

**MICHIGAN STATE**  
**UNIVERSITY**

## Project Plan

# Surge xOS: Visualization of Automated Underwriting The Capstone Experience

Team Surge Solutions

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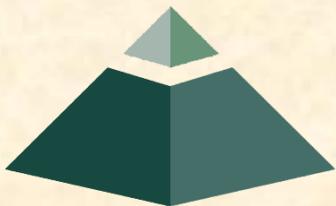
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*From Students...  
...to Professionals*

# Functional Specifications

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- Make Loan Underwriting Process Fast and Accurate
  - Recommend products directly to customers
  - Allow loan officers to easily view eligible products
- Enable Lenders to Visualize and Adjust Financial Products
  - How the risk and net benefit of a financial product changes as the product policy changes



# Design Specifications

- Web application for users to explore which financial products they qualify for.
  - Allow individuals to enter personal and loan information.
  - Recommends eligible loan products.
- Create a web application for underwriters to run a credit risk analysis.
  - Represented visually as a decision tree.
  - Allow underwriters to manipulate criteria to run different credit risk analyses.



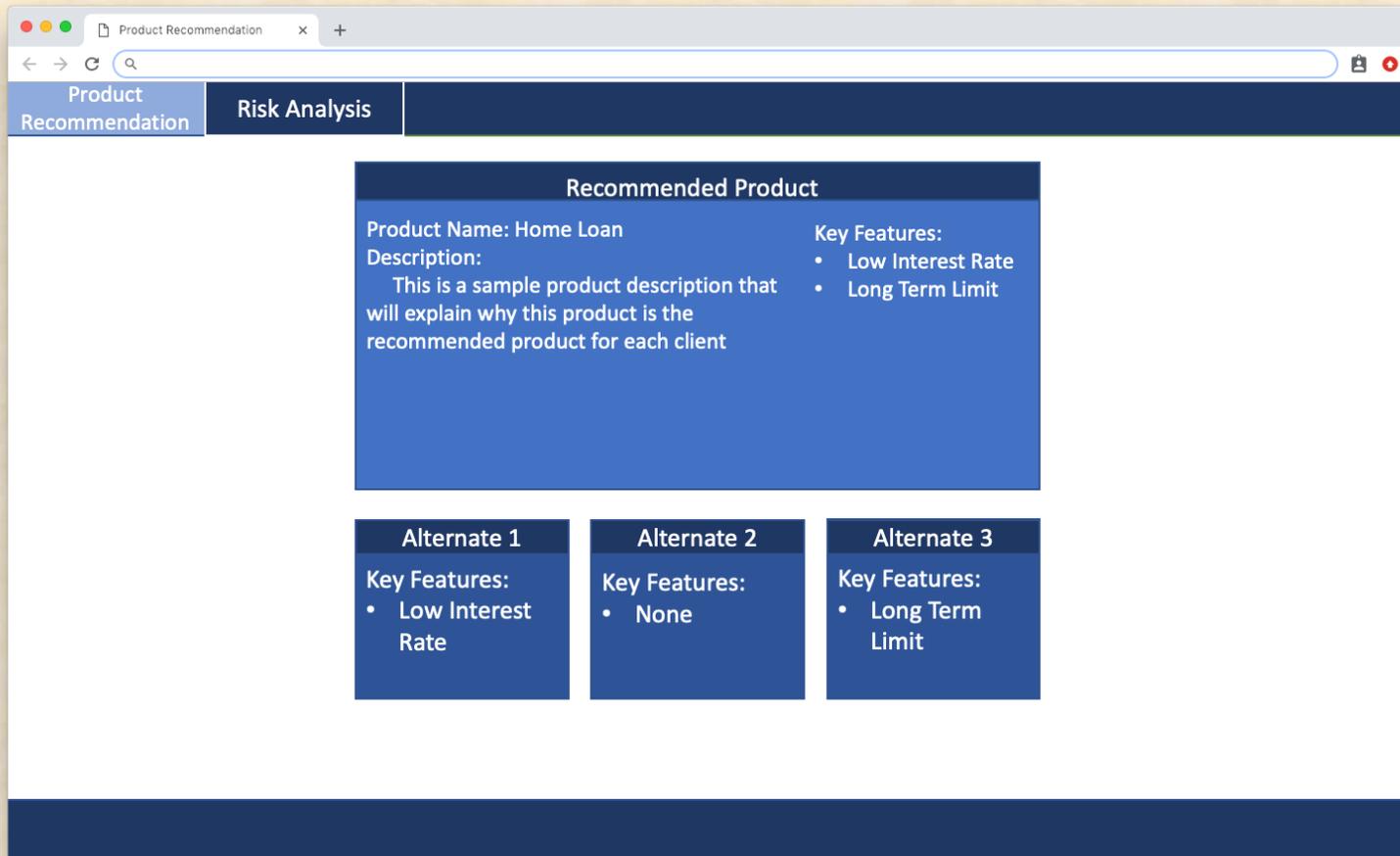
# Screen Mockup: Data Entry

The mockup shows a web browser window with the following elements:

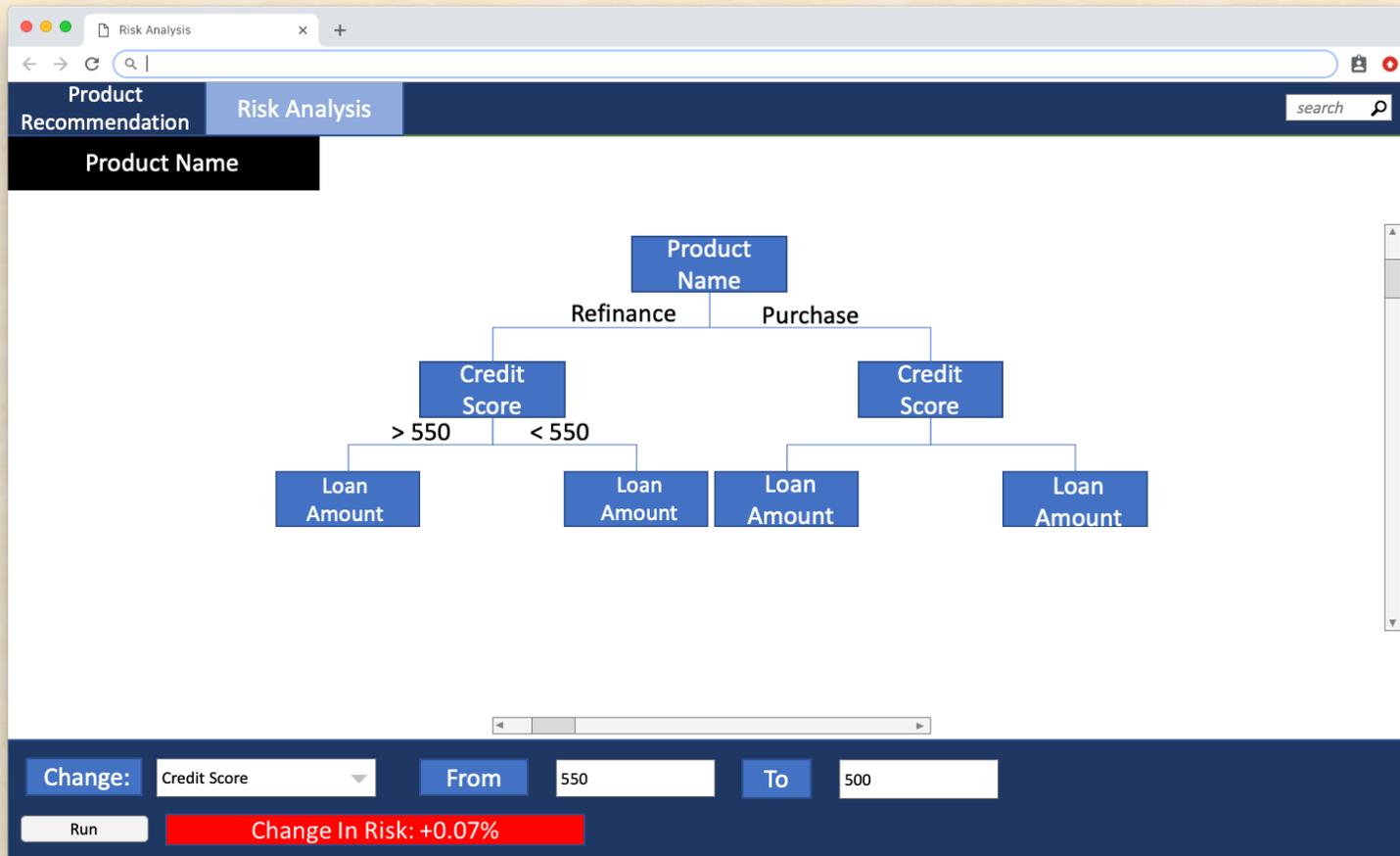
- Browser Tab:** Product Recommendation
- Page Title:** Information Page
- Form Fields:**
  - Name:** [Text Input]
  - Age:** [Text Input]
  - Address:** [Text Input]
  - Employment Status:** [Text Input]
  - Goal of Loan:** [Text Input]
  - Loan Amount:** [Text Input]
  - Income:** [Text Input]



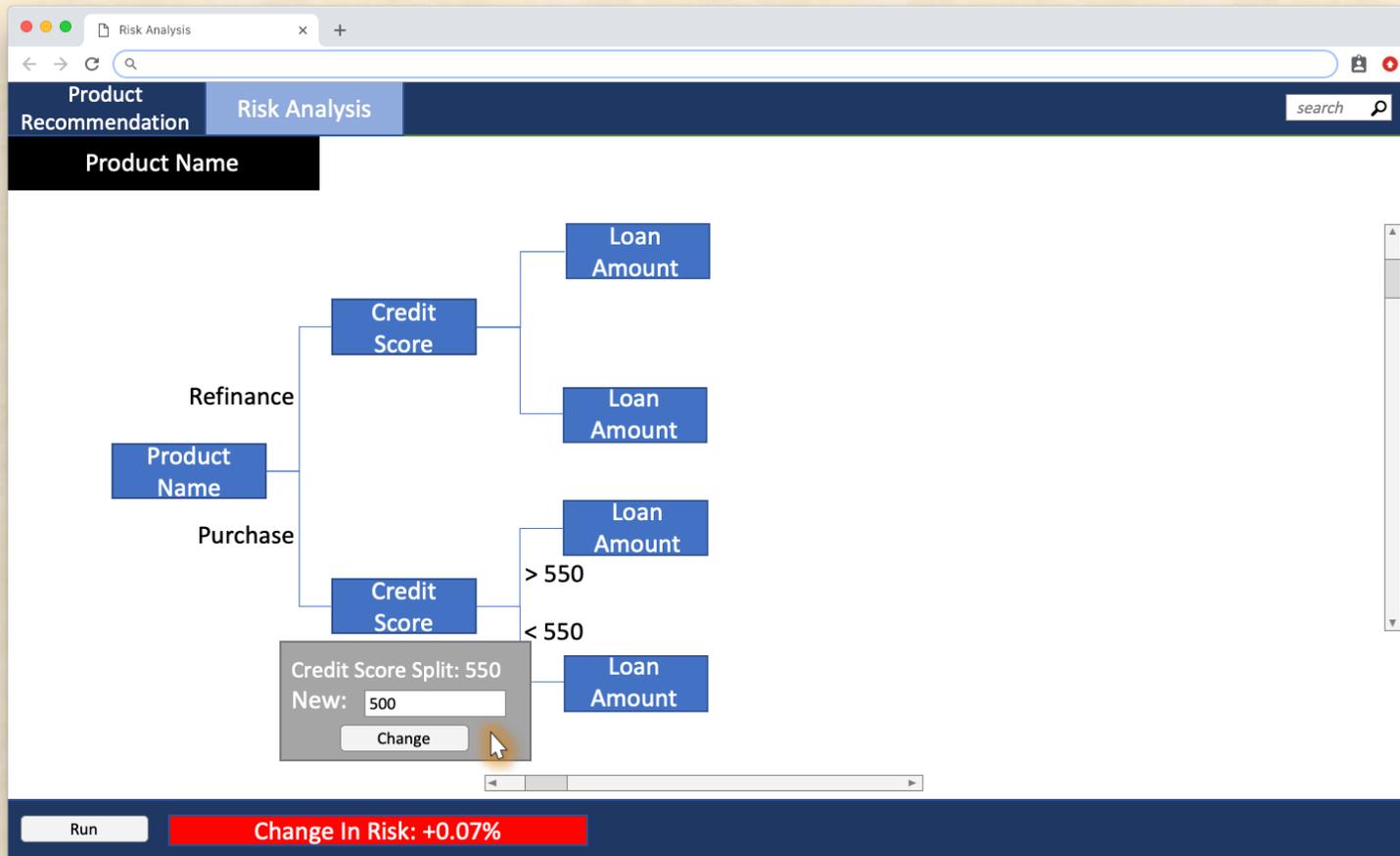
# Screen Mockup: Product Rec



# Screen Mockup: Risk Analysis



# Screen Mockup: Adjust Guidelines



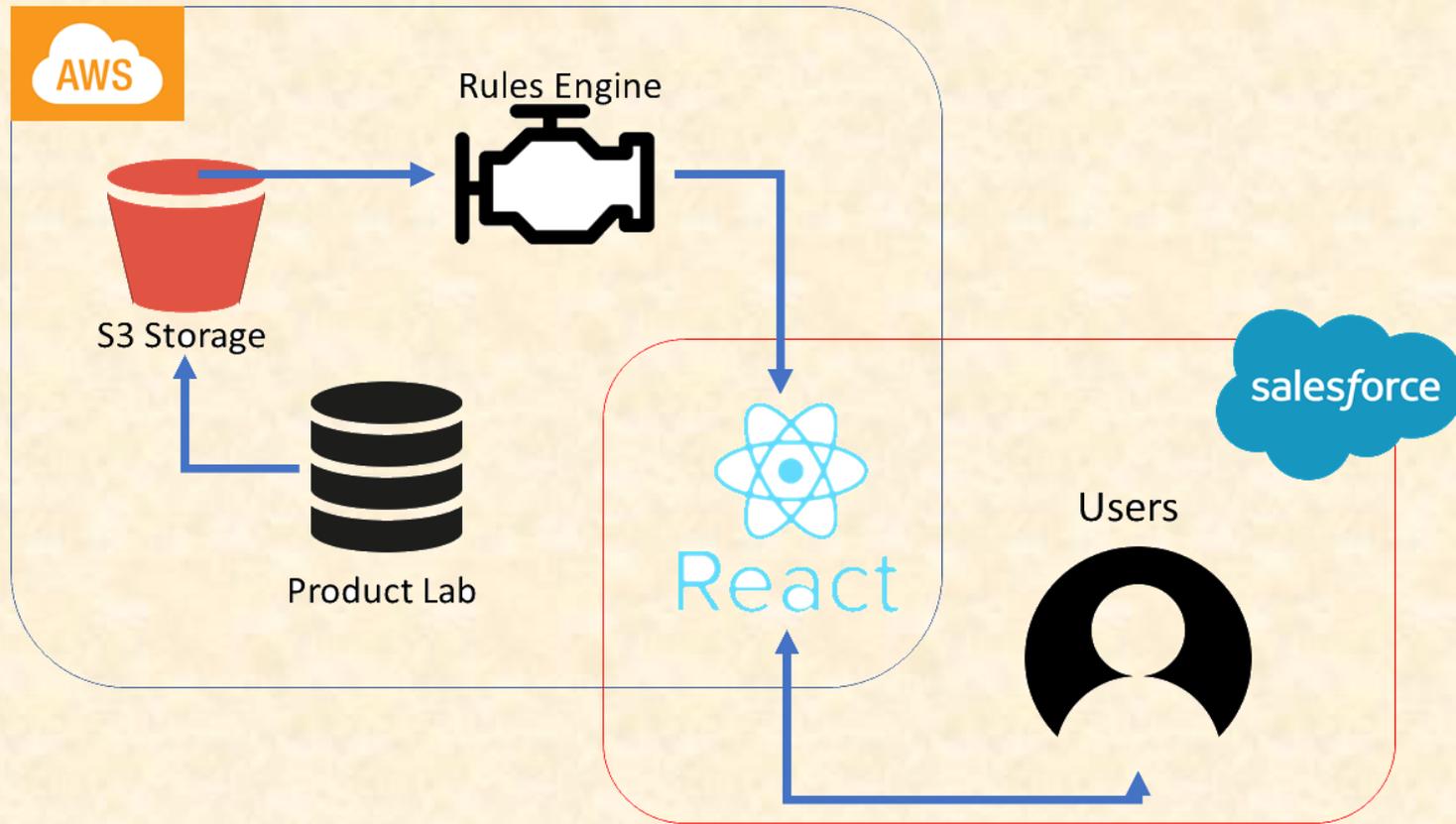
# Technical Specifications

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- Front end of web applications built with React and D3.
  - Both web applications are embedded in the Surge xOS Salesforce instance.
- Hosted on Amazon Web Services with S3
- Employs Monte Carlo simulations
  - Product Recommendation application uses Surge's Product Lab data
  - Credit Risk Analysis application uses past historical loan data



# System Architecture



# System Components

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- Hardware Platforms
  - iMacs
- Software Platforms / Technologies
  - Amazon Web Services (AWS)
  - Salesforce Lightning
  - VS Code
  - Atlassian JIRA and Confluence



# Risks

- Underwriting Process
  - Determining whether a customer is qualified for a financial product.
  - Perform research into different types of financial products and their criteria.
- Product Generalization
  - The product needs to be tailorable to individual clients.
  - Understand components that an end-user needs in the product, design mockups to show the client and potential end users.
- Lack of Concrete Data and Variables
  - No standardized guidelines for the underwriting process so lenders have their own unique criteria.
  - Find a way to read and display the loan criteria to be analyzed.
- Salesforce and xOS Integration
  - Finished application must be able to be embedded in Salesforce and Surge's xOS platform.
  - Receive xOS experience and training with the help of the client and create a simple app.



# Questions?

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