PatientType"]*TimesCovered+Braces["PatientType"]*TimesCovered+Invisalign["PatientType"]*TimesCovered+Bonding["PatientType"]*TimesCovered+Dentures["PatientType"]*TimesCovered+X_Rays["PatientType"]*TimesCovered+Bridge["PatientType"]*TimesCovered+Sealant["PatientType"]*TimesCovered+WisdomTeeth["PatientType"]*TimesCovered
TotalCoverage["OhioCoverage"]=TeethCleaning["PatientType"]*TimesCovered+TeethWhitening["PatientType"]*TimesCovered+Extractions["PatientType"]*TimesCovered+Veneers["PatientType"]*TimesCovered+Fillings["PatientType"]*TimesCovered+Crowns["PatientType"]*TimesCovered+RootCanal["PatientType"]*TimesCovered+Braces["PatientType"]*TimesCovered+Invisalign["PatientType"]*TimesCovered+Bonding["PatientType"]*TimesCovered+Dentures["PatientType"]*TimesCovered+X_Rays["PatientType"]*TimesCovered+Bridge["PatientType"]*TimesCovered+Sealant["PatientType"]*TimesCovered+WisdomTeeth["PatientType"]*TimesCovered
TeethCleaning["PatientType"]=TeethCleaningBase["PatientTypeBase"]*$TeethCleaning["OhioMultiplier"]
TeethWhitening["PatientType"]=TeethWhiteningBase["PatientTypeBase"]*TeethWhitening["OhioMultiplier"]
Extractions["PatientType"]=ExtractionsBase["PatientTypeBase"]*Extractions["OhioMultiplier"]
Veneers["PatientType"]=VeneersBase["PatientTypeBase"]*Veneers["OhioMultiplier"]
Fillings["PatientType"]=FillingsBase["PatientTypeBase"]*Fillings["OhioMultiplier"]
Crowns["PatientType"]=CrownsBase["PatientTypeBase"]*Crowns["OhioMultiplier"]
RootCanal["PatientType"]=RootCanalBase["PatientTypeBase"]*RootCanal["OhioMultiplier"]
Braces["PatientType"]=BracesBase["PatientTypeBase"]*Braces["OhioMultiplier"]
Invisalign["PatientType"]=InvisalignBase["PatientTypeBase"]*Invisalign["OhioMultiplier"]
Bonding["PatientType"]=BondingBase["PatientTypeBase"]*Bonding["OhioMultiplier"]
Dentures["PatientType"]=DenturesBase["PatientTypeBase"]*Dentures["OhioMultiplier"]
X_Rays["PatientType"]=X_RaysBase["PatientTypeBase"]*X_Rays["OhioMultiplier"]
Bridge["PatientType"]=BridgeBase["PatientTypeBase"]*Bridge["OhioMultiplier"]
Sealant["PatientType"]=SealantBase["PatientTypeBase"]*Sealant["OhioMultiplier"]
WisdomTeeth["PatientType"]=WisdomTeethBase["PatientTypeBase"]*WisdomTeeth["OhioMultiplier"]
TeethCleaning["OhioMultiplier"]=TeethCleaning["OhioMultiplier"]+0.02
TeethWhitening["OhioMultiplier"]=TeethWhitening["OhioMultiplier"]+0.02
Bonding["OhioMultiplier"]=Bonding["OhioMultiplier"]+0.02
```



What's left to do?

- Stretch Goals
 - Suggest ranges
 - Suggest labels
 - Knowledge graph
- Other Tasks
 - Add video to instruction's page
 - Workbook creator permissions
 - Form validation / type definition
 - Make label modal focus upon opening, and enable enter save.



Questions?

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