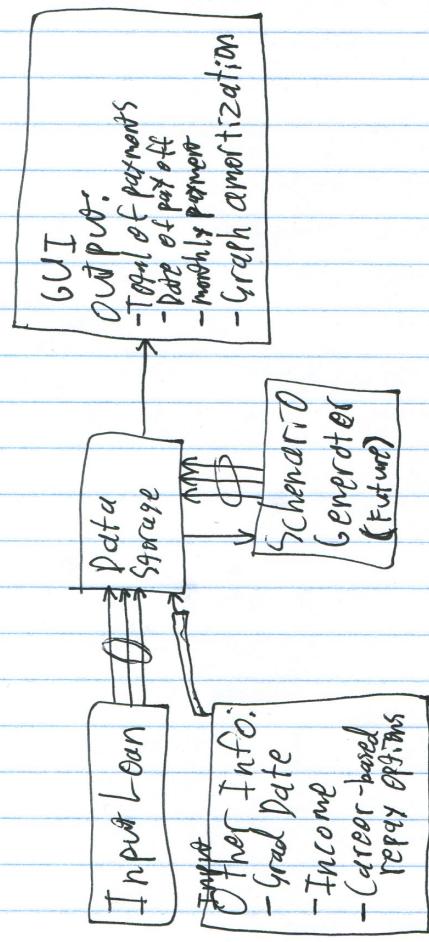


Adam White

Godi Student Loan Calculator

Level 1 - I/O, delta flow,
major ideas



→ arrow = flow of data
→ triple arrow = plural flow of data

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Goal: Student Loan Calculator

Level 1 - modules and sub systems

Input Loan

- ① Loan Amount
- ② Interest rate
- ③ Minimum payment or time remaining
- ④ Send to data handler

Input Other Info:

- ① Graduation Date (extra)
- ② Income and total monthly payment
- ③ Repayment options
 - based on career or income
- ④ ~~Send to data handler~~ Refinance options
- ⑤ Send to data handler

Scenario Generator.

Based on the starting information, try different possible scenarios.
Optimize: total of payments, date completed, risk of income loss. In that order.
Variables to experiment with:

- Total monthly payment (increase as reasonable)
- Snowball/Avalanche/lowest pmt - common repayment methods
- Refinance options. Input options
- Repayment options based on income/career

Store a priority queue of scenarios. weight = combinations of all 3 optimizations
Store the scenarios that maximize each of the 3 optimizations.
Return several good scenarios to the data handler.

GUI - Ending

~~Store~~ Display scenarios side-by-side

For each scenario, display:

- Title or description explaining the scenario
- Total of payments
- Date of payoff
- Monthly payment + changes over time
- Amortization timeline/graph

Data Handler

Stores list of loans

current amt, rate,
min payment, and time remaining

Stores other info

Stores list of scenarios

(page)

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Level 3 - Full version

Goal: Student Loan calculator

Info Loan Info

HTML form that feeds data into a struct

① Loan amount

② Interest rate

③ minimum payment or time remaining

Note: This is for non-standard repayment plans.

If the value entered does not match the expected

value based on the first 2 inputs, then ask:

④ ^{hidden} (optional) Current repayment plan scenario

Standard (10 years), graduated (increasing during 10 years),

planned future forgiveness, or [more research needed]

"Submit" button sends data struct to data handler and
closes this pop-up window.

Add to GUI loan list. Below, have a "+ Add Loan" button

which opens this Info Loan form again.

Neighboring "Finished" button advances to Info Other Info form

(page 1)

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Level 3 - Full Version

Goal: Student Loan Calculator

Input Other Info

HTML form that feeds data into a struct

- ① Graduation date
- ② Income and extra monthly payment user is willing to pay
- ③ Available repayment options based on career or income
- ④ Available refinance options. This is loans that the user has already found elsewhere.

"Submit" button sends the data struct to the data handler, and triggers the Scenario Generator.

Data Handler

Simple struct that stores data

- ① List of loans
 - Ⓐ Loan amount
 - Ⓑ Interest rate
 - Ⓒ Minimum payment
 - Ⓓ Time remaining
 - Ⓔ Current repayment plan
- ② More other info
 - Ⓐ Graduation Date
 - Ⓑ Income
 - Ⓒ Extra monthly payment available
 - Ⓓ Available refinance options

(page 3)

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Level 3-Full Version

Goal: Student Loan Calculator

Scenario Generator

Is called when the Input other Info "Submit" button is clicked.

Store Scenarios in a Priority Queue. ^{Heuristic} weight maximizes:

- (1) Total of payments
- (2) date completed
- (3) ability to manage loans if the person's income is lost.

In that order.

Store 3 scenarios which maximize each of the 3 criteria above.

Should be either a pointer into the queue or a flag on the scenario, so there are no duplicates.

Build Scenarios by changing those variables: nested for loops

-Total monthly payment vary by \$200; increases from minimum to 50% of loan totals, or up to 20% of income.

-~~settle between~~ then decide what

-Repayment options based on income/career.

There are 3 standard repayment options.

Some career tracks have forgiveness after X years

-Refinance options. The user can input a specific offer, or the tool can suggest a typical rate, ^{based on approximate score}

-Debt strategy. Snowball, Avalanche, Lowest payment.

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Level 3 - Full Version

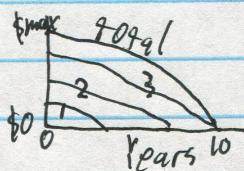
Goal: Student Loan Calculator

Finishing Results GUI

Display scenario results side by side in columns

Items to display for each scenario:

- total of payments
- date of payoff
- monthly payment, changes in minimum over time.
- Description "canned text" stating what the scenario maximizes. Also risk based on future loss of income.
- amortization timeline/graph



X axis is 0 to 10 years
Y axis is \$0 to the maximum.

Have information links ~~that~~ that display detailed info in a popover.

Such as; how total of payments is calculated

Why snowball method usually works better than avalanche method.

How private loans are bad if you lose your job

Where to find current private loan rates

General information that a borrower would be wise to know.