Project Plan Presentation
Microsoft Excel Data Extractor/Modeler

The Capstone Experience

Team Roosevelt Innovations Knowledge Science

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Spring 2024

From Students…
…to Professionals

Project Sponsor Overview

- Provides SaaS for Insurance Analysts

- Founded as a subsidiary of of Delta Dental of Michigan

- Headquartered in Okemos, Michigan

Project Functional Specifications

- Define relationships between data in Excel workbook

- View data relationships with intuitive GUI

- Convert insurance rate calculation data to a more flexible format

- An easy-to-use web interface that helps save time and effort and gets the operation done in an efficient manner

Project Design Specifications

- Upload and view Excel workbooks in web application

- Add labels and measurements to workbooks

- View relationships between labels and measurements with modeler

- Export data as insurance rate calculation represented by GRACE, a domain-specific language

Screen Mockup: Upload

Screen Mockup: Spreadsheet View

Screen Mockup: Labeling

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Screen Mockup: Data Modeler

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Project Technical Specifications

- Web application built using three separate entities.
- Frontend – Angular framework that…
  - Uploads/Downloads excel
  - Parses excel
  - Translates to GRACE
  - Models data
- Backend – Java in a Quarkus container that…
  - Runs computation and translation
  - Communicates with database
- Database – MongoDB cluster that…
  - Stores excel files, label and measurement information and data models.

Project System Architecture

MICROSOFT EXCEL DATA EXTRACTOR/MODELER

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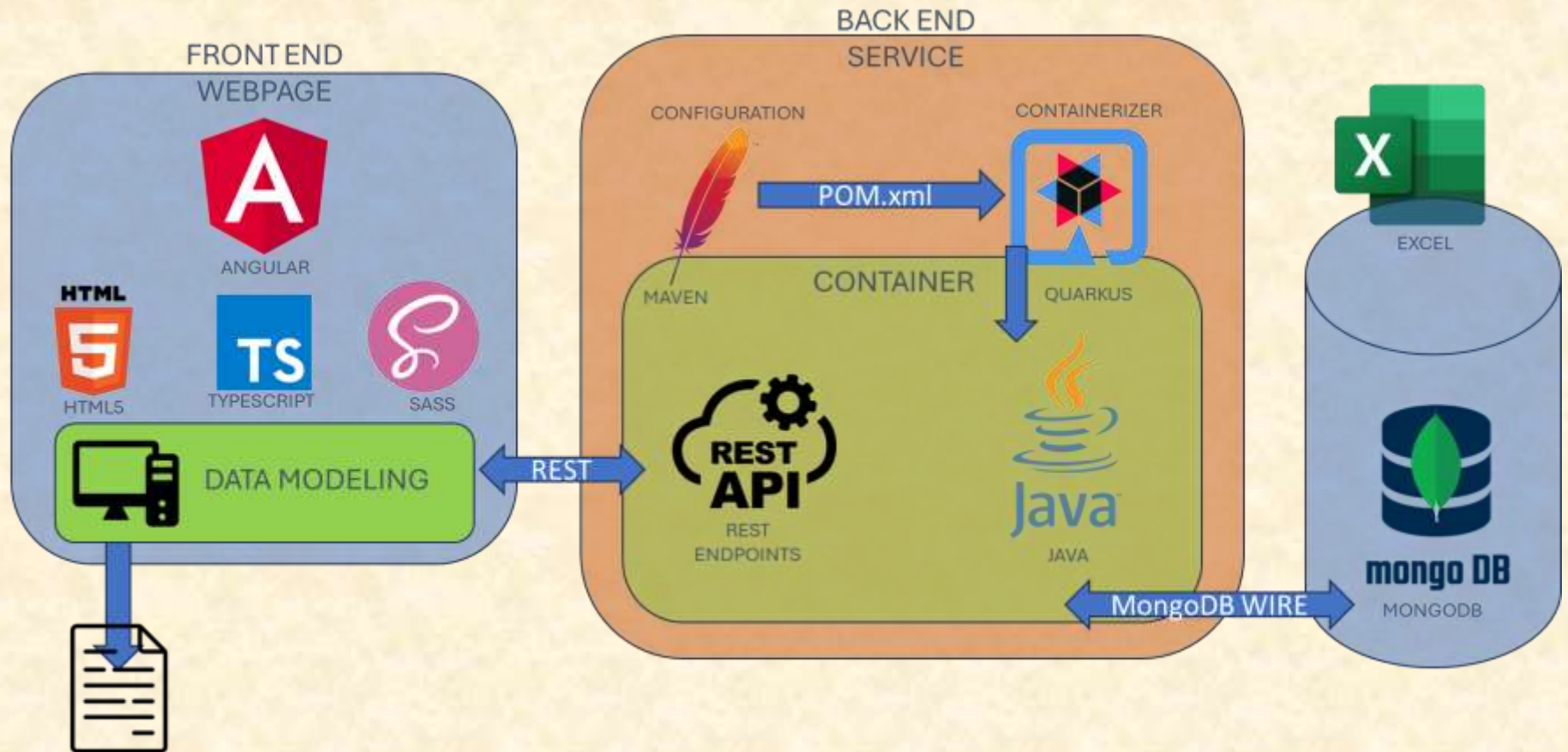
Project System Components

- Hardware Platforms
  - Server running backend and database at Roosevelt Innovations Knowledge Science
  - Desktops viewing software through web app
- Software Platforms / Technologies
  - MongoDB
  - Angular
  - Java
  - Quarkus

Project Risks

- DSL Conversion
  - Project produces GRACE programs, an internal domain-specific language
  - Access to GRACE documentation and compiler to check validity, use of existing conversion code
- Database Server
  - We must ensure that the program is functional using only our own database server, as we will not have access to the client's database
  - Communicate with client to keep as many factors similar as possible between our internal testing server and their server
- Parsing Excel Workbooks
  - Data must be properly stored and handled from Excel workbooks, including those with multiple spreadsheets
  - Use provided backend code as a starting point, identify limitations
- Library for Displaying Excel Workbooks
  - Identify library for displaying workbooks that allows custom context actions without modifying library source code, if possible
  - X-data-spreadsheet was initially recommended, identify its limitations and possibly other libraries to work with it

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Questions?

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