RothScope

Iteration 2

Basic Team/Client Info

Team Members:

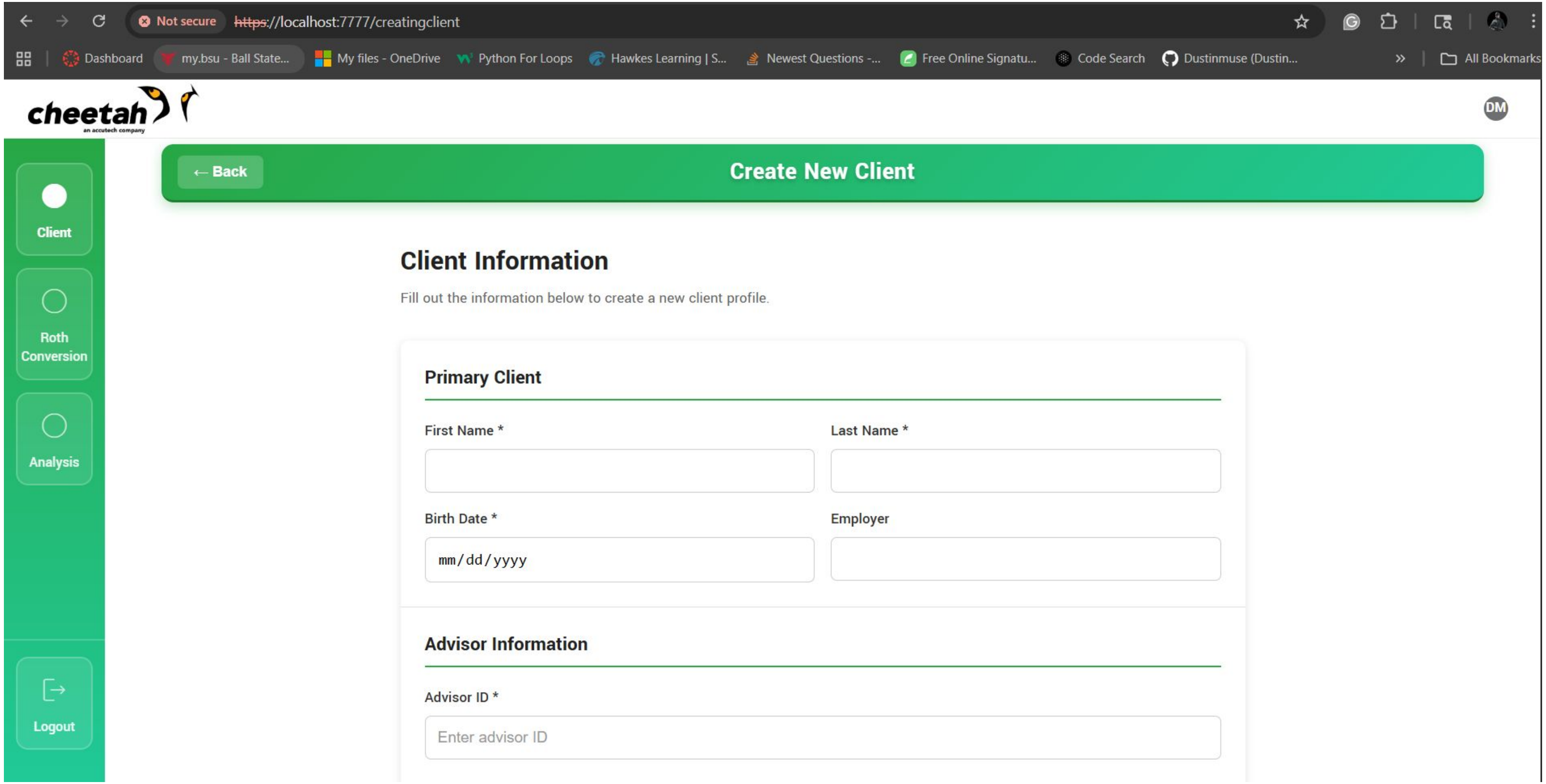
- Dustin Muse
- Alli Carr
- Noah King

Client Info:

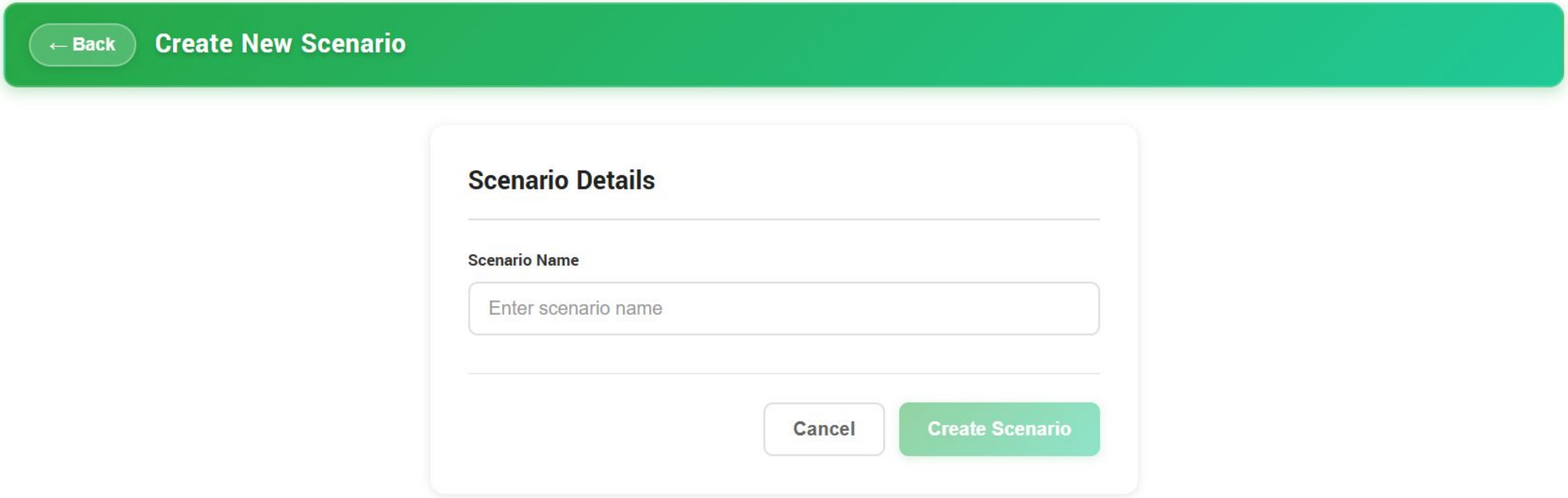
- Moneytree; a financial advising application provider
- Client mentors:
  - Alex Long - Product Lead
  - Evan Knapke - Technical Mentor

Run the Software and Tests!

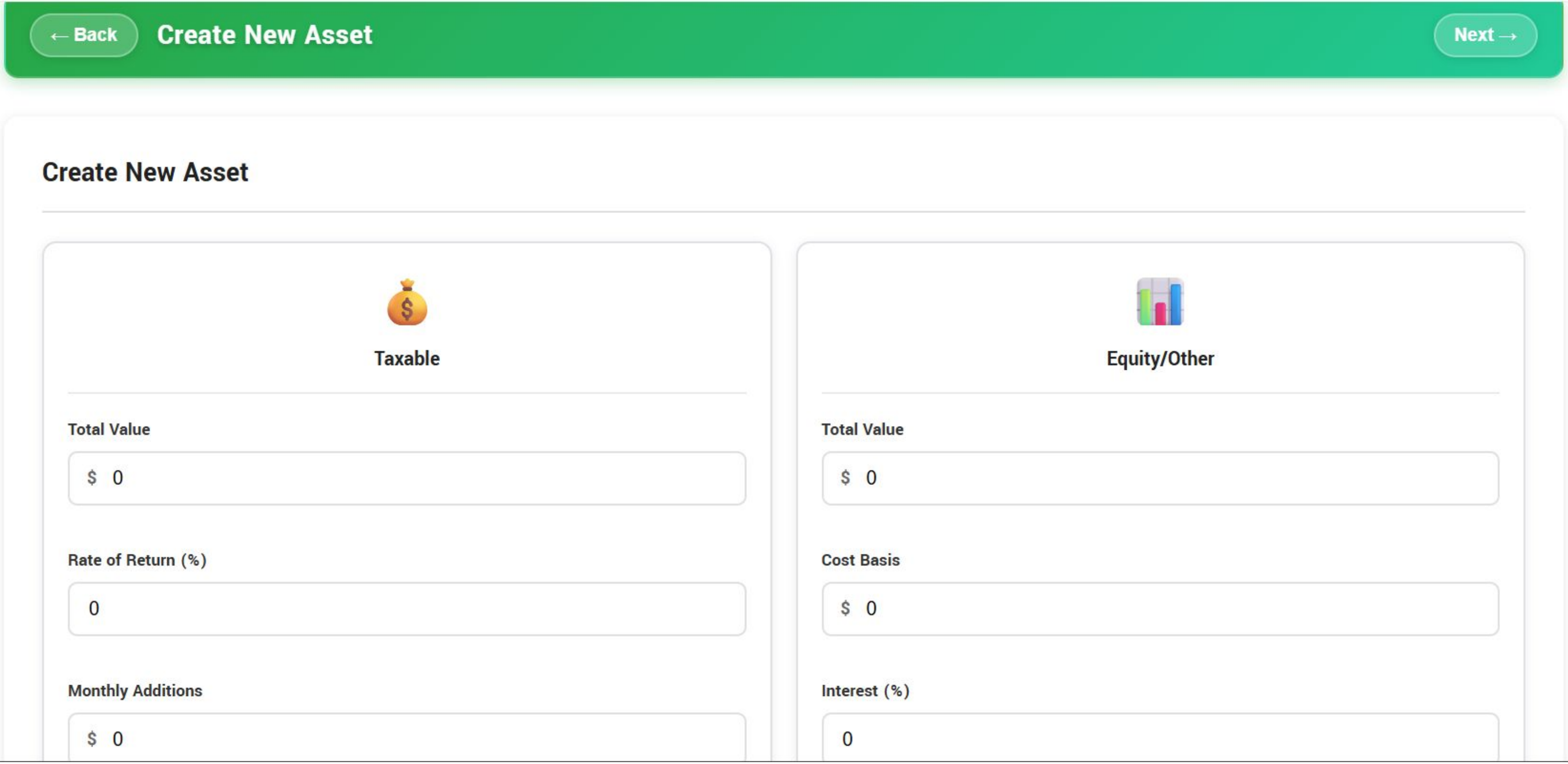
Client Creation



Create Scenario



Asset Creation

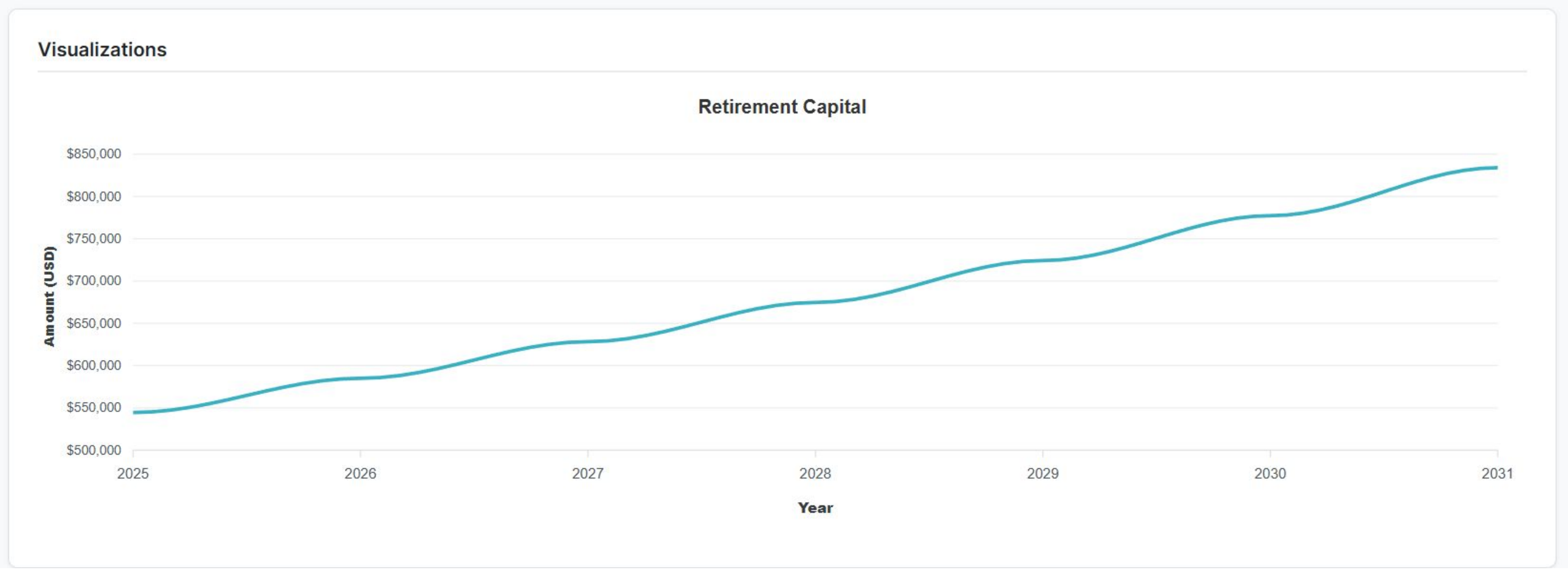


Warnings for Advisor

Warnings

- ⚠️ Taxable accounts ($1,335,000) can be used to pay conversion taxes ($7,000) without depleting retirement accounts.
- ⚠️ Taxable accounts have $1,335,000 (100.0%) in unrealized gains. Selling to pay conversion taxes will trigger capital gains tax.
- ⚠️ Consider: Taxable accounts receive a step-up in cost basis at death, eliminating capital gains tax for heirs. Converting retirement accounts may be more beneficial than selling taxable assets.

Retirement Capital Graph



Tax Cumulative

TOTAL TAXES
$1,000
$2,000
$3,000
$4,000
$5,000
$6,000
$7,000

Demo

https://youtu.be/iuB41QbGK6g

Modularity

Clean Architecture layers

- spa-template-vue/
  - Frontend code
- Spa.Template.Core/
  - Domain entities & enums
- Spa.Template.Application/
  - Business logic & interfaces
- Spa.Template.Infrastructure/
  - Data access & external services
- Spa.Template.Api/
  - API endpoints for frontend (controllers)

Clean Architecture principles

- Controller Endpoints (Spa.Template.Api/endpoints/)
  - AdvisorsController.cs
  - AssetsController.cs
  - ClientsController.cs
  - RothOptimizationController.cs
  - ScenariosController.cs
- Each controller handles a single domain concern

Domain Entities

- (Spa.Template.Core/Entities/)
  - AdvisorInfo.cs
  - ClientInfo.cs
  - EquityOtherAsset.cs
  - RetirementGoals.cs
  - Roth401K.cs
  - RothIra.cs
  - OptimizationResult.cs
  - etc.
- Each entity is separate and a focused class

Dependency Injection

MoneytreeServices.cs

Calls the IMoneytreeServices.cs functions to connect to Moneytree's external services

IMoneytreeServices.cs

Interface in between the program and Moneytree's external services

Moneytree's External Services

External data/services that can be retrieved or created via API

Single Responsibility

- Infrastructure Services (Spa.Template.Infrastructure/)
  - MoneytreeService.cs (external API integration)
  - RothOptimizationService.cs (optimization logic)
- Each service has a single responsibility and can be tested/replaced independently

Iteration 3 Features

- Create a comparison view that allows users to compare the optimal strategy with alternative conversion strategies.
- Show optimization results broke down by optimal (client and co-client), client, and co-client views.
- Implement TLS 1.2+ encryption for all data transmitted between client and server.
- Run all 3 optimization strategies at the same time and display in separate tabs for comparison.
- Develop algorithm to determine the optimal Roth conversion strategy based on user-defined objectives.
- Display break-even point in visualization.

Client Feedback

- Looks good
- Keep up the great work
- Some minor changes
  - More years on table/graph
  - Pull AdvisorId rather than typing in
    - If they can make the api for it functional to us

Planned Iteration 3 Features

1. Client vs co-client comparison
2. Comparison between optimization strategies (i.e. run all 3 for viewing)
3. Comparison between different hyperparameters in optimization
4. Implement TLS encryption
5. Further improve the Roth Optimization for user-defined objectives
6. Display break-even point on graph

Retrospection

- Dustin Muse
  - I wish we did more progress, but what was made was good
  - I think the more quality code will be better for new developers to the codebase and can make it easier to follow for all
  - I will go about Iteration 3 making sure what I make has tests
- Alli Carr
  - Learned a lot about quality test coverage and resolving merge conflicts
  - It is easier to create tests while adding new code instead of coding then going back to add tests
  - Maintainable code is more important than fast code
- Noah King
  - Reportgenerator is brutal with their “Crap Score” on testing coverage
  - Going back and verifying made me rethink a lot of older functions
  - Quality and thoroughness first


END OF PRESENTATION
CLAP NOW!!