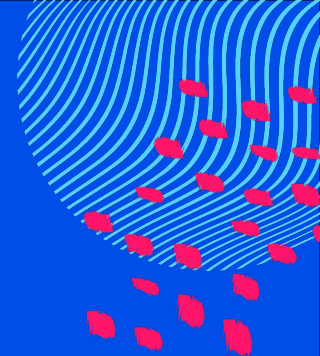


Analyzing the Return on College Investment by Major and Degree Level



Hen Hackers: Jacob Whitman, Nihaal Chowdary Surpani, Samuel Zheng, Asritha Polu, and Aaron Jarmusch

Sallie Mae Mentors: Michele Mallowney, Andrew De Angelo, Mark Stueve

Note - This presentation was completed for the three day Hen Street Hackathon at the University of Delaware (UD) as the final presentation. This work and presentation was put together by UD students with help from Sallie Mae employees (i.e. Sallie Mae Mentors). We are thankful to Sallie Mae for proposing this case study. Only public data sets were used in this project.

Empowering Students to Borrow Smarter

19.57+

**Million
Students...**

are going to attend

5,000+

higher education institutions

In Fall 2025





College is expensive.

Students take out loans without clear, personalized ROI insights.

Reimagining College ROI for Smarter Borrowing

Our Approach:

- Combine national datasets (College Scorecard, IPEDS, FREOPP) into a **personalized, interactive tool**.
- Can be Integrated directly into Sallie Mae's loan exploration & application process.
- Innovates by **linking degree ROI with current loan repayment metrics**.

What's Original:

- Not just showing averages - using ML to predict **custom ROI based on a student's chosen school, major, and degree**.
- Scenario modeling: career path comparison

Sallie Mae Get A Doctorate

Features:

- 1. Clean, mobile-optimized dashboard.
- 2. Side-by-side program comparisons.
- 3. Personalized metrics for Majors.
- 4. Current Loan Payment Insights.
- 5. Personalized AI insights.



Degree Type:
Bachelor's Degree

Major Field:
Computer Science.

School Type:
Public

State:
DE

Institution:
University of Delaware

Calculate ROI

Investment Analysis
University of Delaware

Education Costs

Annual Cost: \$16,931
Total Investment: \$67,724

Student Loan Details

10.5% Average Market APR - 10 Years
Monthly Payment: \$914
Total Interest: \$41,936

Return on Investment

+1271.4%
10-Year ROI
Break-even Point: 0.7 years

Income Projection

\$92,879
per year
Expected Range: \$83,632 - \$102,127
Range reflects natural variation in earnings outcomes for similar graduates

Get AI Analysis

Compare Two Degrees

Analyze and compare the financial outcomes of two different degree paths

Degree A

Degree Type:
Bachelor's Degree

Major Field:
Computer Science.

School Type:
Public

State:
DE

Institution:
University of Delaware

Calculate A

Degree A Analysis
University of Delaware

Education Costs

Annual Cost: \$16,931
Total Investment: \$67,724

Loan Details

10.5% Average Market APR - 10 Years
Monthly Payment: \$914
Total Interest: \$41,936

ROI

+1271.4%
10-Year
Break-even: 0.7 years

Income

\$92,879
per year
Range: \$83,632 - \$102,127

Degree B

Degree Type:
Doctoral Degree

Major Field:
Computer Science.

School Type:
Public

State:
DE

Institution:
University of Delaware

Calculate B

Degree B Analysis
University of Delaware

Education Costs

Annual Cost: \$16,931
Total Investment: \$67,724

Loan Details

10.5% Average Market APR - 10 Years
Monthly Payment: \$914
Total Interest: \$41,936

ROI

+1458.6%
10-Year
Break-even: 0.6 years

Income

\$105,555
per year
Range: \$96,308 - \$114,802

Comparison Summary

Better ROI
Degree B
187.2% difference

Higher Income
Degree B
\$12,676 difference

Lower Cost
Degree B
\$0 difference

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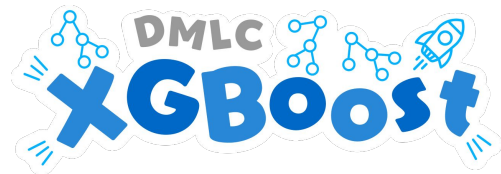
Personalized ROI Stack & Pipeline



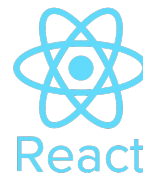
Data Sources



Google
Big Query



Google Cloud



Google Cloud Run





Room # 336

Team: Jacob Whitman, Nihaal Chowdary Surpani, Samuel Zheng, Aaron Jarmusch, and Asritha Polu

Motivation + Impact:

Developing a data-driven **model** (maybe XGBoost) for evaluating the ***return on investment (ROI)*** of various ***college majors and degree levels*** to provides a much-needed decision support system for ***prospective students***.

What did NOT work: We planned to combine data from multiple public sources, but the formats and structures didn't match well. So, we focused on one main dataset. Situations are Individualized.

Expected Deliverables:

1. **Interactive model / dashboard** visualizing ROI by major, degree level, and institution.
2. **Statistical report** summarizing findings and methodologies.
3. **Open-source toolkit (code)** enabling the analysis to be reproduced or extended by others.

Plan for next two days: (1) Refine dataset (2) Develop basic model + visualizer (3) Improve