

UFC-200: Net Worth Chart

The following document will go over the design of the net worth chart, as outlined in Story ticket UFC-200.

Acceptance Criteria

For reference, the following are the acceptance criteria for this ticket:

- I want to see my net worth over the current date range.
- I want to see my net worth as a value for the end of the current date range.
- I want to see the change in my net worth from the last date range period.

Design Brainstorming

OK, so what do we need for a chart? Well, we need the source data. And then we need a way to transform this source data into data for the chart. And then we need a chart to display said data.

Source Data

So, how do we calculate net worth? If I remember correctly, we calculate it as simply assets minus liabilities.

That means that we need to lookup the total assets and the total liability amounts right before the start of the date range to get our from/starting net worth.

Then, in order to calculate the net worth values over the current date range, we need to lookup all the transactions in the current date range. Then we can use them to calculate the net worth for each data point period.

- I think there are actually a couple ways to go about calculating this.
- There's the naive way where we calculate the balances for each account for each data point, then subtract liability balances from asset balances.
- But then there's also the direct calculation method, whereby we just iterate over the transactions and increase/decrease the net worth based on the transaction type/amount. I believe this calculation is different from account balance calculation.
 - Income increases net worth.
 - Expenses decrease net worth.

- Debts decrease net worth.
- Transfers from assets to liabilities decrease net worth.
- Transfers from assets to assets do nothing.
- Transfers from liabilities to liabilities do nothing.
- Transfers from liabilities to assets... increase net worth?

I think the direct calculation method is probably more efficient. Just means that we have to be sure that we get full transaction objects back from the store -- which I do believe it does.

Data Transformation

I think the data transformation (i.e. data point generation) will be very similar to the account balance chart.

I think all we need to do is modify `generateAccountBalanceData` to take in a reducer that calculates a 'balance' given a set of transactions and a starting balance. This way, we can pass in the reducer instead of the account as an argument, and then everything else should basically be the same.

Also, I think we should standardize the names of the x/y axis for the data points. Currently we use `date` for x and `balance` for y, but since we could be plotting transaction amounts in the future, we should change `balance` out for `amount`, since it's more neutral.

That way we can re-use stuff across charts instead of having it all different.

Chart

Well, I think we'll probably want to make a hook that encapsulates the chart-specific logic that will be shared between the net worth and account balance charts. That is, the stuff like axis formatters, domain calculation, width, etc.

Then we can just basically duplicate the chart layout. Once we have a couple more charts, then it might be time to abstract the layout, but duplication should be fine for now.

Component Breakdown

Atoms

- N/A

Molecules

- N/A

Organisms

- N/A

Scenes

- [modification] Dashboard (add the NetWorthChart)

Charts

- NetWorthChart

Tasks

- Create a hook (useNetWorth, aka just the hooks file alongside the NetWorthChart) that looks up the starting net worth and all the transactions in the current date range (I think we can re-use a hook for the transactions lookup).
- Modify the ChartService to have a method for generating the net worth data points.
- Create the NetWorthChart.