Profit Sharing Simulator Requirement

Context

We need to build a web-based simulator of profit calculation for lenders investing money in a loan pool (we can call it "fund").

On a high level here's the input of the simulator:
1. Investment schedule and amount of every lender
2. Repayment schedule and amount of every borrower
3. Loan write off schedule and the outstanding amount of the written of loans

On a high level here's the output of the simulator:
1. Time series graph of payout schedule and amount for every lender
2. Time series graph of percentage return rate for every lender
3. Principal amount returned for every lender on the tenor of the loan pool
4. Time series graph of the net asset value (NAV) of the fund
5. Time series graph of the NAV total unit of the fund
6. Time series graph of the number unit owned for every lender
7. Time series graph of the AUM movement for the fund

User Stories (High priority)

User Story	Acceptance Criteria
Accept user input for investment schedule and amount of every lender in the pool	Users can input, edit, and delete multiple lender investments with below attributes: 1. Lender ID 2. Transaction type: investment (topup) / divestment (withdraw) 3. Transaction date 4. Transaction amount
Accept user input for repayment schedule and amount of every borrower	User can input, edit, and delete multiple borrower repayment schedules with below attributes: 1. Borrower ID 2. Repayment schedule: weekly / daily 3. Repayment amount
Accept user input for loan write off schedule and the outstanding amount of the written off loans	User can input, edit, and delete multiple write off of loans in the fund with below attributes: 1. Borrower ID 2. Write off date 3. Outstanding amount of the loan

Allow user to start generating graphs and refresh graphs based on all input	Users can't generate if any of the input fields (investment schedule, number of loans, repayment schedule, write off schedule) is not filled. Once all is filled then users can generate the graphs. Once the graphs are generated and there's a change in the input, the user can refresh the graphs.
Calculate repayment distribution to lender margin, lender principal, platform margin, and platform provision on every repayment	- Lenders margin portion from repayment: 0.15 - Platform provision portion from repayment: 0.01 - Platform revenue portion from repayment: 0.17 - Lenders principal portion from repayment: 0.67
Calculate the total amount of outstanding payment in the fund	Total outstanding amount = total amount of invested principal money - total amount of money already repaid by borrowers
Calculate how written off loans affect calculation of lender margin, lender principal, platform margin, and platform provision at every end of the month	Whenever there are multiple loans declared written off in a month, the total outstanding amount of these loans will be accumulated. This total outstanding amount will decrease the amount of money distributed from borrower repayment to lender margin, lender principal, platform margin, and platform provision. The "absorption" will be done in this particular order: 1. Lender margin pool will take the loss first 2. Platform provision pool will take the loss next 3. Platform margin will take the the loss next 4. Lender principal pool will take the loss last
Calculate net asset value (NAV) for the fund at every end of day	Initial net asset value for the fund: 100.000 IDR What happens whenever a lender invests: 1. This lender will get fund units where number of units = investment amount / current NAV 2. The total unit of the fund will increase with the number of units given to this new lender What happens whenever there's a repayment from borrower: 1. At the end of the day the lender margin portion from all repayment in a day will be accumulated 2. At the end of the day NAV price will be adjusted with the following formula: (total accumulated margin + total fund AUM) / total number of unit in the fund 3. On the next day, the new lender will purchase the fund units (invest) using this new NAV price
Calculate the monthly payout amount (coupon) for every lender at every end of the month	This fund will pay the margin for every lender at the end of every month using the accumulated lender margin from repayments throughout the month. The proportion of payout amount for each lender is calculated with the

	following formula: Lender portion = (number of unit owned / total number of unit in the fund) * total amount of accumulated lender margin Important: ● Because each month the lender margin pool will be emptied to be paid to lenders AND NAV calculation depends on margin, NAV will change on every payout day. ● If because of write offs, there's no money in the lender margin pool, then no lenders will get any payout.
Recalculate NAV after write offs are consolidated at the end of the month	NAV after payout day: If written off amount < lender margin, then NAV after payout will be total fund AUM / total number of unit in the fund If written off amount > lender margin, then NAV after payout would be (total fund AUM - total outstanding amount of written off loans) / total number of units in the fund
Display / refresh time series graph of the net asset value (NAV) of the fund	The graph will have 2 axes: time and NAV. The graph should show the daily movement of the NAV and the movement of the NAV during payout day throughout the year.
Display / refresh time series graph of repayment amount from multiple borrowers	The graph will have 2 axes: time and repayment (repaid) amount. ● Time and amount will move **from**: start date with 0 repaid amount ● **To**: tenor date with full amount of the fund (principal + margin) minus the total outstanding amount of all written off loans
Display / refresh time series graph of payout schedule and amount for every lender after	The graph will have 2 axes: time and payout amount. The graph will have multiple lines. Each one represents the amount for one lender ID.
Display / refresh time series graph of percentage return rate for every lender	
Display / refresh principal amount returned for every lender on the tenor of the loan pool	
Display / refresh time series graph of the NAV total unit of the fund	
Display / refresh time series graph of the number unit owned for every lender	

Display / refresh time series graph of the AUM movement for the fund	
Allow users to show multiple simulations under different tabs	

User Stories (Low Priority)

User Story	Acceptance Criteria
Rebid the amount of repaid principal into new loans with configurable percentage	