B.Des Project 2

Design of a Financial Planning Platform for Young Working Professionals

Vineet Srivastava | 16U130002

Guide : Prof. Venkatesh Rajamanickam

Project Approval

This is to certify that the project entitled "Design of a Financial Planning Platform for Young Working Professionals" by Vineet Srivastava (16U130002) is approved in partial fulfilment of the requirements for the Bachelor of Design degree.

Project Guide: _____

Chairperson: _____

Internal Examiner: _____

External Examiner: _____

Declaration

The undersigned has conducted the work for the project titled "Design of a Financial Planning Platform for Young Working Professionals", with adherence to academic honesty and integrity, as a part of the undergraduate project under the guidance and supervision of Prof. Venkatesh Rajamanickam.

The undersigned hereby declares that this is his original work and has not been plagiarized in part or full form. Furthermore, all sources of material - visuals, designs etc. have been properly cited and acknowledged.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action by parties whose content was used for this project without proper citation or permission.

Acknowledgements

I am grateful to my project guide, Prof. Venkatesh Rajamanickam for his guidance, supervision and valuable feedback through the course of this project.

I would like to extend my sincere gratitude to Prof. Anirudha Joshi, Prof. B. K. Chakravarthy, Prof. Ravi Poovaiah, and Prof. Swati Pal for their feedback during this project.

I would also like to thank my family and friends for their support during this project.

Table of Contents

Abstract

Good financial management skills are quickly becoming an essential skill for a growing number of people, in an increasingly financialised world. Understanding how to manage one's income, assets and liabilities is an essential skill to acquire if one is to make the best use of the resources they acquire over the course of their working life. In a world where capital consistently grows faster than wages and real production, driving up the cost of living for everyone, the time when financial management was reserved for the rich is past. A growing number of tools and companies have cropped up to satisfy this market need, but most fail on some account; whether due to a limited breadth of capabilities, access restriction to economically weaker individuals, or vested interests that may not necessarily align with those of their users. Besides that, there is also an absence of a single tool to unify several basic aspects of financial planning, such as tracking spending, loans, credit cards, bank accounts and an investment portfolio.

In this project I propose a platform that can manage the financial planning requirements of young working professionals in income brackets ranging from low to moderately high. The platform allows the planning of income allocation between expenses, savings and investments while also allowing the user to view long-term trends of their financial habits to allow for better decision making.

Introduction

Financial Planning
A financial plan is an evaluation of an individual's current financial status and long-term monetary goals, with a plan of action based on known variables intended to help them achieve those goals. [1]

Over the 20th century, the global poverty rate dropped from around 70% to around 25%, despite the world's population ballooning from 1.6 billion to around 6 billion. [2] Massive increases in economic productivity due to scientific, technological and industrial advances can be credited for this, but the net result was a burgeoning middle class that began to enter the economy of an increasingly inter-connected world.

Given this massive increase in wealth, this also led to a major increase in demand for financial services, which were relatively simple for the middle class over the last century. Between a savings account and a fixed deposit, one could expect healthy capital growth with which to create some wealth and require comfortably.

However, over the past few decades, interest rates have fallen drastically in the developed world. [3] This is primarily to control inflation in economies of relatively stagnant growth, but it has the side-effect of lowering returns on the kinds of basic investment vehicles likely to be used by the lower and middle classes. Meanwhile, the upper class tends to invest in the market, which consistently produces higher returns, while acquiring capital is also easier for such

individuals owing to the lowered "cost of capital" due to falling interest rates. [4] This, added to the rise of speculative bubbles in markets such as real estate, has caused prices to rise faster than the economic capacity of the majority of population, such as in Germany today, where a bulk of the population has been priced out of owning a home by the speculative market. [5]

Given the inherent tendency of the system to increase the gap between the rich and the working class, [4] it has become increasingly important for the working class to be aware of the state of their finances and invest early and wisely, to avoid running into a situation where they end their working lives without sufficient income to retire, [6] or simply to not have enough in savings to weather the recessions and financial shocks that appear to be a feature of the current economic system.

The Indian Context
India's economy does not have the same issues as those that generally plague developed economies. 20% of Indians live in poverty (higher in rural areas) [7], however this figure has been steadily dropping over the last few decades, contributing to the rise of an extremely large working class. Governmental efforts have greatly increased the access of the poorer segments of the population to basic financial services, with 80% of the population having at least a basic savings account. [8]

That being said, coverage is not enough in itself. The All India Rural Financial Inclusion Survey 2017, conducted by the National Bank for Agriculture and Rural Development

(NABARD), found that 52% of respondents still prefer to keep their savings in cash at home. In essence, these individuals are funding the Reserve Bank of India by holding onto capital at a zero growth rate. However, this is detrimental to their own interests, for the reasons outlined above. The top 10% of wealthiest Indians own around 77% of national wealth (capital) [10], which as detailed before naturally tends to grow faster than wages or real growth in the economy.

This outsize growth and influence of the richer segments of the population force prices up in key markets in India too, with many people, especially in tier-1 cities, being priced out of the housing market [11].

Besides rural India's low participation in the financial markets, even urban India's financial preparedness leaves much to be desired. Surveys by several financial service providers in India found that over half the respondents said they lacked the knowledge to manage their finances effectively. According to ClearTax, 90% of women in India do not maximise their tax avoidance through appropriate investment strategies. [12]

Another national survey found that 57% of Indians have less than INR 5,000 in a savings account or emergency fund, over 33% live paycheck-to-paycheck, and around 30% do not invest any money at all. [13] An S&P survey also found that 76% of Indians are not financially literate, lacking a basic understanding of key financial concepts, including risk diversification, inflation and compound interest. [14]

Additionally, a host of fintech platforms have cropped up to provide financial services to Indians. Some, such as Groww, Scripbox, Zerodha, and Kuvera provide legitimate investment services, primarily in mutual funds. Some, such as Walnut, Khatabook, and FinArt provide budgeting and expense tracking tools. Tools such as 5paisa, Moneycontrol, and IQ Option allow direct trading on the stock market. However, some of the most popular apps in the finance category are P2P lending platforms. These can often trap young, vulnerable Indians in debt traps, with interest rates as high as 42% [15], and are growing quickly in use, with the personal e-loan market growing from INR 9.9 lakh crore in 2017 to INR 19 lakh crore in 2018. [16] Coupled with the poor financial literacy statistics detailed earlier, there is an uncomfortably predatory relationship implicated by these platforms, despite their clear success. Dhani, Yocloan, and Easy Loan are three personal loan apps in the top 10 of the Play Store's Finance section. These platforms provide a service roughly analogous to payday loans in the United States.

Relevance
The bulk of India's population is relatively financially illiterate and does not invest much money. The current tools available on the market do not provide a comprehensive overview of an individual's finances, putting them in a position to make better decisions for themselves, instead usually trying to sell them particular services. Therefore, in this project I outline a structure for a platform that will allow Indians with relatively simple financial portfolios to manage nearly all aspects of their finances.

Secondary Research

There were two main categories of research required for this project, namely:
1. Analysis of Existing Solutions: In which several popular finance platforms are analysed to understand what services/features they provide, and how they are organised
2. Financial Planning Theory: In which several methods of financial planning are explored to better understand how to go about creating a financial planning tool

Analysis of Existing Solutions
Most financial tools currently available in the Indian market fit into one of six broad categories, namely:
1. Bank-specific applications
2. Payment tools
3. Borrowing/lending platforms
4. Trading platforms
5. Mutual fund investment platforms
6. Expense tracking tools

Bank-specific applications such as YONO by SBI do not fall under the scope of this research, as they are restricted to one particular bank and are more focused on allowing executive action by the user than on helping with their financial planning.

Payment tools such as Paytm or Google Pay also do not fall under the scope of this research, as they are largely designed for the specific purpose of enabling smooth digital transactions and do not particularly focus on aiding in financial planning.

Borrowing/lending platforms are also out of scope for this research as they practically function like mobile payment platforms with an added borrowing feature, and they have no real focus on financial planning.

Trading platforms are somewhat within the scope of research, as they provide users with a breadth of information to enable better or more informed decision-making, but in practice they are a little too specifically tailored towards securities and commodities trading to be directly relevant to this project.

Mutual fund investment platforms fall under the scope of this research, as they tend to provide various tools to contextualise investment activities based on user inputs, such as planning for particular financial goals or based on available spare income.

Expense tracking tools fall quite neatly into the scope of this research, as they are primarily designed to enable better financial planning, even if generally restricted to monthly spending. Some platforms also have a slightly expanded feature-set, which will be discussed further on.

Mutual Fund Investment Platforms
The first category of platforms to be analysed could be quite generally described as mutual fund investment platforms. Although at first glance, one might expect a more general investment management platform to exist, to allow the

tracking of several different kinds of investments. However, as mentioned above, most investment platforms tend to fall into one of two major categories, namely:
1. Securities/commodities trading
2. Mutual Fund Investment

There are several reasons for this. First, these platforms without exception function primarily as marketplaces, and not as simply trackers/account books. Given that they function as marketplaces, it is more necessary to provide detailed information to the user that allows them to compare different products and make informed decisions regarding which products to pick. The process of choosing particular securities or mutual funds over their competitors is a fairly involved and technical one, and given that investment is an inherently risky proposition, the platforms must provide the user with the required information, although different platforms take different approaches to do so.

Second, the use cases of these platforms are typically quite different. Securities trading platforms such as IQ Option are typically focused on short term trades or even day trading. They provide real-time information on the performance of particular securities as well as a live news feed that compiles relevant information. While it may be used for long-term investment it appears to be primarily targeted at day traders. Mutual fund investment platforms such as Groww, on the other hand, tend to be more focused on long term gains. Groww also allows the buying and selling of securities. However, the information provided is not as granular (in terms of day-to-day updates), and the transaction process is

much slower. As a platform, Groww is more focused on long-term investments.
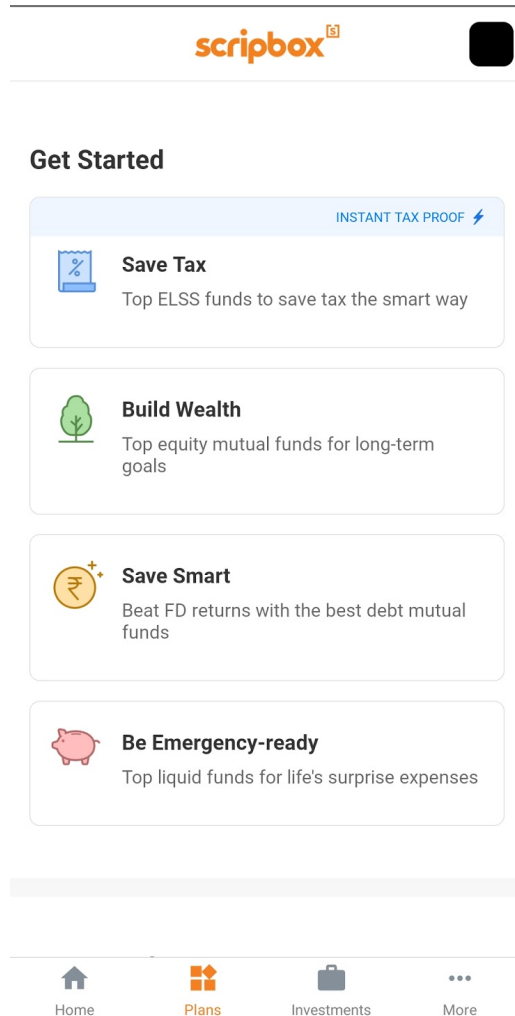
Third, mutual funds have become a very popular investment vehicle for the Indian middle class, especially those affluent enough to take on slightly higher risk than those without the same risk tolerance. [17] Fixed deposits, once among the most popular investment vehicles, due to their relatively low risk, are losing popularity [18], while lowered interest rates have kept the real yield from fixed deposits (accounting for tax and inflation) close to zero or negative. [19]

Mutual funds, with lumpsum and SIP options, as well as generally higher returns than comparable investment vehicles, albeit with greater risk, have themselves become a sufficiently attractive proposition to stand in for "investment" for a significant portion of working class Indians. [17] Additionally, the minimum investment required has dropped significantly over time to as little as INR 100, although INR 500 is more common. This significantly expands the available customer base while also making small-savings schemes such as those operated by the Post Office relatively less attractive, though the difference in risk is not to be ignored here.

As a result, there are a fairly large number of mutual fund investment platforms which primarily or solely focus on acting as marketplaces for mutual funds, though many also offer somewhat adjacent investment products.

Scripbox

Scripbox is a popular mutual fund investment platform. It is primarily targeted at amateur investors, and consequently makes some interesting design decisions.

For one, it curates several mutual funds based on internal parameters into certain user-focused goal categories. Secondly, it all but eliminates user choice. Here, the platform also acts as a financial advisor, minimising user decisions.
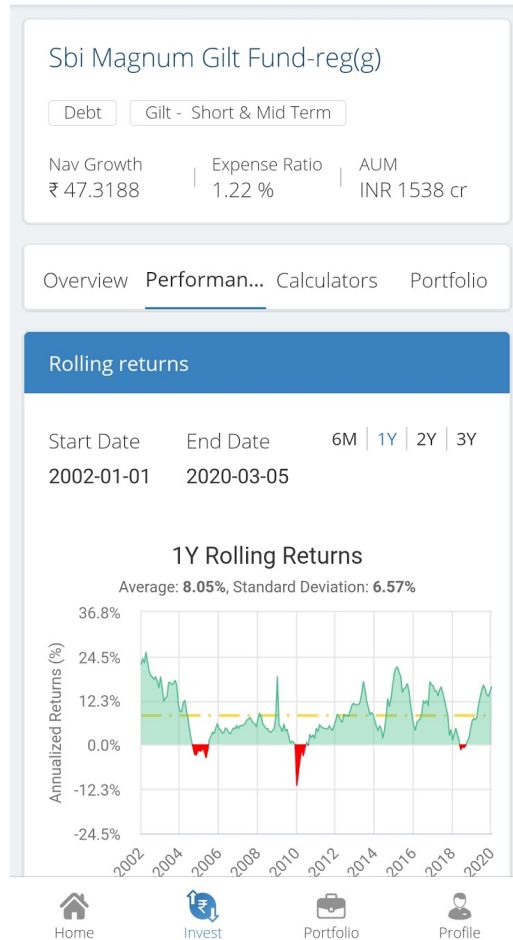

Goal based fund classification
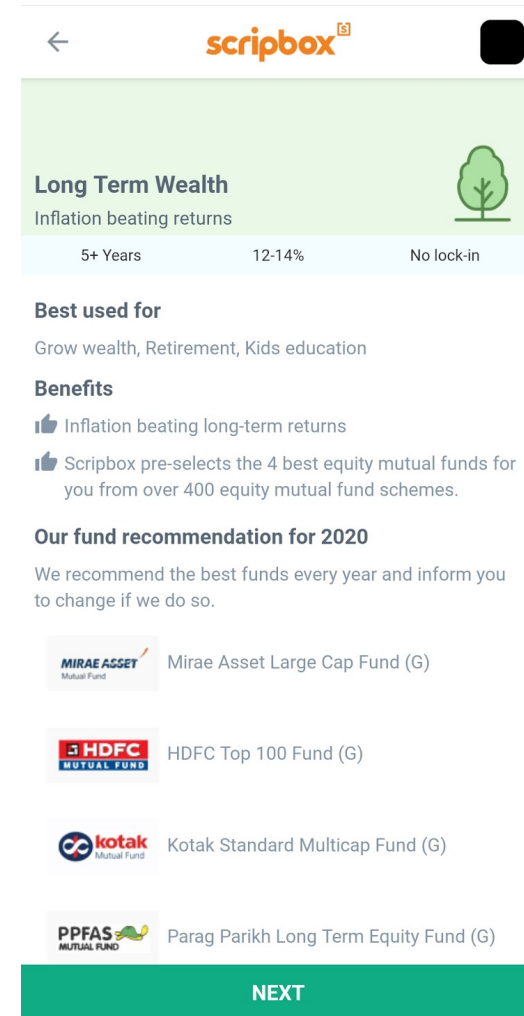
Curated funds

Finpeg

Finpeg takes a more neutral approach with more information and choice being provided to the user. Funds are listed without any particular classification by the platform.
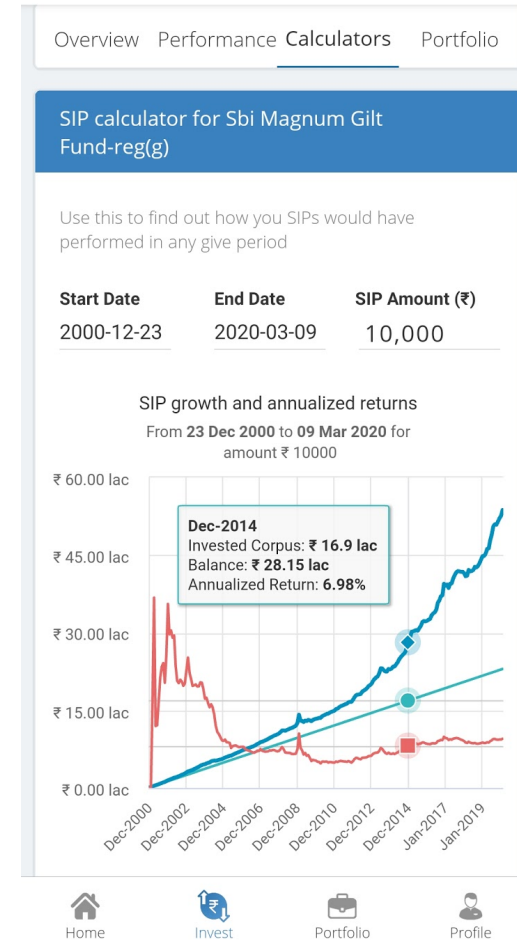
The platform also provides inbuilt calculators to analyse the performance of the various products it offers. The platform overall is more an aggregator and a purchase evaluator than a curator, and appears to be catered to more advanced users.

Fund performance and information

Return calculator

Kuvera

Kuvera also acts as a neutral platform, not going so far as to curate particular funds earmarked for particular objectives. However, information provided is not very comprehensive.

Moreover, Kuvera also does not offer the same performance and evaluation tools as some of its competitors, such as Finpeg. However, the user flow to invest in a fund is much faster, putting it somewhere between Scripbox and Finpeg.

Fund browser

The screen directly after clicking to invest

Groww

Groww mixes some of the above features in its design. It also curates funds based on common user financial goals, while maintaining fairly detailed information on the funds offered.
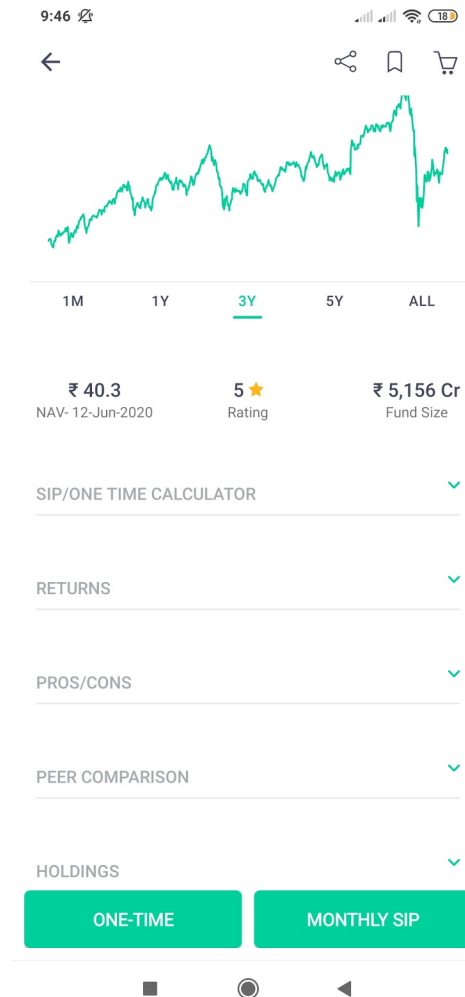
On viewing each fund, there is a mixture of objective information (performance, holdings, etc) and curated information (pros, cons, etc). Groww also keeps the calculator feature from Finpeg.
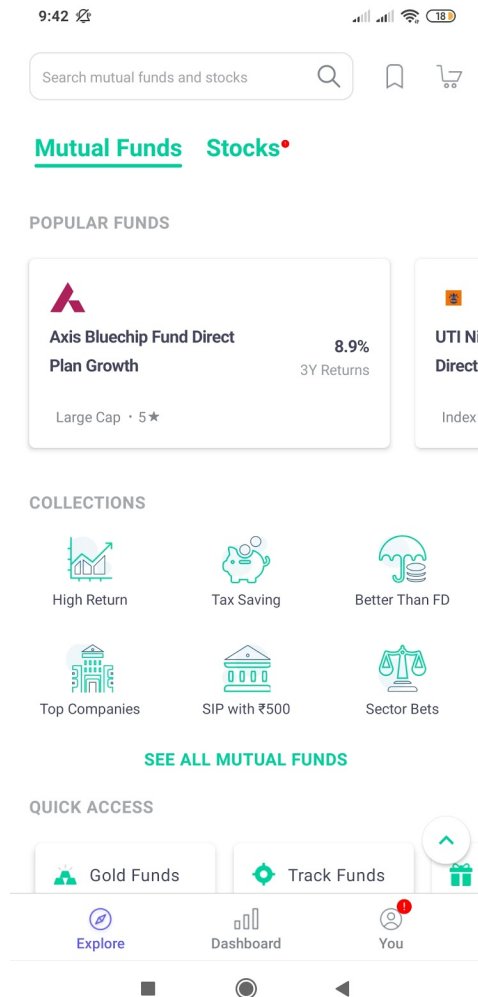
Goal based investment in Groww

Performance analysis

Expense Tracking Tools
These tools are among the most popular kinds of finance tools on the Play Store. There are several different variants, but in general share some key similarities:

- They appear to be primarily designed to track and manage discretionary spending, i.e. not necessarily best suited to tracking fixed expenses, but generally tracking all cash/electronic spending through the course of a month
- Most of these tools allow the creation of one or more budgets, with the flexibility of assigning categories to spends for later review
- Many of these tools track spending by parsing through service SMSes sent to the mobile phone linked with particular bank accounts. There is enough information in these messages to understand which account has transacted for how much money via what medium. The category of spend usually has to be manually updated, however, most tools have a database of known merchants/vendors, such as Swiggy or BookMyShow, and when expenses towards those vendors are detected, categories are automatically assigned.
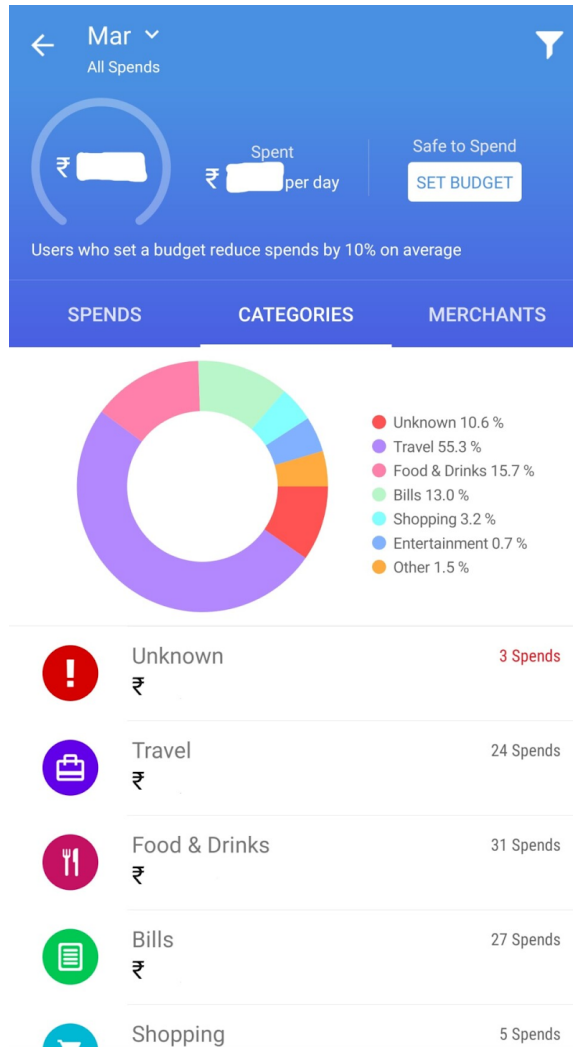
These tools are widely used, especially by young people, to avoid overshooting their discretionary budgets. This purpose is helped by the largely automatic functioning of these tools, with little user input required to maintain the core functionality of tallying spending against a predetermined monthly budget.

However, these tools also have several shortcomings in the broader context of financial planning, such as:

- While these tools allowing the monitoring of discretionary spending and regular expenses, they do not contextualise this against the user's income, and have a very limited ability to deal with savings or investments in any form
- Even with regards to expenses, these tools can fail when it comes to loans or credit cards. A key factor for users to be aware of when it comes to their credit card bills is the amount of interest they are paying, and similarly to be able to track the progress of repayment of individual loans.
- These tools usually offer little to no customisability, which coupled with their fairly restrictive feature set makes them difficult to directly adapt for a general financial planning purpose.
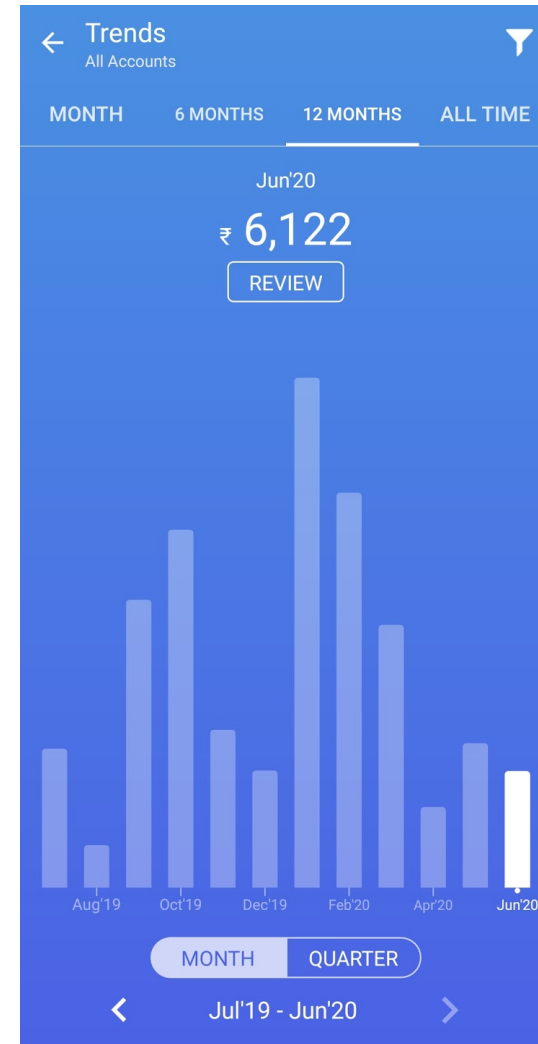
Walnut

Walnut is probably the most popular mobile budgeting tool used in India today. It exemplifies many of the features described above, in particular scraping data from SMS.

Walnut also allows tracking of spending trends and categories. It also has a rudimentary accounts menu, but this does not do much more than update account balance whenever a message reveals it.

Spending categorisation in walnut

Spending trends in Walnut

Money Lover

Money Lover is closer to a financial planning tool than Walnut, but has the same general drawbacks and a slightly confusing design. It provides standard monthly reports.

Money Lover makes use of manual entry with a daily update reminder at a user-defined time. A major issue given the manual entry is the tedious process of data entry. Adding a transaction takes 4 screens and 7 taps.

Monthly report
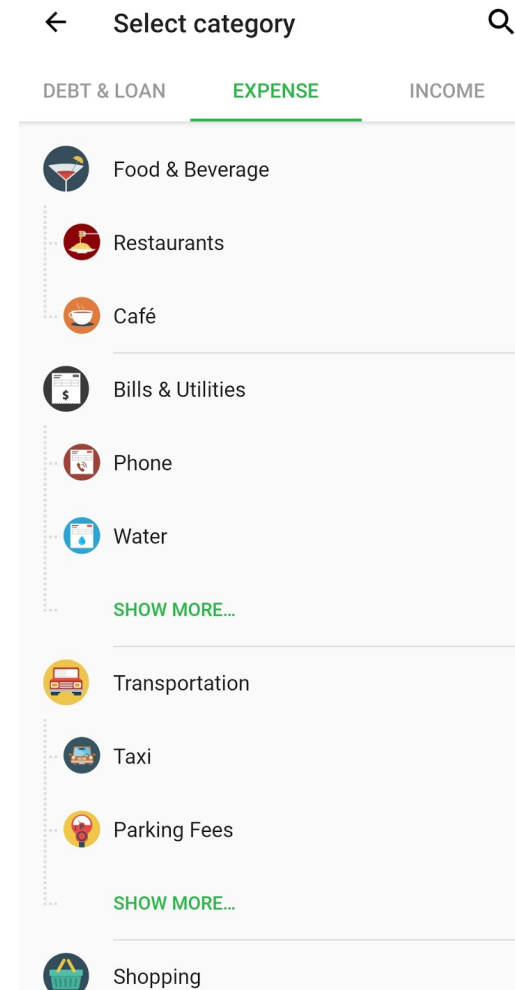
Category screen

Perfios

Perfios is something of an anomaly when compared to the other platforms looked at so far. It is a comprehensive financial platform that directly links to the user's bank.
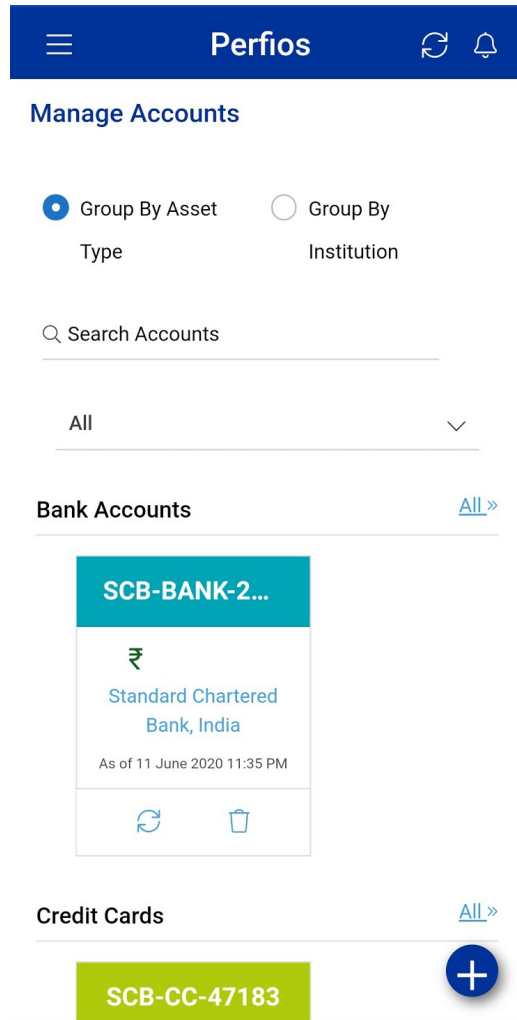
Perfios has many relevant features, such as the ability to add bank accounts, track expenses, loans and credit cards. The direct bank link feature is also great for usability. However, its interface is relatively cluttered and unintuitive.

Accounts Screen
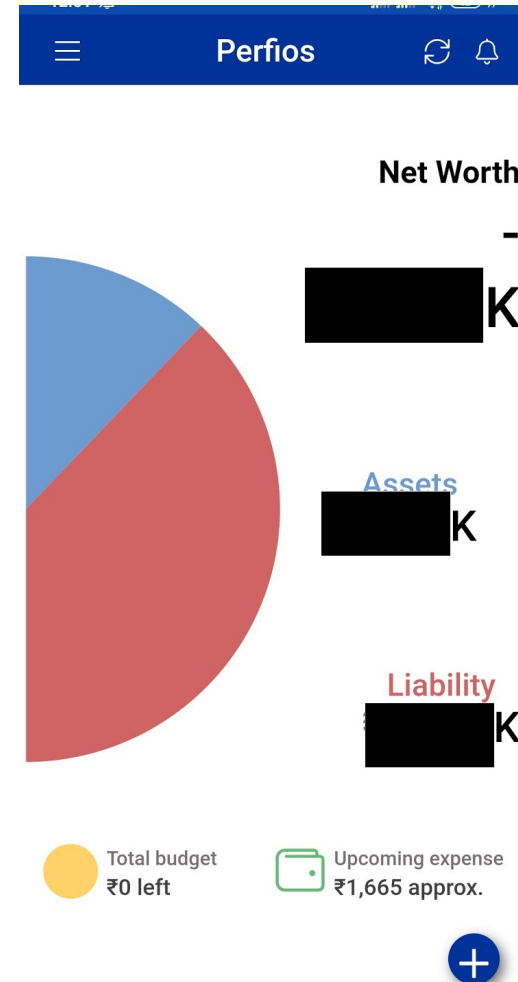
Dashboard

Financial Planning Theory

There are many different approaches to financial planning, but an understanding of the general principles is key to developing a useful tool that assists the user in forming their own insights.

While there are no concrete rules as to how to make a financial plan, some key steps common to multiple approaches are:

1. Establishing one's net worth. This requires a tally of one's assets and liabilities to get a clear picture of one's current financial situation.
2. Preparation of an income statement. An income statement, in the context of business, is a document detailing the profitability of a business, i.e. its revenues minus expenses and losses.
3. From a personal standpoint, an income statement will contain a tally of one's income streams and a list of expenses.
4. Expenses can be classified in several different ways. At a basic level, expenses can be mandatory or discretionary. Mandatory expenses are those that are unavoidable, such as home rent, EMI payments, taxes, insurance premium, etc.
5. Discretionary expenses fall into a number of sub-categories, such as savings (which are a kind of expense as they are not available to freely spend), standard (such as groceries, transport or entertainment), and luxury expenses.
6. After the income statement is complete, one must evaluate whether they are in cash surplus or cash deficit.
7. If in cash deficit, expenses need to be re-evaluated to fit within one's income, i.e. living within one's means.
8. Once a cash surplus is established, it becomes important to consider short and long term goals, such as saving for retirement, buying a home/vehicle, or paying for higher education.
9. Once goals are established, one must evaluate whether their current asset position is sufficient to achieve said goals.
10. If the current asset position is insufficient to achieve said goals, the next step is to figure out how to improve one's asset position, whether by changing their investment strategy, cutting liabilities, diverting expenses or liquidating assets.

Primary Research

The initial primary research for this project consisted of interviews with 8 working professionals and 2 financial services professionals. The findings from this research are detailed below. I will discuss the interviews with the working professionals separately from those with the financial services professionals, as the interviews had different goals.

About the Interviews
The interviews were structured as open ended telephonic conversations. However, there were some specific questions I made sure each participant responded to, which were:
1. Do you make an effort to plan out your finances?
2. If so, what tools/media do you use to do so?
3. Do you invest a portion of your income?
4. Have you acquired any debt?
5. How do you plan your tax payments?
6. What are some of your long term financial goals and how are you planning to finance them?
7. What do you find the main challenges associated with financial planning to be?

About the Interviewees
The interviewees were relatively young professionals working in India across several different industries and income brackets. More specifically:
- The interviewees ranged from ages 22 - 34
- Their monthly income ranged from INR 10,000 to around INR 2.5 lakh
- Two had a master's degree, the rest are graduates
- 5 live/work in Tier-1 cities, and one in a Tier-2 city

Findings - Working Professionals
From the interviews, the findings were:
1. Most interviewees were at least somewhat aware of the importance of financial planning. Four interviewees said they had a comprehensive strategy of their own, three said they managed some aspects of their finances, and one did not have a particular strategy in place.
2. The same four interviewees that said they had a comprehensive plan said that they maintained an Excel sheet to track different aspects of their finances over time. Of the three that managed some aspect of their finances, two made use of budgeting tools (Walnut in both cases), while one (aged 24) defined managing their finances as maintaining several investments and a credit card paid off every month.
3. Five out of eight interviewees said they invest some of their income. Of the remainder, two said they do not invest because they do not currently have enough disposable income, and one (aged 22) said that they planned to do it in the future.
4. Seven out of eight interviewees maintain a credit card, of which only one of them had missed a payment. None of them used a particular tool to manage their card payments, paying their bills through their bank's website or app. Four interviewees had other kinds of loans, with three having a car/bike loan, and two paying off a mortgage.
5. Two of the interviewees have income below the lowest taxable bracket. Of the remainder, all outsource the filing of taxes to a professional. Three had some tax avoidance strategy, while only one

interviewee particularly earmarked a portion of their monthly income towards paying their taxes.

6. Three interviewees' main goal was to save towards their higher education. Of these, only one expected to save enough through investing to pay for their entire programme, while the others planned to take a loan to cover the difference. Two interviewees' main goal was paying off their mortgage and acquiring some real estate. Two interviewees said they did not have particular goals, and were enjoying their lifestyles while trying to save money and build wealth on the side. One interviewee was investing as much of their income as possible to retire early (FIRE).

7. Three interviewees said a lack of familiarity with the concepts was their primary challenge when it came to financial planning. Three found the data entry tedious, and two said they did not have any major challenges managing their finances.

Insights
Besides the responses to those questions, some interesting insights emerged from the interviews:

1. Lack of financial literacy was a problem, especially among younger interviewees. Even the more financially literate interviewees had either come from families which were quite financially conscious or had learnt financial planning during their careers, from colleagues in the professional environment.

2. A surprising number of interviewees use Excel templates and (anecdotally) it seems to be quite common. The main benefit cited was its customisability, while the main drawback was the

relative complexity to set up, and there is a market for good Excel templates for financial planning.

3. While some interviewees found the process of data entry and categorisation tedious, others did not. The interviewees that maintained consistent manual records tended to update them at the end of the day as a habit/ritual.

4. The older/more affluent interviewees were (perhaps predictably) more likely to outsource aspects of their financial planning to professionals. Tax filing was largely outsourced, however, the more affluent interviewees also tended to outsource parts of their investment portfolio,

5. While it was not a part of the initial questionnaire, only four of the interviewees had life insurance. Five had at least some medical insurance via their employers, and only one had private insurance.

6. Interviewees value actionable feedback, i.e. they appreciate when a tool provides them information that can inform their spending/saving habits.

Findings - Financial Services Professionals
Besides the aforementioned interviewees, which more or less represented my target user group, I spoke to two financial services professionals to discuss the general aspects of financial planning to keep in mind during the process of designing the platform. Some of the findings from my interviews with them are listed as follows:

1. Many investors are particularly concerned with making high returns, and this may push some of them to take on riskier investments. This is fine if they have the capacity to take on such risk, but in many cases

the focus on high returns is relatively misplaced. More predictable/reliable factors such as maximising savings rates, minimising expenses and adapting investment strategies with wage growth are more consistent strategies for growing wealth over time.

2. Tax services are easily and relatively cheaply available in India, however maximum tax avoidance requires intelligent pre-planning. This issue disproportionately affects the middle class, as the rich usually tend to be very tax-savvy.

3. Goal-based investing is generally a preferable strategy, however many people are instead constrained by the amount of income they can set aside at the time.

4. It is important for individuals to be able to evaluate the financial quality of a purchase, as a fundamental skill for good financial planning. For example, buying a new car that loses 10-20% of its value right out of the showroom with a large chunk of a young person's savings may not be a strictly financially sound decision.

5. Probably the single most important factor is compliance. Individuals must ensure they set realistic goals and maintain the discipline to follow them to ensure the achievement of the intended results.

Problem Reformulation

Following the primary and secondary research conducted, several salient issues emerged:
1. Basic financial literacy is an issue, so the required solution must use minimum jargon and attempt to cater to amateur/inexperienced users.
2. Tedium of data entry is a major obstacle to usability, so the ease of data scraping + data entry must be maximised.
3. Users value actionable feedback, therefore a design that promotes a holistic overview of the user's finances is desirable.

Reformulated Problem Statement
This leads to the reformulated problem statement:
"To design a financial planning platform that allows young working professionals to simply and conveniently manage their financial assets, liabilities and transactions while providing them with a holistic overview of their financial position."

Analysis

Based on the research conducted, there are several broad requirements for this design to fulfil, such as:

1. Basic expense tracking: the bread and butter of financial planning tools, showing users their regular spending habits in a manner that allows them to observe high-level trends and make desired changes.
2. Income allocation: Financial planning starts with incoming cashflow, and the platform must provide the user with a clear understanding of where there income is going and what it is being used for.
3. Liabilities tracking: A major desired feature that was found to be lacking in many other platforms was intelligent loan tracking. Money Lover, for example, treats loan accounts like any other account, not allowing the user to set payment dates and interest rates, or to track interest paid on credit cards.
4. Asset manager: The platform must allow the user to view and track their volatile assets, such as securities and mutual funds. The platform must also assist the user in setting financial goals and figuring out how one might reach them.

Feature Analysis

With the broad goals listed above in mind, the next step was to detail the specific features of the platform, classifying them by necessity to the broader objectives:

Must Have Features:
- Income Sources
  - Income History
  - Annual Income
    - Income Categories
  - Income Allocation
- Monthly Budget
  - Categorised Spending
  - Monthly/annual trends
- Liabilities Tracker
  - Fixed Expenses history
  - Loan/Credit Card Accounts
- Asset Manager
  - Savings/investment accounts
  - Fund Planner
  - Goal funds

Should Have Features:
- Free Cashflow
  - Quick assign free cashflow
- Income breakdown
  - Monthly
  - Annual
- Add recurring income
- Favourite asset ticker
- Investment panel
  - Stock portfolio
  - Mutual funds
 - Securities/commodities/futures
- Cash section

Nice to Have features:
- Tax wizard
- Customisable main menus
- One-touch transactions
- Safe to spend indicator

Representative Cashflow

A schematic of a typical user's cashflow might look like this:

1. Cashflow begins with income, which derives from salary, investments, and other sources.
2. Income is allotted between savings and expenses, using a buffer variable named finances.
3. Expenses are fixed, liabilities, purchases, and taxes.
4. Savings are divided between purchases (say larger purchases), liquid assets and investments.
5. Investments are also subject to taxation.
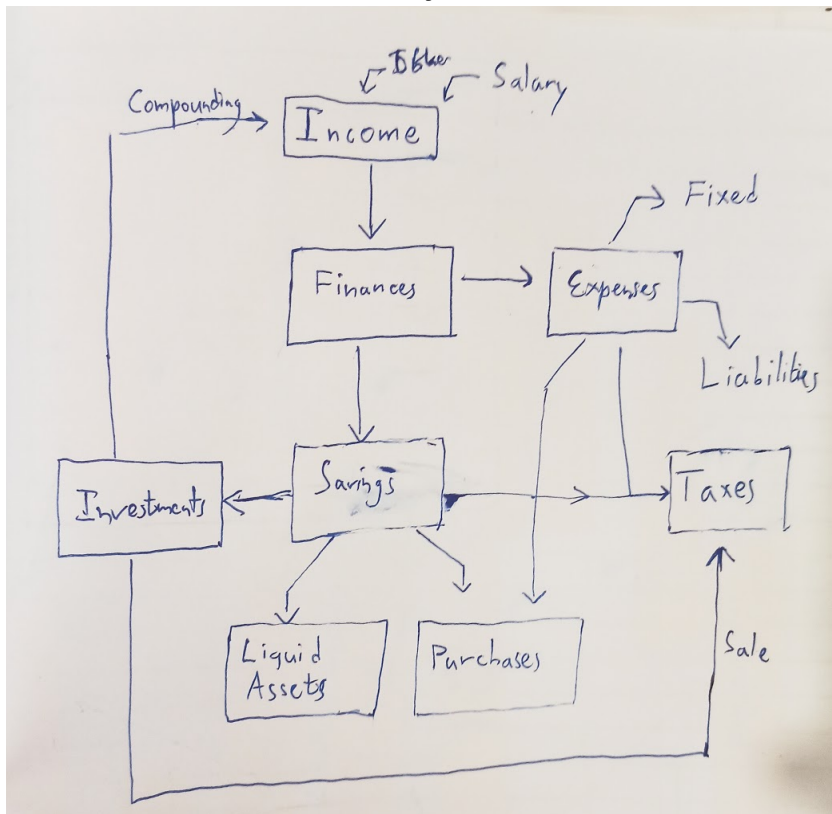
Representative Cashflow

Affinity Mapping

The next step was to assign each of these features to paper chits and create an affinity map to understand how to bring these features together and connect common concepts.
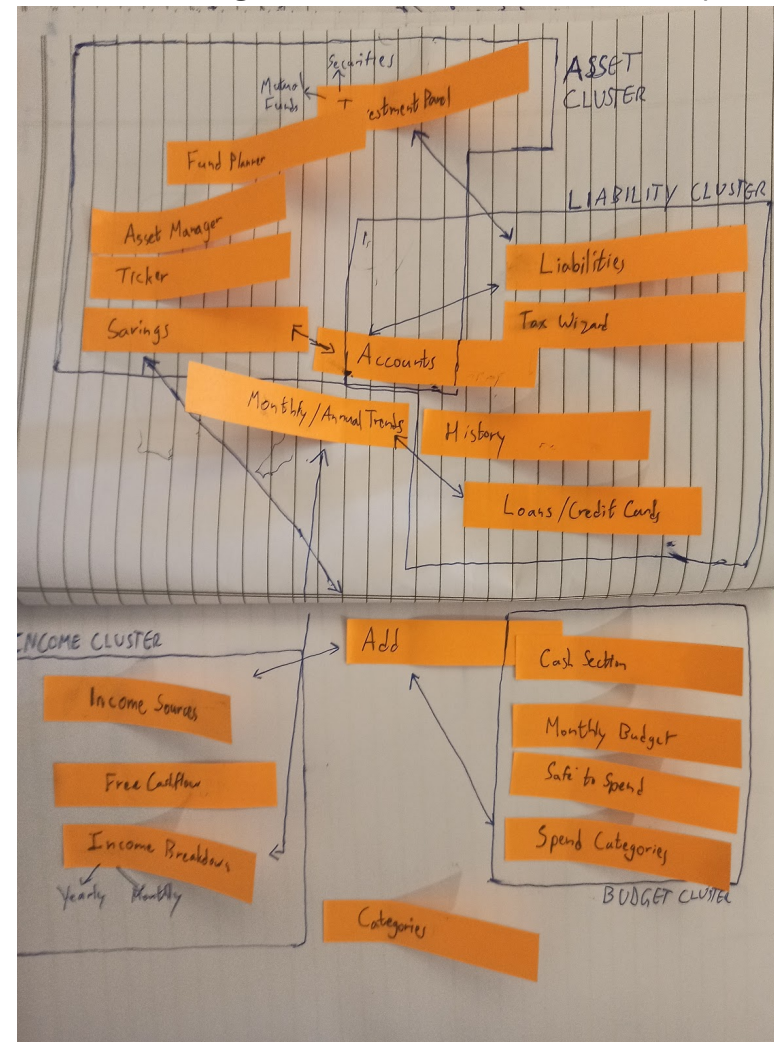
Affinity Mapping

Solution Requirements

With some broad design principles and a basic feature set in place, the solution requirements for the given problem are:

1. Convenient Budgeting: With expense tracking remaining the "bread and butter" of financial planning tools, the added features must not bloat the core functionality of budgeting.
2. Understanding Income Allocation: Also one of the fundamentals of financial planning, the platform must allow users to get a since of where and in what proportions they are spending their income.
3. Smart Liability Management: The platform, while integrating loans and credit cards, must not treat them like any savings account. Loan accounts must highlight interest paid and be able to update themselves accordingly.
4. Asset Manager: The platform must allow the user to monitor various different kinds of asset classes, such as securities, mutual funds, bank accounts, insurance, etc. Executive action is not the primary aim here, keeping track of changes across accounts and institutions is the primary intent.
5. Intelligent Hierarchies: By the nature of this platform, some actions will be taken far more often than others. The platform must take the relative priority of different actions into account.

Persona

Name: Naren
Personal Description:

1. Naren is 24 years old.
2. He is several years into his first job, with take-home pay of around INR 60,000/month.
3. Naren shares an apartment with an older man in Bangalore. The two do not share much besides rent and the electricity bill.
4. Naren has bought a new motorbike, taking out a 2 year loan of INR 90,000 at an EMI of INR 4,620.
5. Eating out and drinking with his friends forms the bulk of his regular expenses.
6. Naren maintains a SIP of INR 9,000/ month.
7. Naren works in software and is highly tech literate.
8. Naren has a bachelor's degree.

Motivators:

1. Naren realises he could be saving more towards his goal of buying property if he cut his general expenses.
2. Naren slightly regrets his decision to take on a bike loan, given the wasted investment potential.
3. Naren is looking for a single tool to manage various aspects of his finances, which he now does manually.
4. Naren is in the habit of maintaining his finances.

Obstacles:.

1. Naren expects a high degree of convenience before he will use a piece of software.
2. Naren prefers to spend cash, for privacy reasons. This has led to his dissatisfaction with some tools he tried.

Exploration

Upon arriving at the basic feature set coupled with the representative cashflow and the affinity diagram, I explored several alternative skeletons for the platform. This led to three main structures, which I will detail as follow.

Short-Term/Long-Term Model
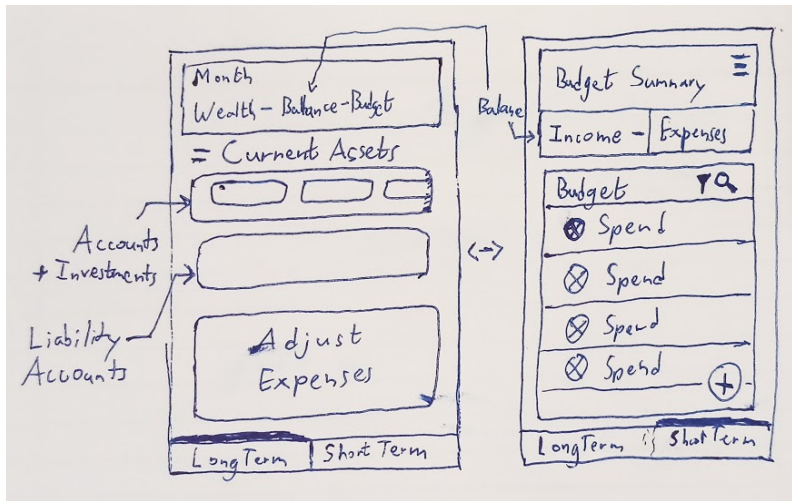
The first idea I explored was basing the main screen off the general idea of a budgeting tool, i.e. short-term expenses. The budgeting screen would also contain a link to the income and fixed expenses screens, where incomes and regular expenses could be added together.

The user can navigate via the bottom tab to the long-term screen. This contains the summarised asset position, asset accounts, which include savings accounts and investments clubbed together. The panel below that represents liability accounts such as loans and credit cards. Finally, the bottom menu is a quick access menu to edit fixed/regular expenses.

Evaluation
This model is conceptually similar to popular budgeting tools, which is the clear focus in this design. The clear focus on the home screen is short term spending and the categories they fall in.

The arrangement of asset and liability accounts is actually somewhat similar to that used in Walnut, although Walnut uses basically one tab instead of 2 and does not support loan accounts.

However, this fails on the grounds of affinity and hierarchy. Regarding affinity, asset classes are not suitably distinguished (which is necessary if a detailed segment is to be built), loans and fixed expenses are split in the design despite being conceptually very similar to the user.

As far as hierarchy is concerned, it is easy to update budget spends. However, making updates beyond that is quite difficult. Moreover, relatively unimportant details are given easier access and more real estate than higher priority items, even within the same cluster.

For those reasons, this design was not selected for further development. It is primarily focused on budgeting and, at least in this form, does not appear to adapt well to the expanded featureset.

Asset Platform Model
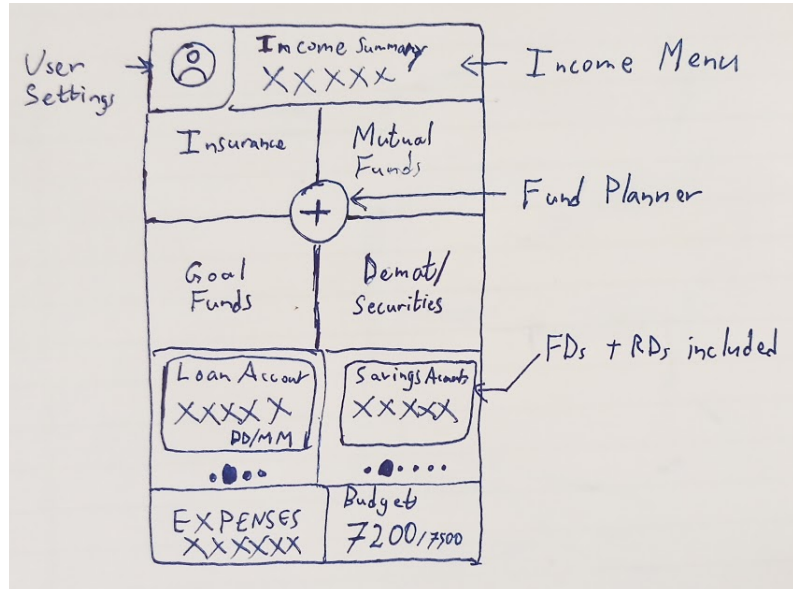
This model is more similar to the final design chosen. The home screen of the app is effectively an asset manager. A user settings menu sits at the top, with the income summary highlight at the top providing access to the income menu.

The middle section of the screen is the asset cluster. Assets are broken down into four main types, insurance, mutual funds, demat accounts, and goal funds. Goal funds are effectively purpose-oriented funds that are populated with selected savings and investments from the other menus.

Below the four asset classes are the loan accounts and savings accounts section. These function similarly to the way they did in the previous design, or in tools like Walnut. One can swipe through the list to find the account of choice. Clicking the + button allows creation of a new asset.

Expenses, budgeting (with a summary) and liability are clustered together. Clicking on any of them will open the relevant management screen.

Evaluation

While this design fairs significantly better with regards to affinity, it fails in terms of hierarchy and in simple terms of good use of screen real estate.

Income, asset, and liability clusters are all bunched up well together, but the information displayed betrays a major waste of screen space. High information regions like loan and savings accounts are constrained to a smaller space than the button representing asset classes are. Similarly, updating the budget is relatively tedious through this system, requiring the opening of a new window to execute perhaps the most basic task involved in the platform.

As it stands, this model functions as an asset management platform with budgeting and expense management being essentially secondary features. Which was the general idea behind it, but unsuited to this project.

However, this design led to an insight that inspired the final design. That is, if the + button could somehow be connected to the budget and expense menus directly, a lot of accessibility options would be opened up by that decision.

Tripartite Model
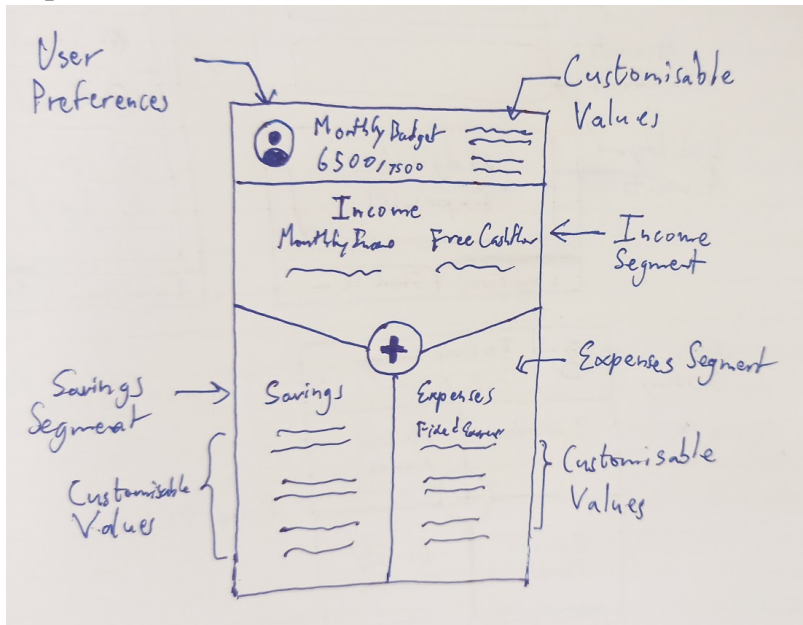
This model takes the add element from the previous model, and extends it to a tripartite, viz. income, savings and expenses. The add element made it to the final concept, and so will be detailed there. Besides that, the home screen is relatively straightforward. Each section contains space for some customisable values to be displayed, including the main menu at the top, which displays the status of the monthly budget (which is assumed to be of most frequent interest), and space for any two other customisable values. Clicking on any section will enter a dedicated space for that section. Unlike previous models, this design separates the basic planning units of income, savings and expenses.

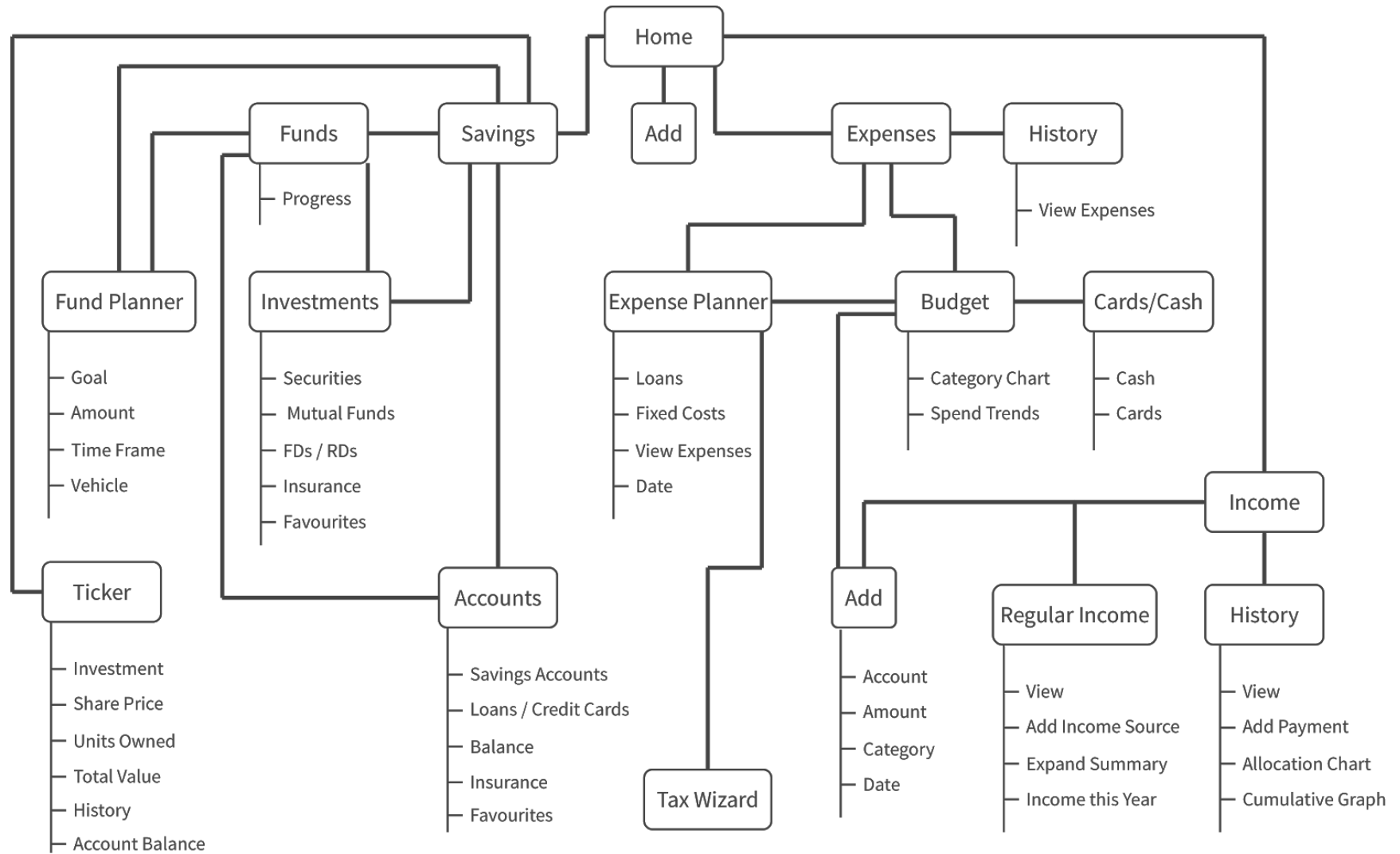This model was chosen as the basis of the final concept.

Final Concept

After outlining the skeleton of the final platform, the next step was to work out the contents of each sub-menu. This involved two key stages, namely creating the information architecture and creating the layouts. These steps will be detailed in this section.

Technical Assumptions

1. The final concept operates under the assumption that SMS-based data scraping is also available within the platform.
2. What would be ideal is directly connecting to the user's bank account, like in the case of Perfios, but doing so requires an agreement with individual banks, which is beyond the scope of assumptions for this project.
3. Despite the availability of SMS-based data scraping, the platform will also make use of manual data entry, due to the limitations associated with the purely SMS-based model.

Information Architecture

- Home
  - Add
  - Expenses
    - Expense Planner
      - Loans
      - Fixed Costs
      - View Expenses
      - Date
    - Budget
      - Category Chart
      - Spend Trends
    - Cards/Cash
      - Cash
      - Cards
  - History
    - View Expenses
- Savings
  - Funds
    - Progress
    - Investments
      - Securities
      - Mutual Funds
      - FDs / RDs
      - Insurance
      - Favourites
  - Fund Planner
    - Goal
    - Amount
    - Time Frame
    - Vehicle
  - Ticker
    - Investment
    - Share Price
    - Units Owned
    - Total Value
    - History
    - Account Balance
  - Accounts
    - Savings Accounts
    - Loans / Credit Cards
    - Balance
    - Insurance
    - Favourites
- Tax Wizard
- Add
  - Account
  - Amount
  - Category
  - Date
- Income
  - Regular Income
    - View
    - Add Income Source
    - Expand Summary
    - Income this Year
  - History
    - View
    - Add Payment
    - Allocation Chart
    - Cumulative Graph

Prototype

The prototype was constructed based on the tripartite model developed during the concept exploration stage, with the aforementioned information architecture applied to it.

The upper favourites section shows the monthly budget and two other values, customisable from the user preferences segment in the same section. The tripartite system is depicted here. I chose not to allow customisable displays on the tripartite because it made the layout quite congested, while in its current form it is quite approachable.

A complete prototype is available for viewing at this link.
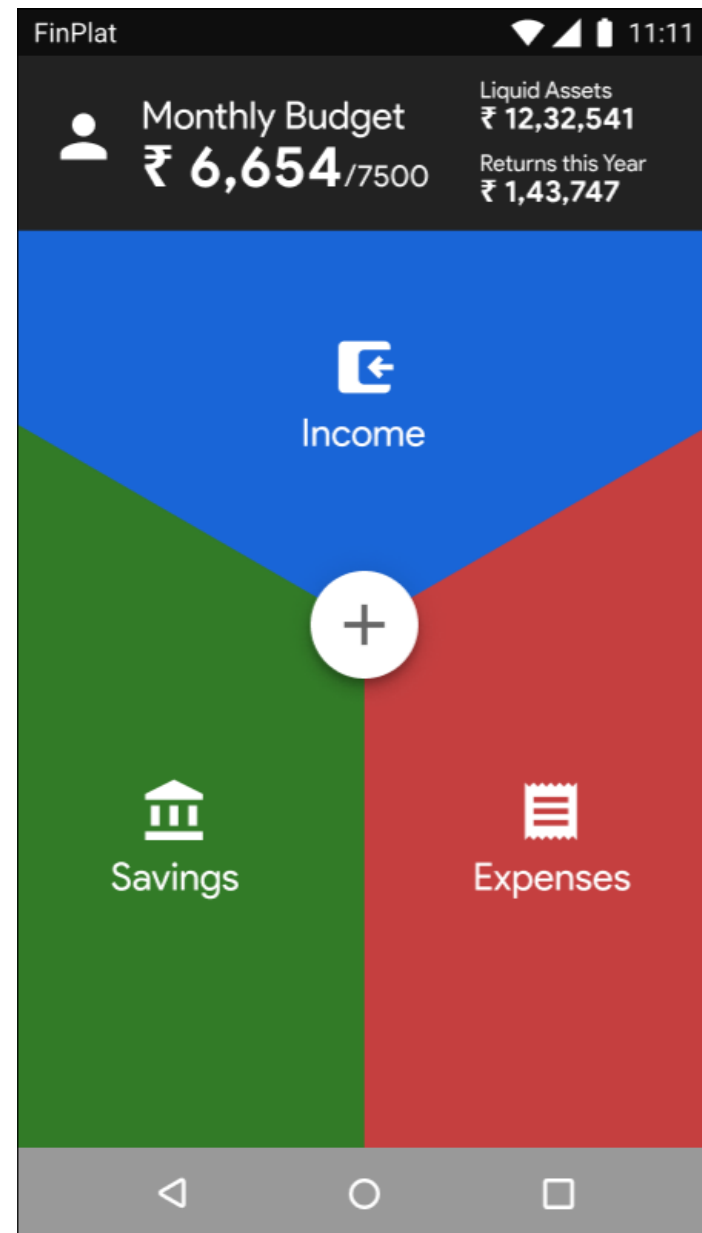
Income Section

The income section has two major elements, history and regular income.

Regular income sources are listed with their periodicity. History, on the other hand, lists all income that the user has received during the year.

The overview variables chosen for this were Free Cashflow and Income this Year:

1. Free cashflow shows users their unutilised capital that has not yet been allotted any other purpose. Free cashflow can also be directly be assigned from the assets screen, and is automatically deducted from the expenses screen.
2. Income this year gives the user a big picture look at the total income earned over a relatively large period. Especially for younger users that tend to think of spending more in terms of individual transactions, the assumption here is that this value will help reinforce that small financial decisions add up.
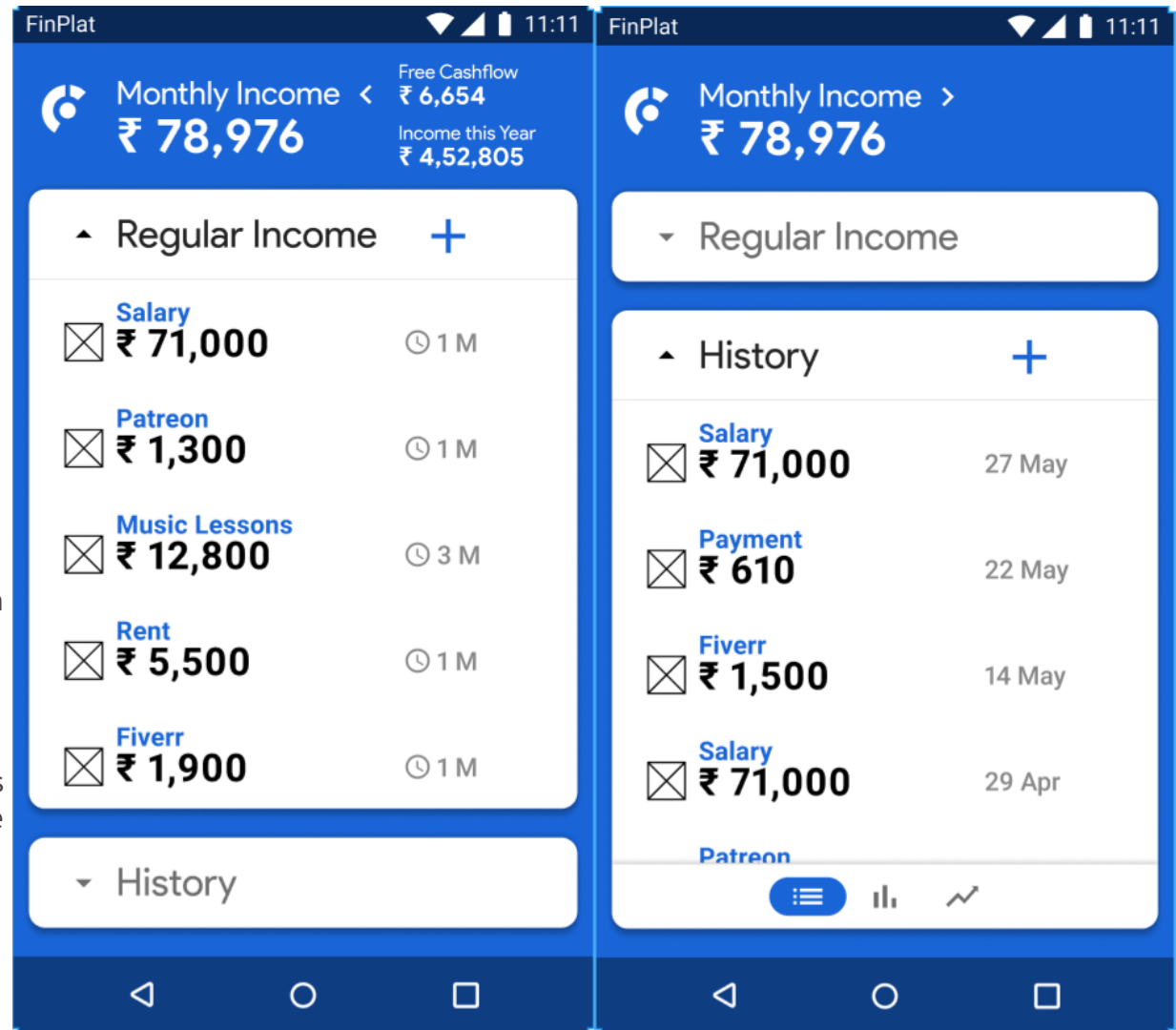
Expenses Section

The main expenses screen (pictured left) contains a history card, as well as a menu containing the expense planner and monthly budget. The expense planner provides an overview of the different streams that expenses fall into, viz. loans, fixed expenses such as rent, money set aside for tax payment, and investments.

The reason for this kind of expense planner screen is that it allows several quick comparisons:

1. Users can see side-to-side how much of their income is going into investments vs. paying off liabilities.
2. Seeing the significant tax reserve might keep the user thinking about tax and make them more likely to seek out avoidance strategies.
3. Similarly, users can see fixed expenses at a glance and try to work out where to trim fat.
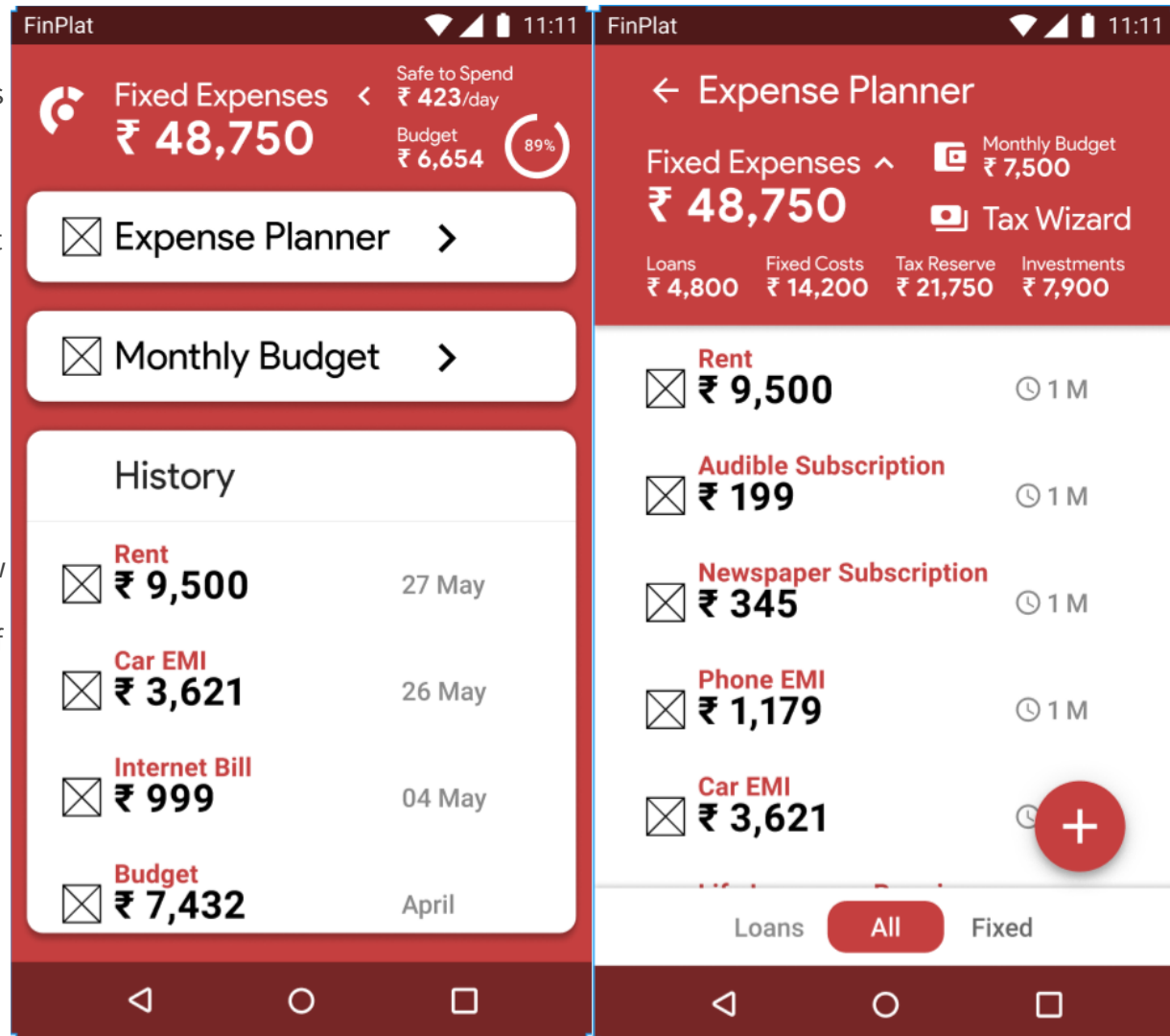
Savings Section

The savings section of the platform highlights free cashflow, to be assigned to a fund, investment or spent eventually in a time of budget deficits. Maintaining a small free cashflow can allow for some flexibility when sudden expenses arise without having to dip into long-term savings.

The main savings screen allows the tracking of some key investments, with relatively basic information merely aimed at the relevance of the NAV/share price to the user. Hence the simple NAV * no. of units = value of your investment display shown here.

The second screen pictured is the bank account display. By default, it displays the user's balance and transactions, along with carrying two kinds of graphs for better understanding of the user's spending patterns.
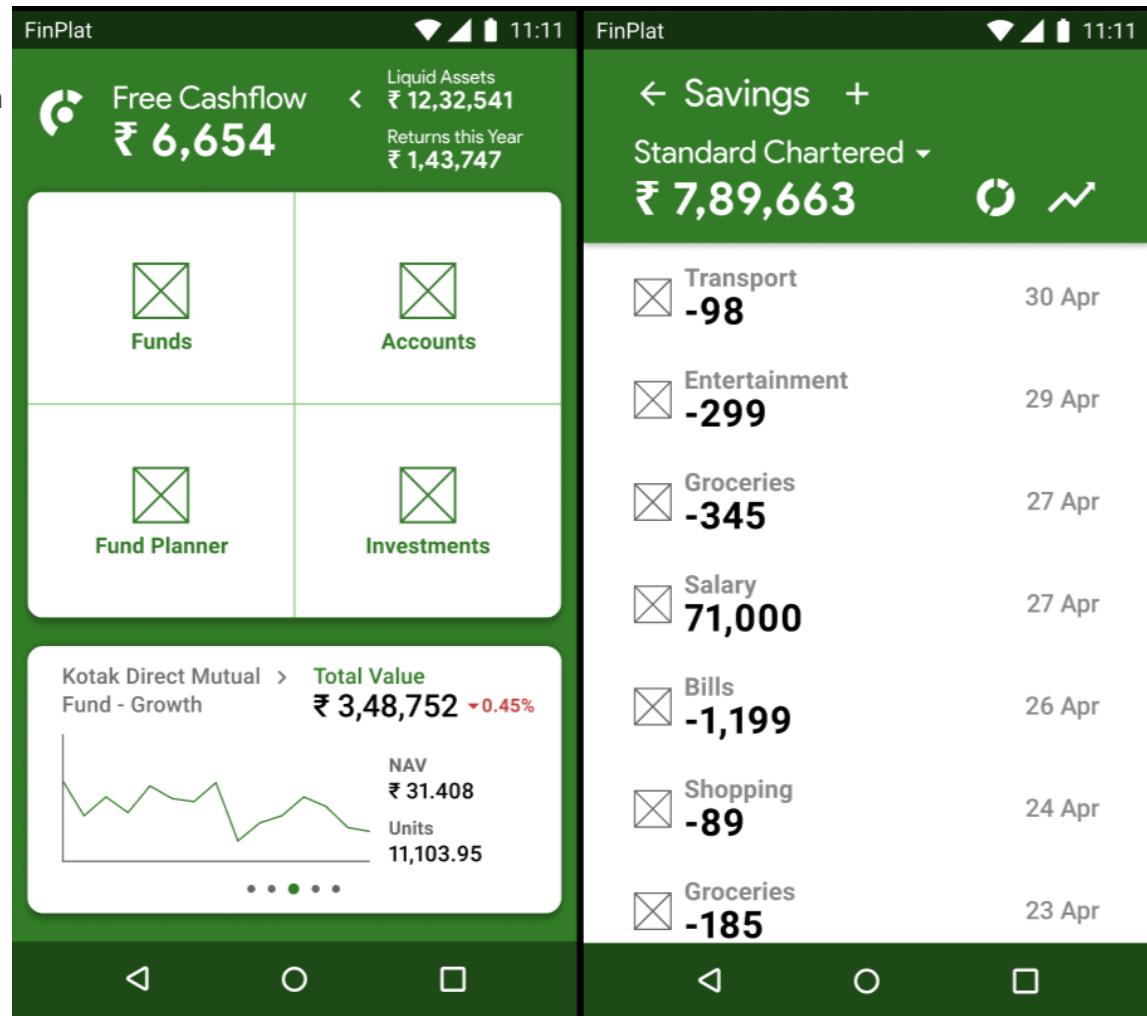
Evaluation

Ideally, evaluation for such a project would be undertaken by actual users. However, a working prototype of the platform is not in the scope of this project. Therefore, we shall conduct our evaluation by walking through some user flows associated with common/important tasks associated with the platform.

User Flow Analysis
We will analyse the following activities through the existing prototype of the platform:
1. Manually adding a spend to the budget
2. Viewing one's income for the year
3. Viewing credit card spending habits and looking for interest paid over time
4. Creating a fund for higher education and adding an investment to it
5. Viewing your bank account balance

In absence of functional user testing over an extended time period, the user flows associated with these activities can serve as a proxy for the general propriety of the platform's structure.

## Manually adding a spend to the budget
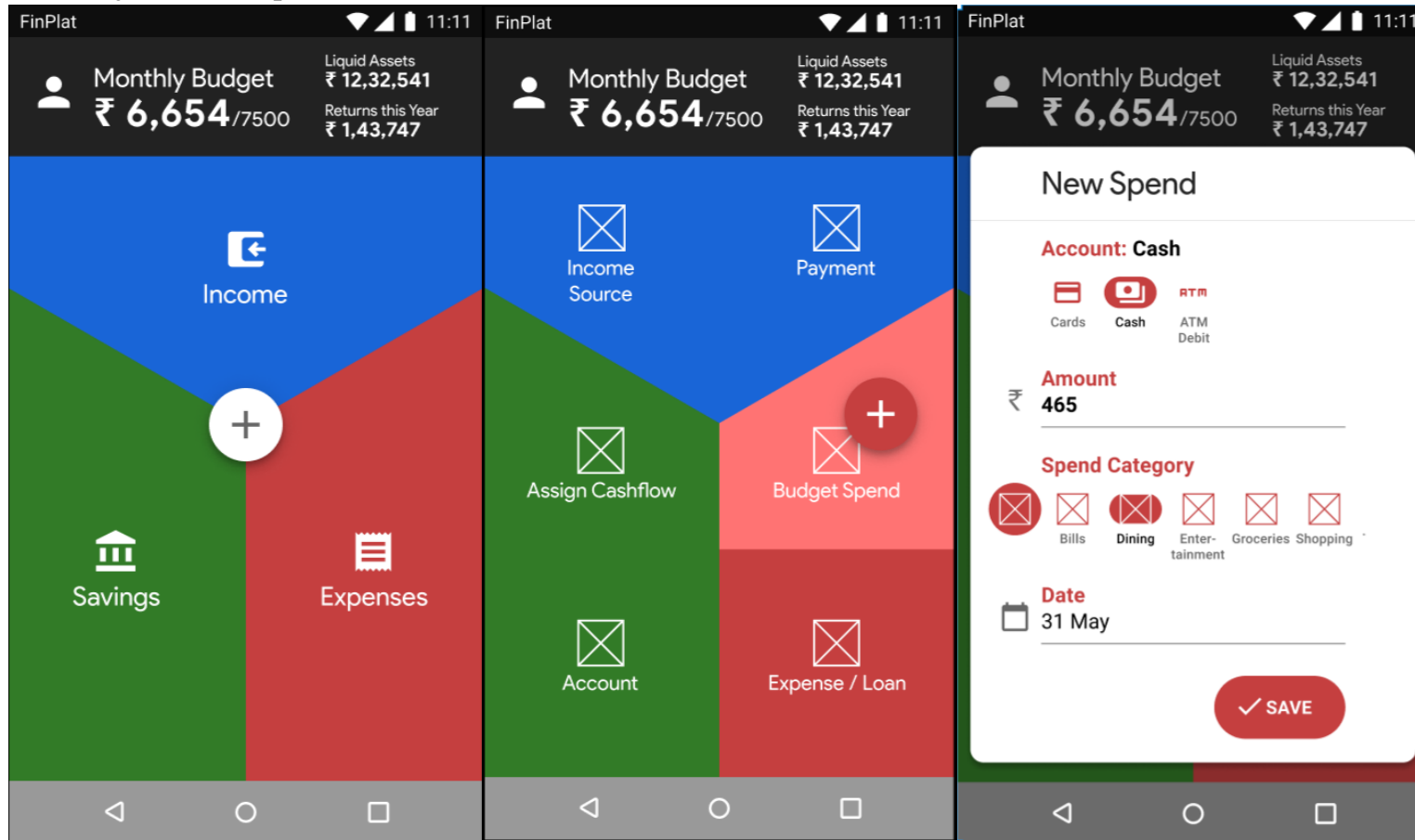
Dragging the add button the correct region opens up the creation menu from the home screen. Which creation menus pop up upon lifting the add button are customisable under user preferences. Any pop-up window accessed by an add button in the app can, in principle be included here.

Viewing one's income for the year
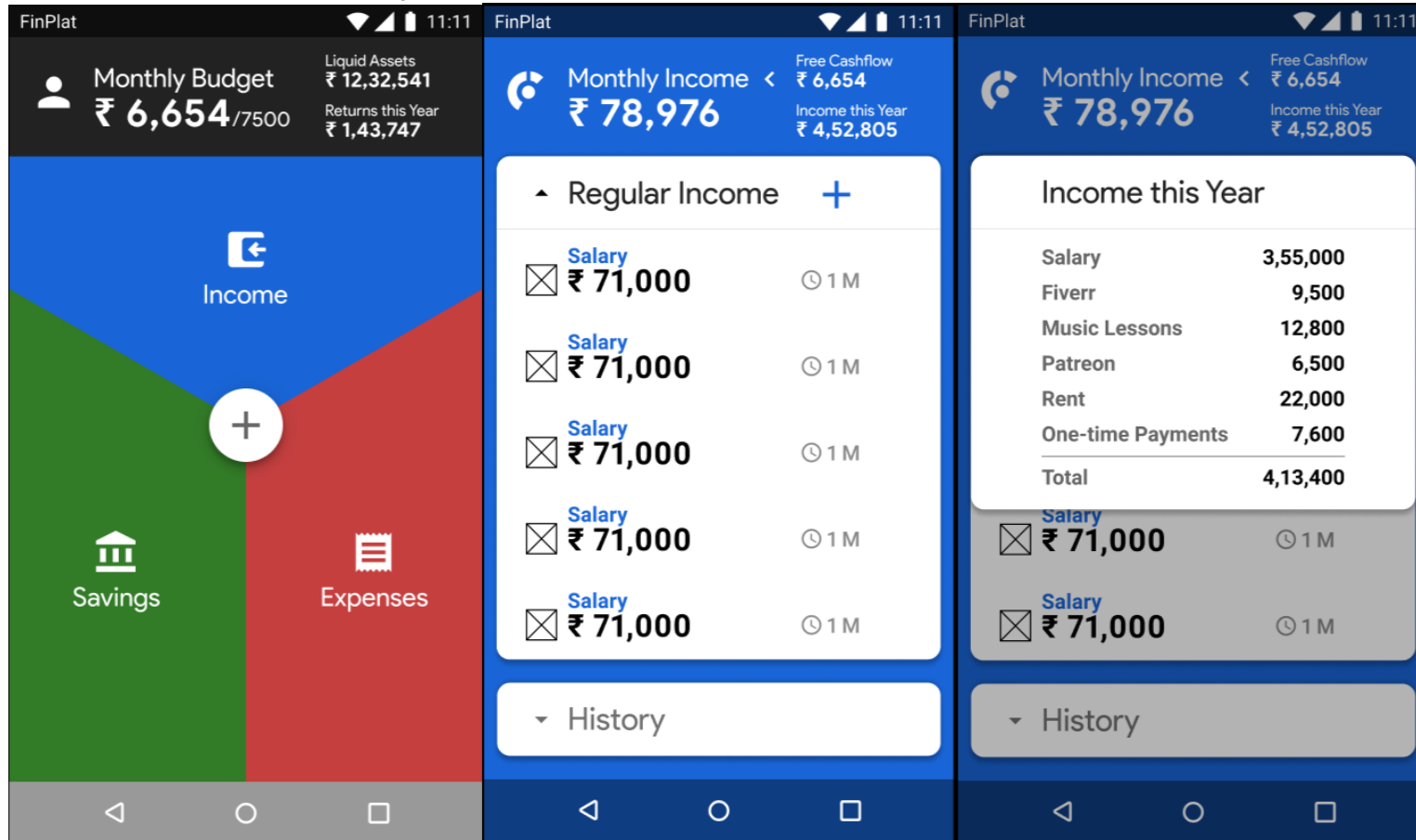
Viewing one's yearly income requires 3 clicks: One to enter the income screen, one to expand the top summary, and one to click on income this year before it becomes visible.

Viewing credit card spending habits and interest paid
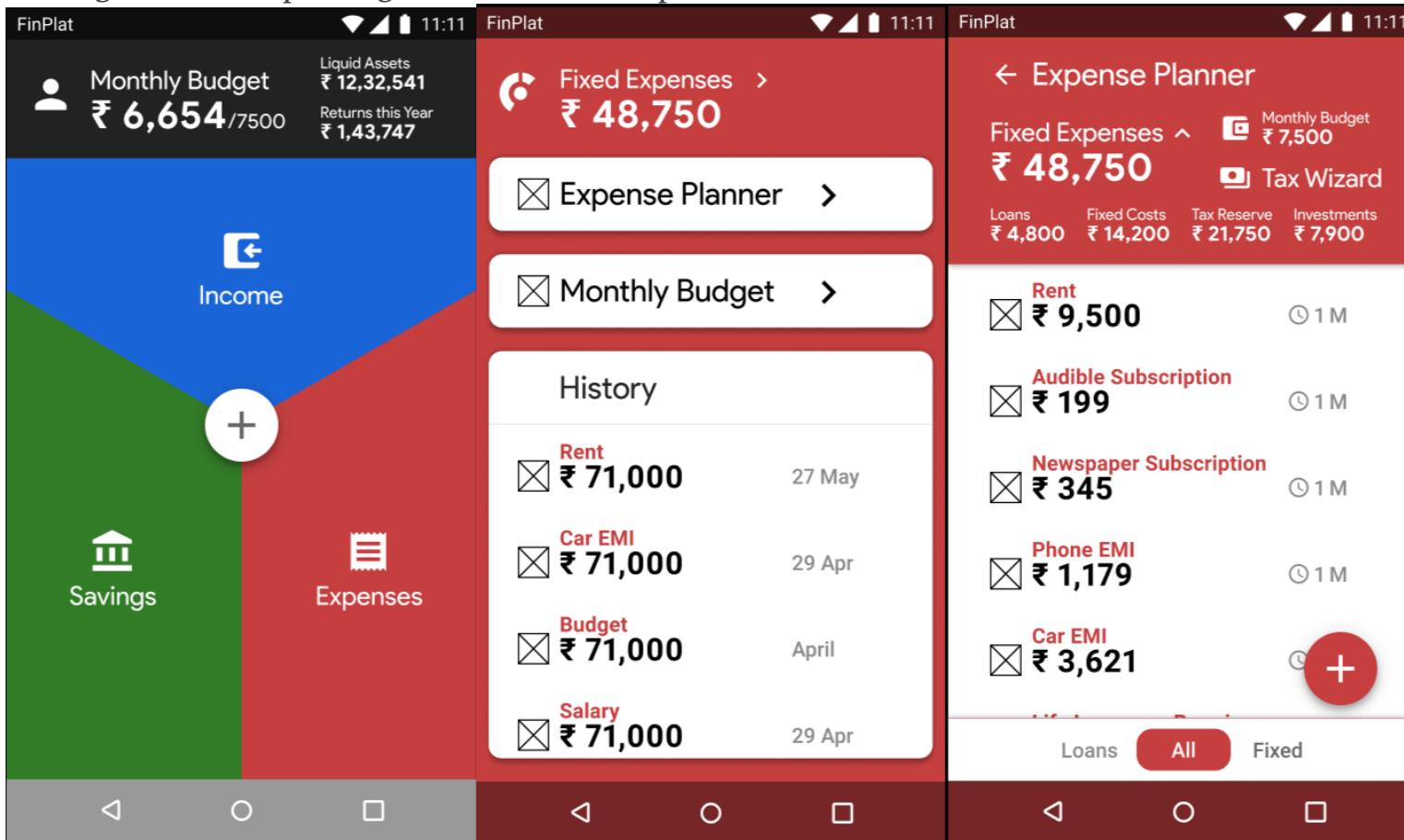
This user flow is a little more involved than the previous two. The first step is navigating to the expense screen and entering the expense planner. From there, clicking on "loans" will take you to the loan account screen. These are 3 clicks so far.

Viewing credit card spending habits and interest paid

After navigating to the liability account screen, select the chosen credit card/loan account, and view the pie chart for categorised trends. The bar graph allows viewing interest paid on the card over a given time period.

Creating a fund and adding an investment to it
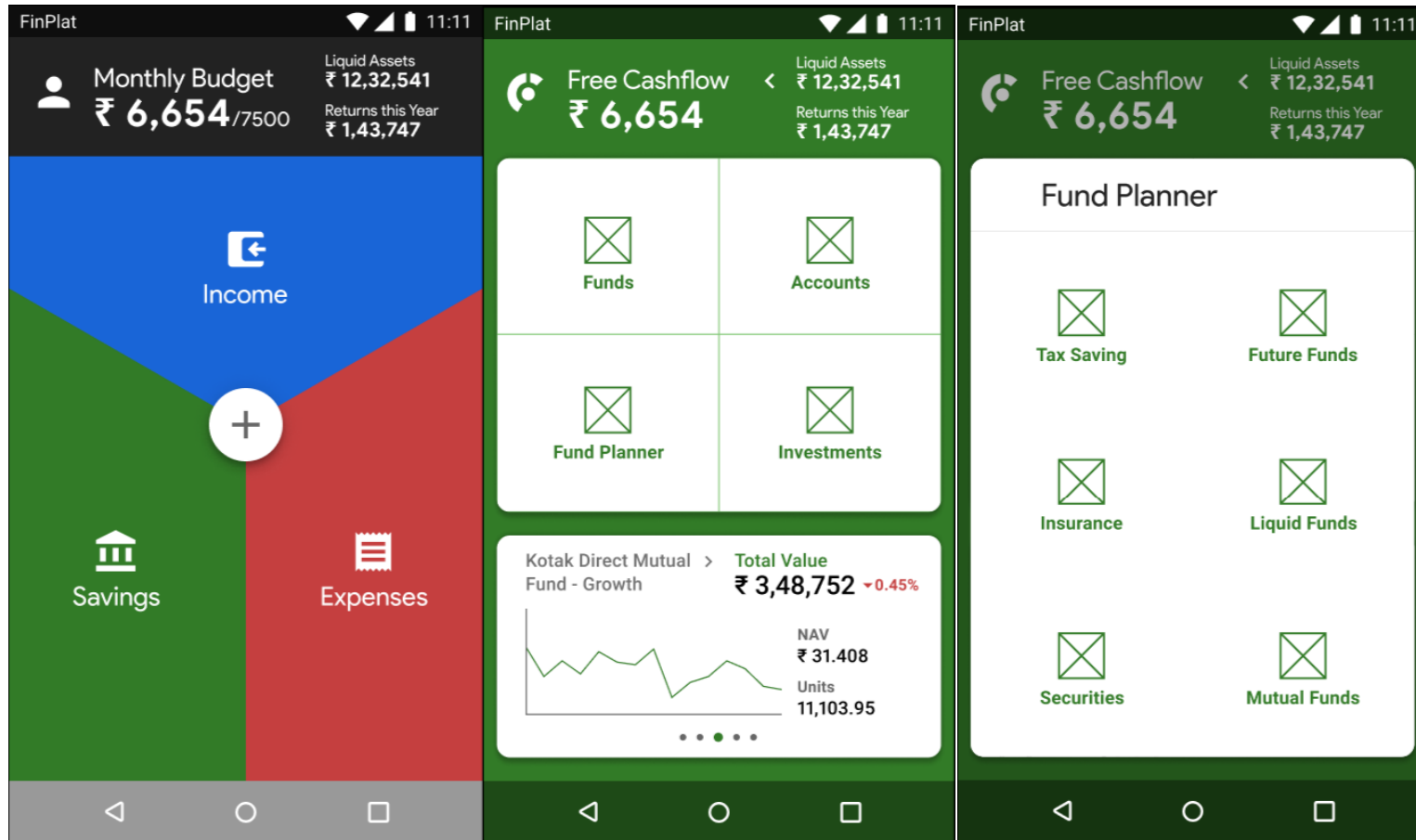
This user flow is one of the more complicated flows of within the platform. First, enter the savings menu and open the fund planner. From there, select Future Funds, to create a long term goal fund.

## Creating a fund and adding an investment to it

The fund is given a title, a target amount, a time frame within which to reach the amount, and the current amount set aside for this purpose. Next, the platform suggests an investment strategy that will generate the required capital. Finally, the fund is saved with the information on the right screen.

Creating a fund and adding an investment to it
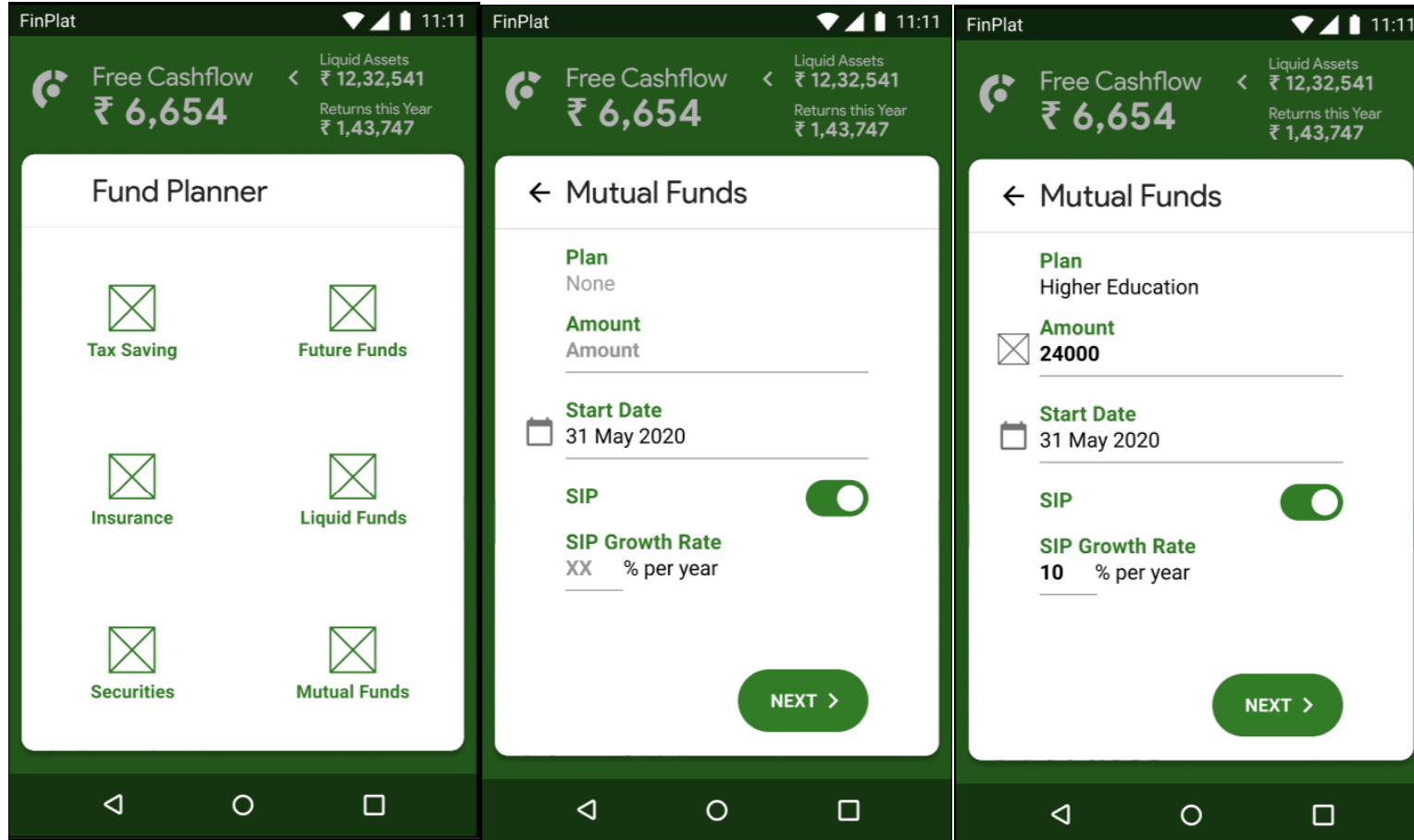
Following the creation of the plan, the user can open the mutual fund menu, select the plan that was just made via the dropdown, and the specifics will autofill themselves.

Creating a fund and adding an investment to it
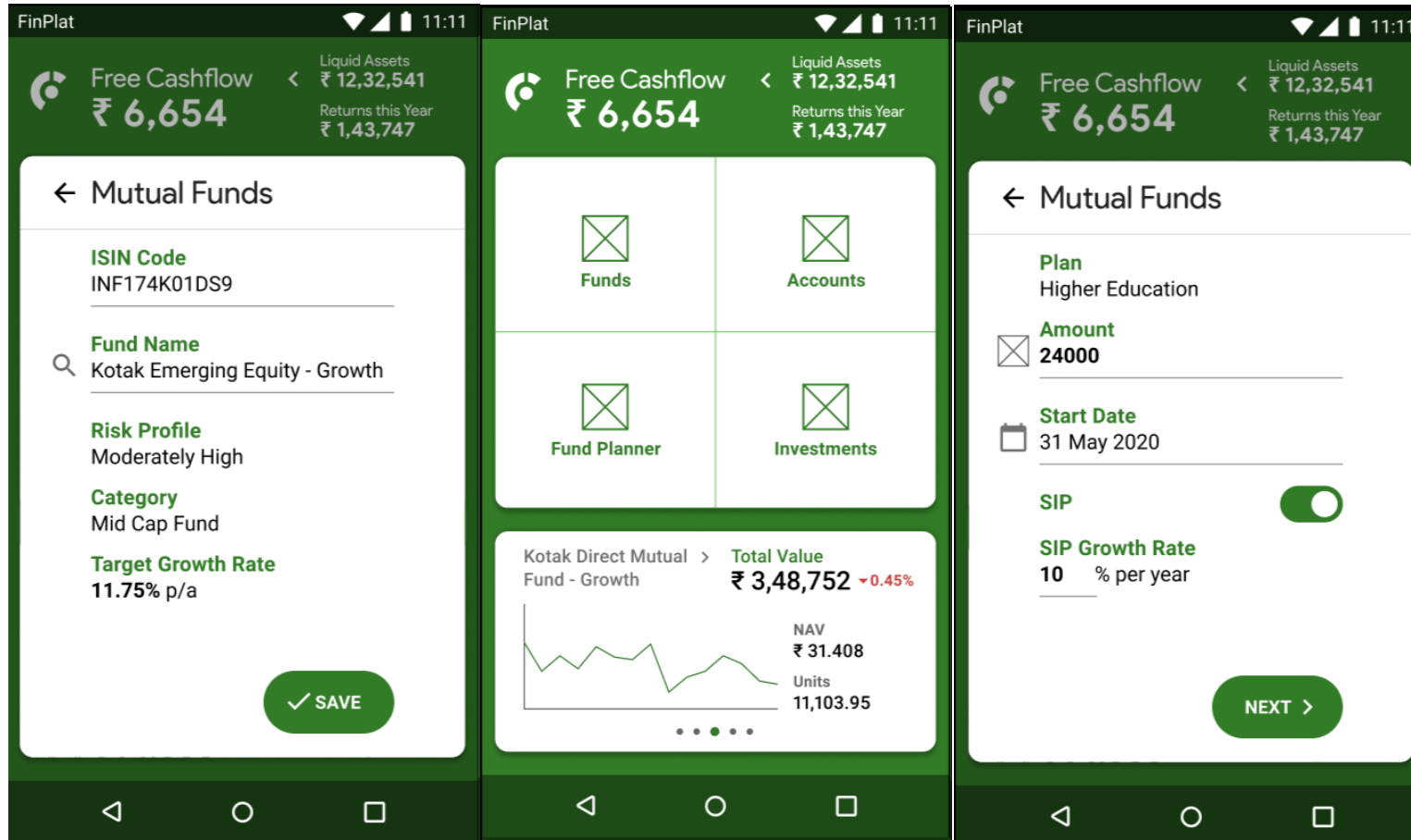
After adding the mutual fund to the plan, the user can access the plan via the funds menu. If a lower amount than the recommended SIP is selected, the estimated total is revised accordingly, and the plan remains unfilled, much like it was before addition of the mutual fund.

Viewing your bank account balance
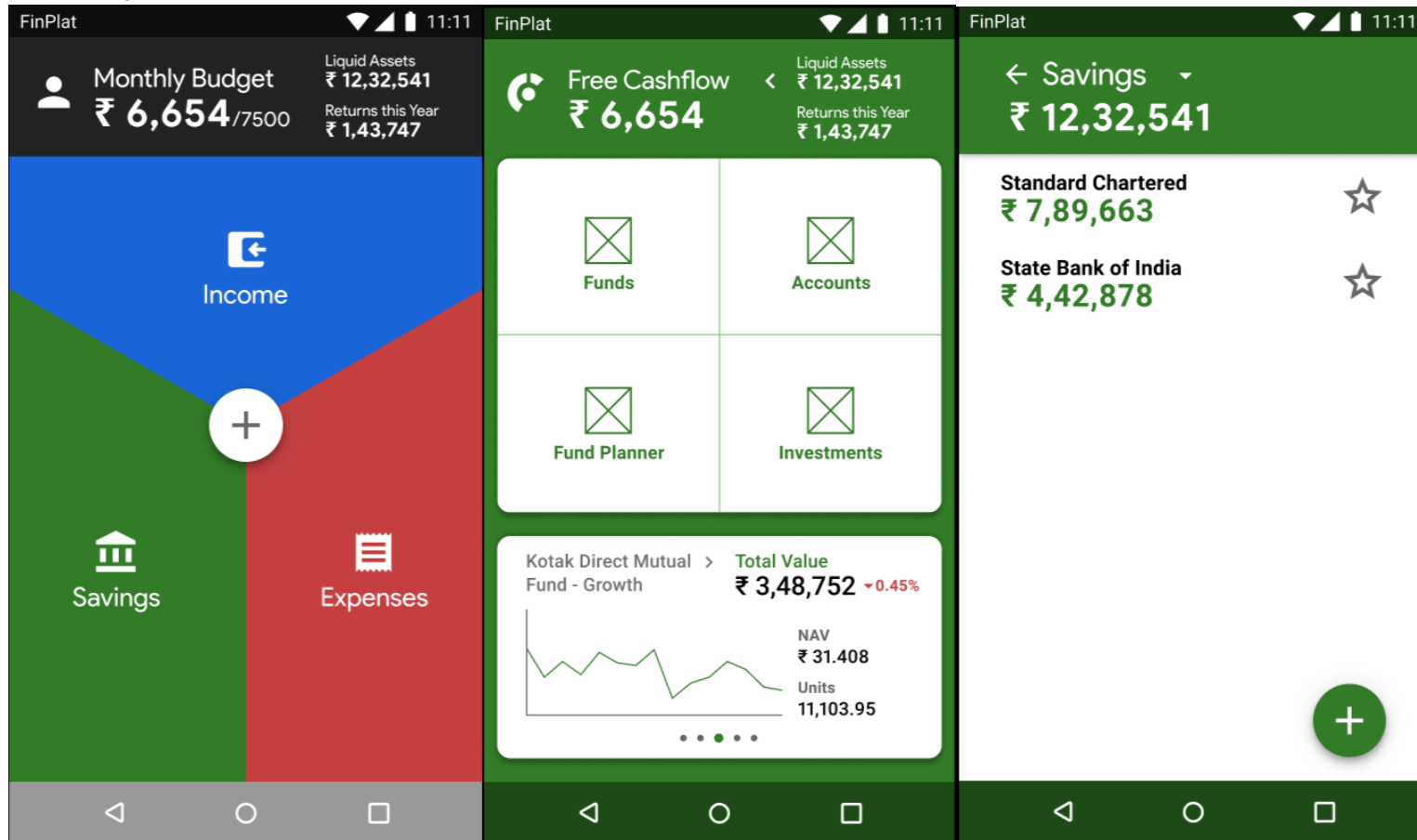
Viewing one's bank balance through the platform is a two click user flow. From home screen, click on the savings screen, then on accounts. A list of account balances will be made visible.

Evaluation Results

Upon evaluating several basic tasks through the current platform design, adding a spend to the budget, viewing monthly/annual income and checking account balances are extremely quick and convenient. It is impossible to say if the design is intuitive without testing it on fresh users.

Getting a look at credit card interest payments and spending categories was fairly smooth at 5 clicks each, but likely to be more confusing to a first time user.

The fund creation system appears to be quite useful, but will require some modification and increased affordance before that system can be called easy to use.

Overall, the platform performs most functions of many similar platforms as well as a few that are more unusual, while being very quick to execute some of the common tasks that turned up during the process of my research for this project. However, I think the funds concept in particular needs some reworking before it can be considered as straightforward as the rest of the platform.

Conclusions

In this interaction design project, I studied several popular Indian financial service platforms and identified a lacuna in the market for a simple, intuitive tool that allows young professionals, especially those on the less affluent end of the spectrum, to better manage different aspects of their finances and develop financial literacy. Given that the majority of such products on the market currently are either doubling as marketplaces for financial products and are otherwise generally limited in scope, I have suggested a design for a platform that can handle different aspects of the relatively simple financial needs of the young, working, lower and middle classes.

The design suggested here performs most of the functions of current popular tools very quickly and efficiently, which can help reduce the tedium of managing one's finances semi-automatically. Additionally, it also offers some unconventional services aimed at broadening the scope of mobile financial planning tools and providing the user with a more holistic overview of their own finances.

References

1. Kagan, J. (2020). *Financial plan.* Investopedia. https://www.investopedia.com/terms/f/financial_plan.asp

2. World Bank. (2014). A measured approach to ending poverty and boosting shared prosperity. *Policy Research Report.* Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/20384/9781464803611.pdf

3. OECD. (2020). Short-term interest rates (indicator). https://www.doi.org/10.1787/2cc37d77-en

4. Piketty, T. (2014). *Capital in the twenty-first century*. Harvard University Press

5. Jackson, J. (2019, April 19). First-time buyers crowded out of booming German housing market. *Deutsche Welle*. https://www.dw.com/en/first-time-buyers-crowded-out-of-booming-german-housing-market/a-48387287

6. Mauldin, J. (2019). The average American can't save enough to retire. *Forbes.* https://www.forbes.com/sites/johnmauldin/2019/03/15/the-average-american-cant-save-enough-to-retire/

7. Bhattacharya, P., & Devulapalli, S. (2019, December 3). India's rural poverty has shot up. *Livemint.* https://www.livemint.com/news/india/rural-poverty-has-shot-up-nso-data-shows-11575352445478.html

8. Abraham, N. (2019, May 18). Over 80% Indians now have bank accounts. How many are actually using them? *Scroll.* https://scroll.in/article/923798/over-80-now-indians-have-bank-accounts-how-many-are-actually-using-them

9. NABARD. (2017). *All India rural financial inclusion survey*. Retrieved from https://www.nabard.org/auth/writereaddata/tender/1608180417NABARD-Repo-16_Web_P.pdf

10. Oxfam International. (2019). *India: Extreme inequality in numbers.* Retrieved from https://www.oxfam.org/en/india-extreme-inequality-numbers

11. McKinsey Global Institute. (2014). *A blueprint for addressing the global affordable housing challenge.* Retrieved from https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Urbanization/Tackling%20the%20worlds%20affordable%20housing%20challenge/MGI_Affordable_housing_Executive%20summary_October%202014.ashx

12. Sanghvi, D. (2019, August 15). Many Indians lack enough knowledge about investing, blame dearth of financial education. *Livemint.* https://www.livemint.com/money/personal-finance/many-indians-lack-enough-knowledge-about-investing-blame-dearth-of-financial-ed-1565810165114.html

13. Platteeuw, B., Sanchez, J., & Schlemmer, N. (2016). *Spending behaviour in India 2016.* DealSunny. https://www.dealsunny.com/spending-behaviour-in-india/

14. Gupta, S. (2015, December 15). 76% Indians not financially literate, says S&P survey. *The Times of India.* https://timesofindia.indiatimes.com/business/india-business/76-Indians-not-financially-literate-says-SP-survey/

15. Sanghvi, D. (2019, December 5). Millennial lives and the new-age debt trap. *Livemint.* https://www.livemint.com/news/india/millennial-lives-and-the-new-age-debt-trap-11575474961876.html

16. Sengupta, A. (2019, December 19). How Millennials Run Into Debt Trying To Maintain Lifestyles. *The Lede.* https://www.thelede.in/tamil-nadu/2019/12/19/how-millennials-run-into-debt-trying-to-maintain-lifestyles

17. Asthana, D. (2019, December 11). Mutual Funds Are Gaining Popularity. *Outlook Money.* https://www.outlookindia.com/outlookmoney/mutual-funds/mutual-funds-are-gaining-popularity-4021

18. Nahata, P. (2019, January 9).Is India's Love For Fixed Deposits Slowly Fading? *Bloomberg Quint.* https://www.bloombergquint.com/business/is-indias-love-for-fixed-deposits-slowly-fading

19. Bose, S. (2020, April 16). Real returns from FDs remain negative for 6 straight months. *Financial Express.* https://www.financialexpress.com/money/real-returns-from-fds-remain-negative-for-6-straight-months/1929780/