MICHIGAN STATE UNIVERSITY

Project Plan Presentation

General Rate Calculation Environment Shell

The Capstone Experience

Team Delta Dental Knowledge Science 2

Dylan Boyd
Kyle Ernster
Huy Nguyen
Justin Park
David Robbins
Yang Zhao

Department of Computer Science and Engineering
Michigan State University

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From Students…
…to Professionals

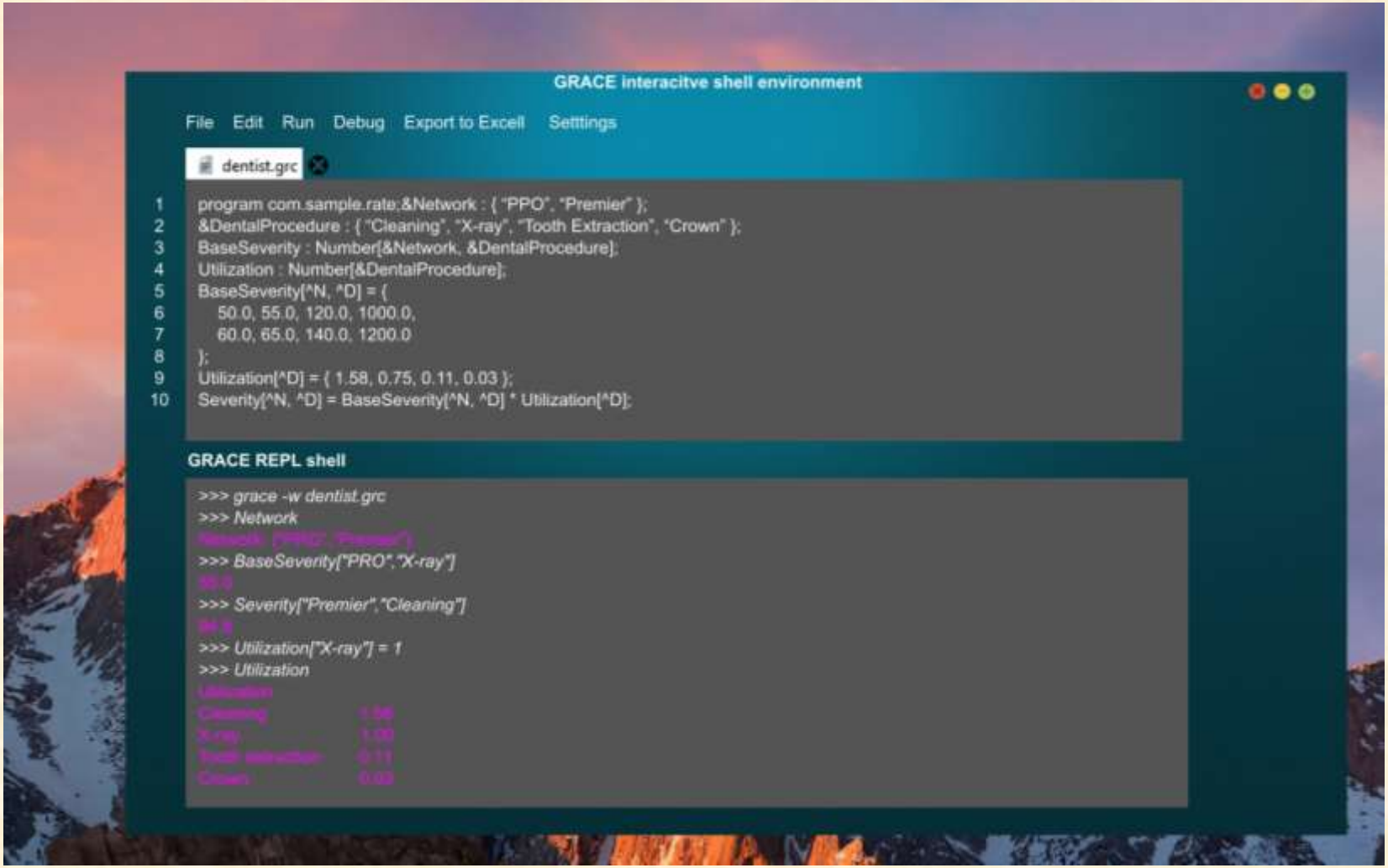
Functional Specifications

- GRACE can be difficult to use for people who are unfamiliar with the technology it involves.
- We aim to provide GRACE program developers with the same valuable console support you would find in mainstream programming languages.
- Our interactive shell will allow for interactive development, real-time testing, and provide traceability of the development process.

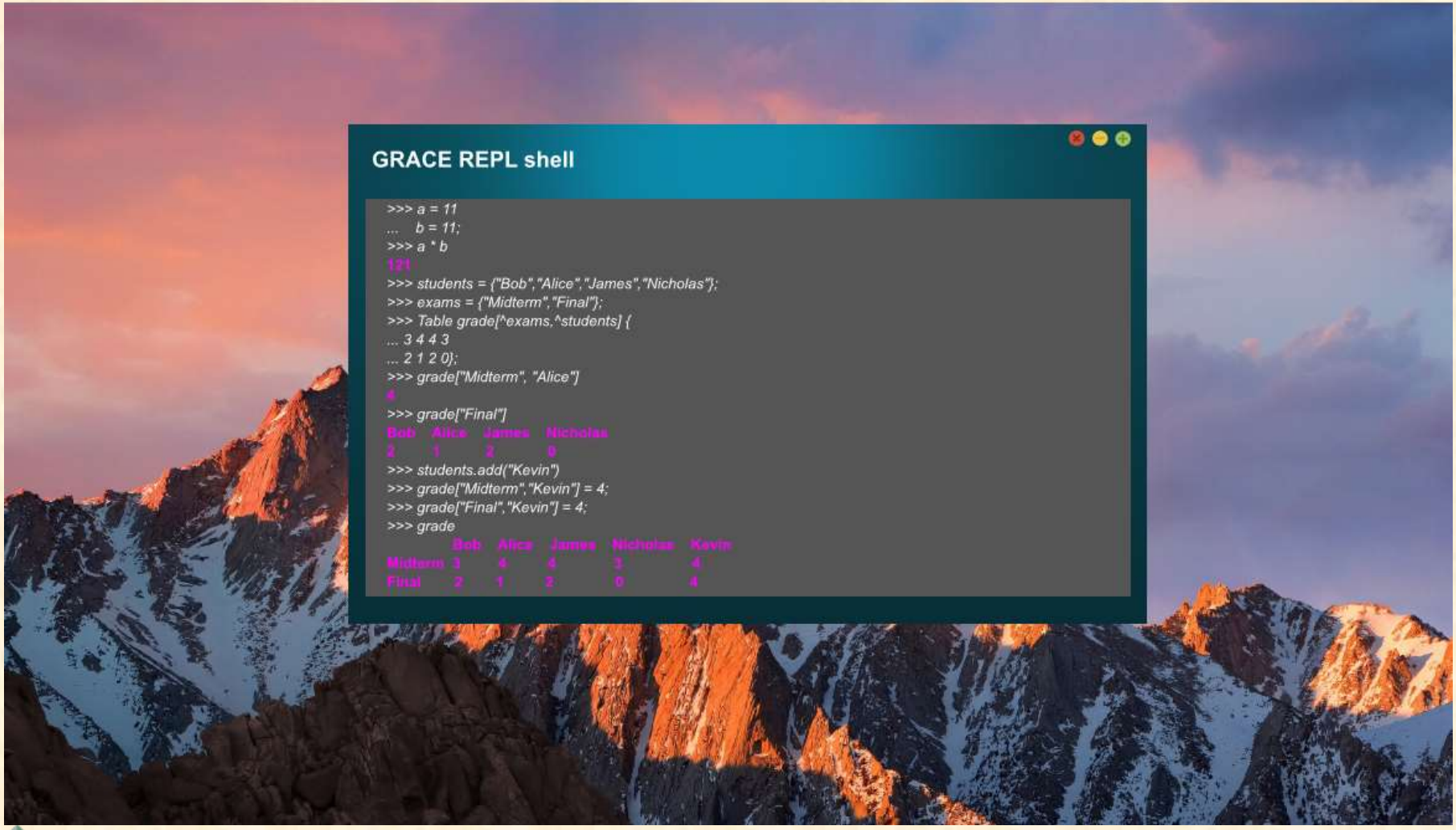
Design Specifications

- Meant for both technical and non-technical users
- User side terminal that looks like an OS shell
- Prompts user for command
- Can save/load data files

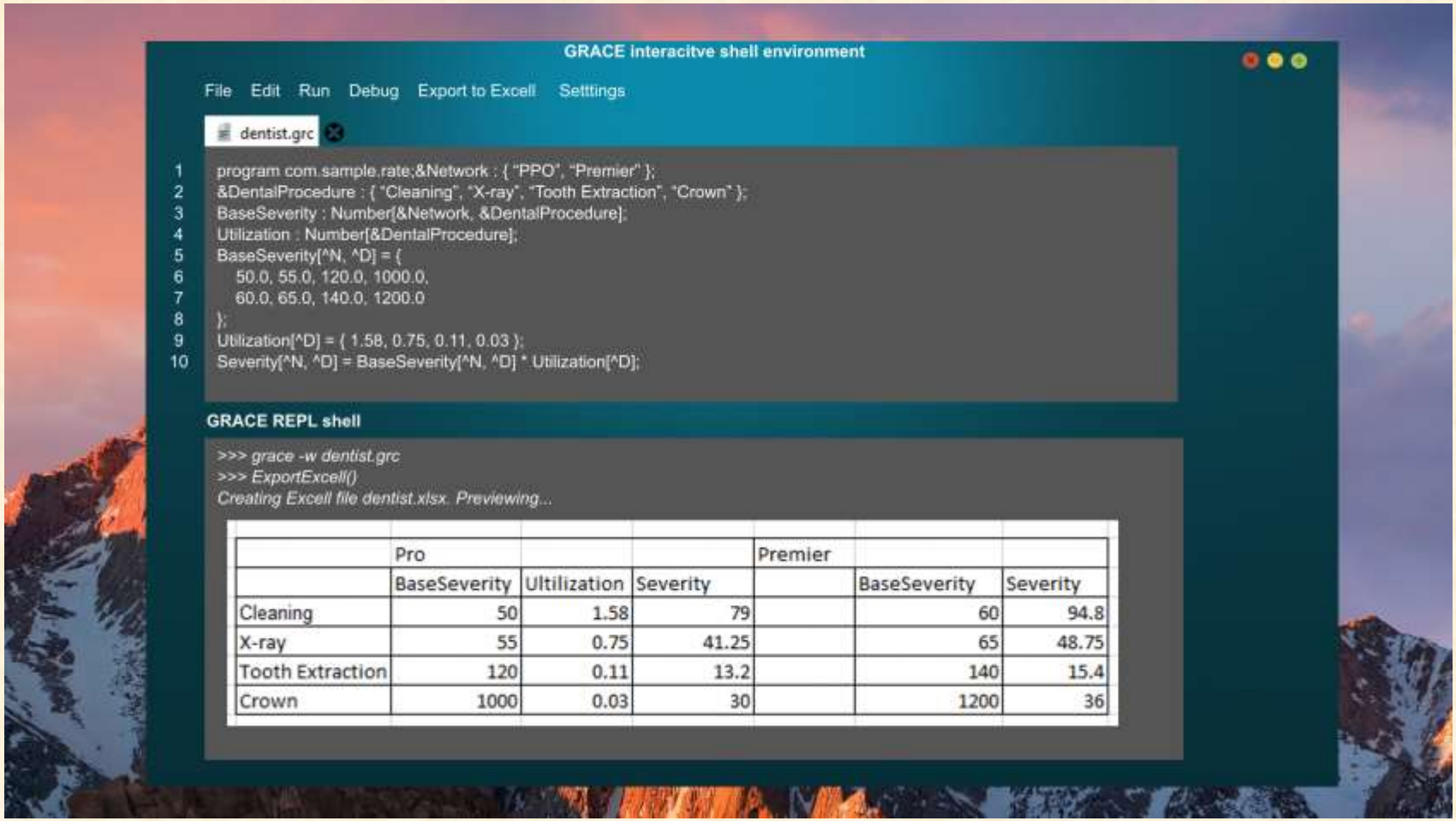
Screen Mockup: GRACE interactive shell



Screen Mockup: GRACE shell only

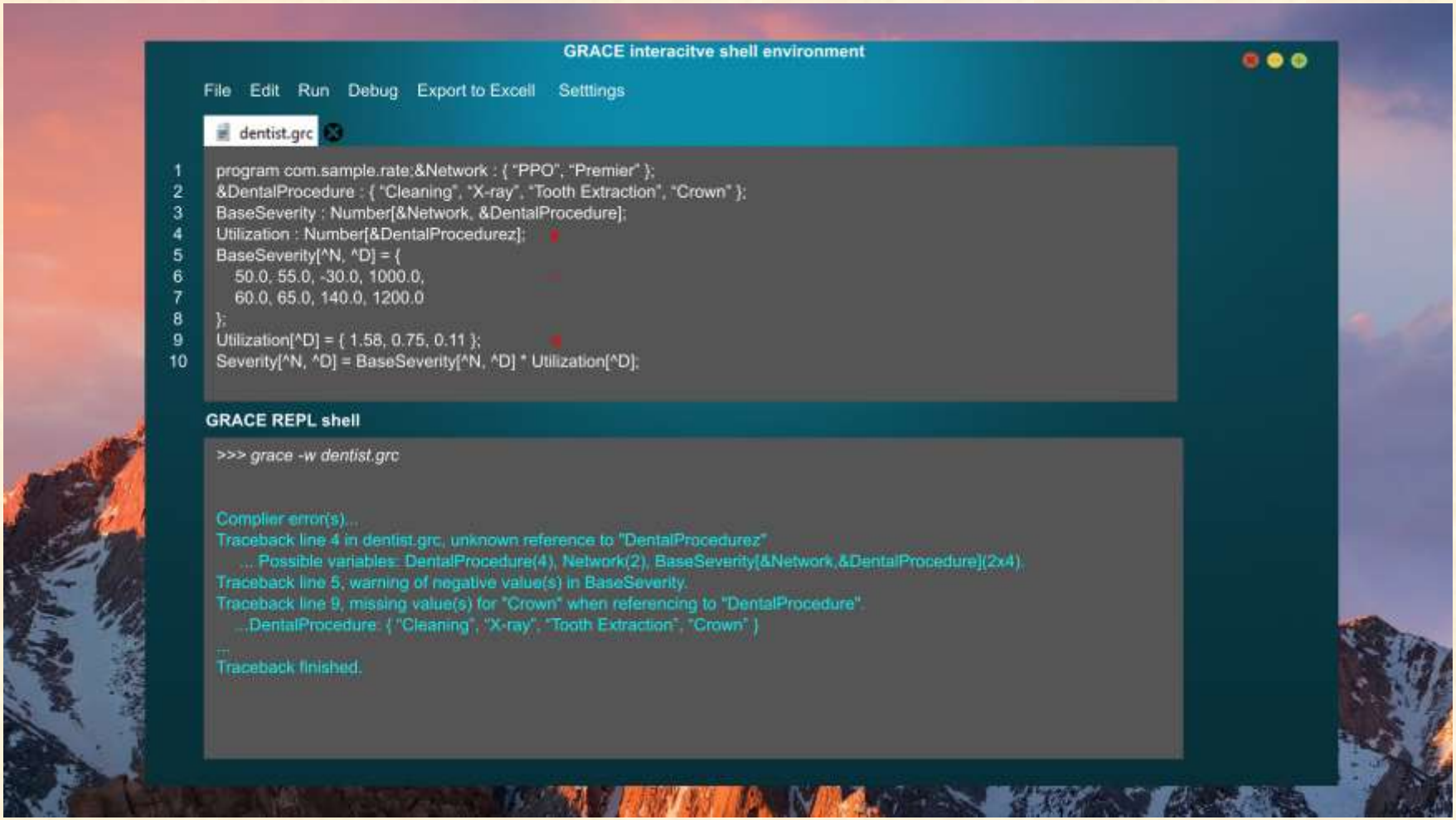


Screen Mockup: Export to Excel



	Pro			Premier		
	BaseSeverity	Ultilization	Severity		BaseSeverity	Severity
Cleaning	50	1.58	79		60	94.8
X-ray	55	0.75	41.25		65	48.75
Tooth Extraction	120	0.11	13.2		140	15.4
Crown	1000	0.03	30		1200	36

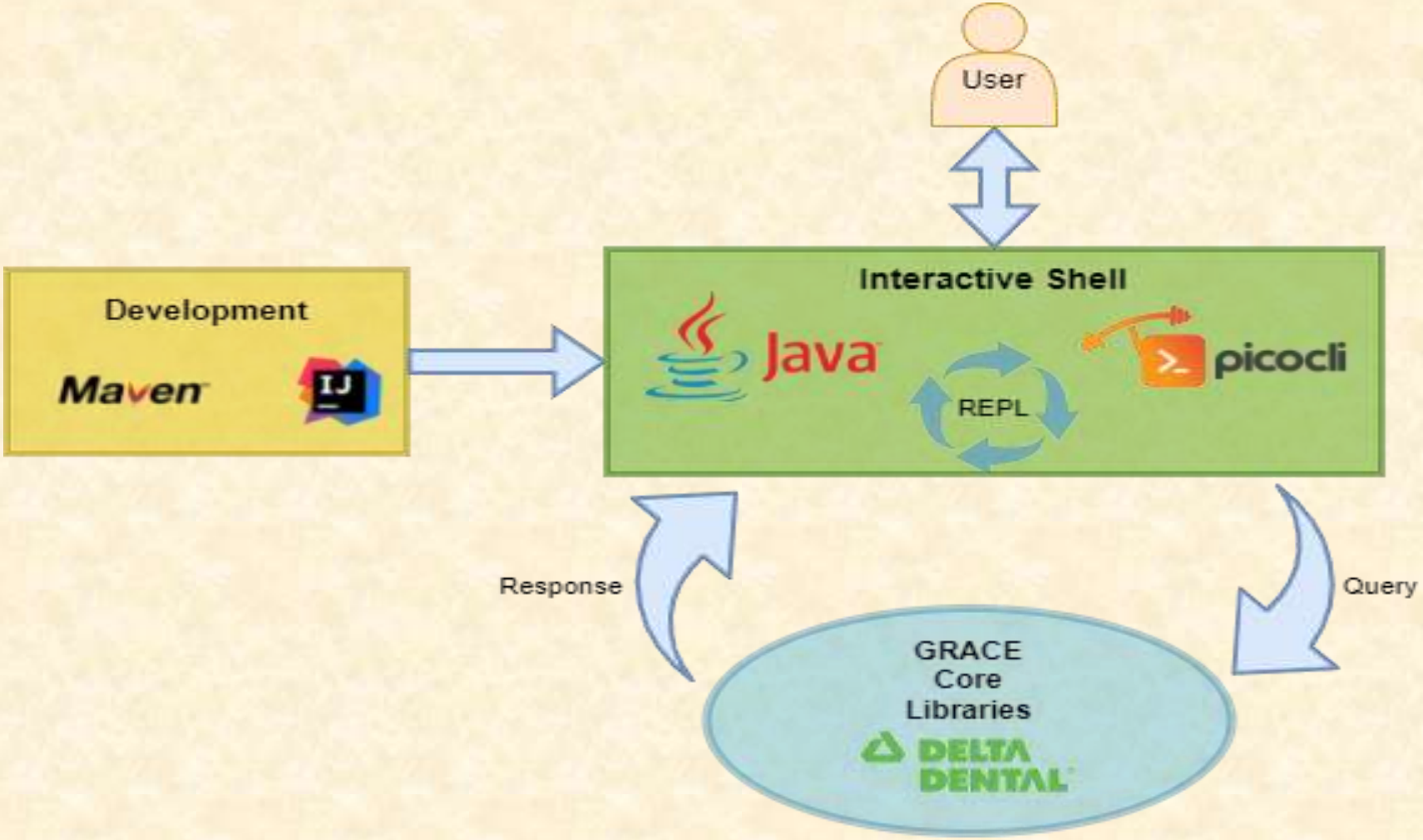
Screen Mockup: Error Checking



Technical Specifications

- Bundled, single .jar, Java desktop application
- Runs GRACE commands in a REPL Shell session.
- Commands will build models and compute rate calculations that access GRACE libraries.
- Stores commands in the shell session state.
- Can save the session's commands as a file and load it in a different session, restoring the state.

System Architecture



System Components

- Software Platforms / Technologies
  - JDK – version 17.0.2
  - Picocli – framework from which command line interface (CLI) will be built.
  - Maven – manages build pipeline for the project including dependency control, testing, deploying, etc.
  - IntelliJ – IDE used for the project development and Maven integration.
  - GRACE Core – Utilized by CLI for algorithms, data structures and other command handling elements.
  - Github – Version control and deployment

Risks

- Risk 1: Command Line Interface Frameworks and Features
  - Our team is still unfamiliar with advanced CLI features and which CLI features would specifically benefit our product.
  - Research various CLIs and consider additional features.
- Risk 2: Readable and Intuitive Syntax
  - The CLI must be easy for a user to learn and be relatively readable.
  - Researching common syntaxes and discussing with client features that would make the system easier to use.
- Risk 3: GRACE Libraries Integration
  - The GRACE libraries are not currently accessible and likely will not be accessible until around the completion of the Alpha version of the product.
  - Picocli was picked for its natural language processing.
  - Alpha version will be developed with integration in mind.

Questions?