MICHIGAN STATE UNIVERSITY

Beta Presentation
Surge xOS: Visualization of Automated Underwriting
The Capstone Experience
Team Surge Solutions

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Project Overview

• 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
System Architecture

- AWS
- React Web Components
- Product Guidelines
- S3 Bucket
- JSON File Containing All Products
- salesforce
- Product Lab
- API Call
- User
Product Recommendation

Desired Goal of Loan

What is your desired goal of this loan?

- Purchase
- Refinance
- Equity
- Reverse Mortgage

CONTINUE
Product Recommendation

Recommended Product

30-Year Fixed-Rate FHA

<table>
<thead>
<tr>
<th>Interest Rate</th>
<th>APR</th>
<th>Monthly Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2500 %</td>
<td>2.7826 %</td>
<td>$ 993.84</td>
</tr>
</tbody>
</table>

Rates are based on a $300000 home loan with 13.3333% down.

Alternative Products

30-Year Fixed-Rate

<table>
<thead>
<tr>
<th>Interest Rate</th>
<th>APR</th>
<th>Monthly Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1250 %</td>
<td>4.4211 %</td>
<td>$ 1260.09</td>
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</tbody>
</table>

20-Year Fixed-Rate

<table>
<thead>
<tr>
<th>Interest Rate</th>
<th>APR</th>
<th>Monthly Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.7250 %</td>
<td>4.4654 %</td>
<td>$ 1538.13</td>
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</tbody>
</table>
Credit Risk Analysis
Credit Risk Analysis

Simulation Results

Percentage of Borrowers Defaulting: 1.6%
Revenue Change Per 1000 Customers: +$100,000
New Customers Now Approved: 7
What’s left to do?

- Bug Fixes in Both Applications
- Refine Salesforce Implementation
- Improve Monte Carlo Simulation
- Update UI to fit with Salesforce Lightning Design System
Questions?