

View

index.html

view.js

Using React for Single Page Application

Modules:

- jQuery for fetching the data from API
- D3 / Dimple (D3 Library) for drawing a graph

Controller

api.php

index.controller.php

Model

Functions:

- Set()
 - setting the parameters that receive from controller
 - also check for validity of the data

Set the parameters in model

index.model.php

Return JSON

- amount of money per month
- graph data
 - interest paid per month
 - principal paid per month
 - principal left at a certain month

- getEffectiveRate()
 - calculate amount per month using the loan payment formula
 - $$PMT = \frac{PVA_n}{\left[\frac{1 - \frac{1}{(1+i)^n}}{i} \right]}$$
 - PMT = amount for each period
 - PVA = amount of total loan
 - i = interest rate per year
 - n = payback period
- getGraphData()
 - calculate 3 series for drawing the graph
 - $$\text{interest per month} = \frac{\text{principal amount left} * \text{interest rate per year} * \text{number of days in the period (30 for simplicity)}}{\text{days in the year (360 for simplicity)}}$$
 - $$\text{principal paid per month} = \text{amount of money need to be paid per month} - \text{interest per period}$$
 - $$\text{principal left at a certain month} = \text{total amount of money from previous month} - \text{principal paid per month}$$
- getResult()
 - bundle the result from getEffectiveRate() and getGraphData() for returning in JSON format