

# Personal Portfolio Optimization for better returns

Submitted by Eram Khan

# Business Case

- Successful implementation will result in improvement of overall personal financial health and wealth accumulation.
- Potential cost includes:
  - Technology: Onboarding cost to investment app ~200 INR (\$2.41 USD)
  - Learning Expenses: Course to understand Financial Instruments ~449 INR (\$5.4 USD)
  - Time: 2-5 hours per week
- Benefits include Improved financial results, risk management and improved confidence to explore new financial instruments
- Expected Impact:
  - Personal Investment Strategy: Future investment strategy can be planned, post return optimization.
  - Sustainable Growth: Balancing returns and risk will help build framework for sustainable financial growth.
  - Community Impact: Knowledge gained from this project can be shared with wider community and help them with investment decisions.
  - Potential Consultation Opportunities: Skills and experience gained from this project can be leveraged to provide paid consultation.

# Problem & Goal Statement

- **Y Metric:** Monthly return on investment portfolio
- **Problem:** Close to 2.18% return is observed in personal investment portfolio. This is less than the industry average and is not sufficient to satisfy personal financial goals.
- **Goal:** The goal is to increase monthly portfolio returns to ~5%.

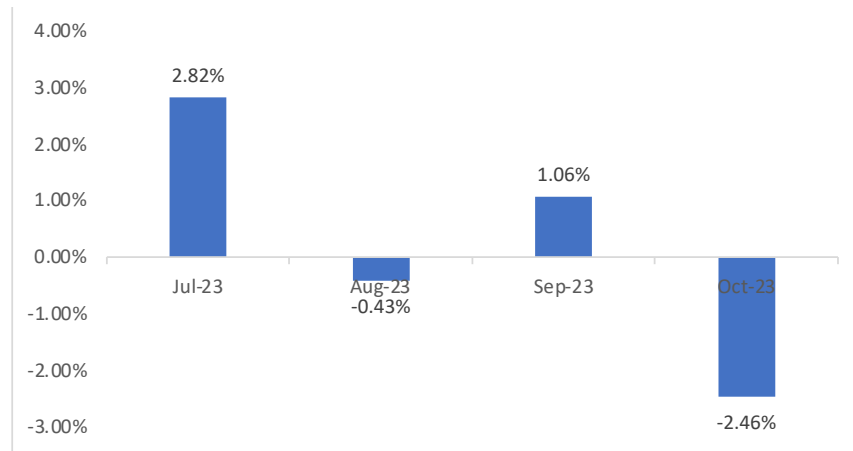
# Operational Definition

- It is defined as the percentage increase in the current month compared to the previous month (M). The total portfolio amount at the end of current month is noted. Portfolio amount at the end of previous month is subtracted from the same. (M-1) Percentage is then calculated by dividing the value generated by end of previous month portfolio amount.
- It is defined as the percentage increase in the current week compared to the previous week (W). The total portfolio amount at the end of current week is noted. Portfolio amount at the end of previous week is subtracted from the same. (W-1) Percentage is then calculated by dividing the value generated by end of previous week portfolio amount.

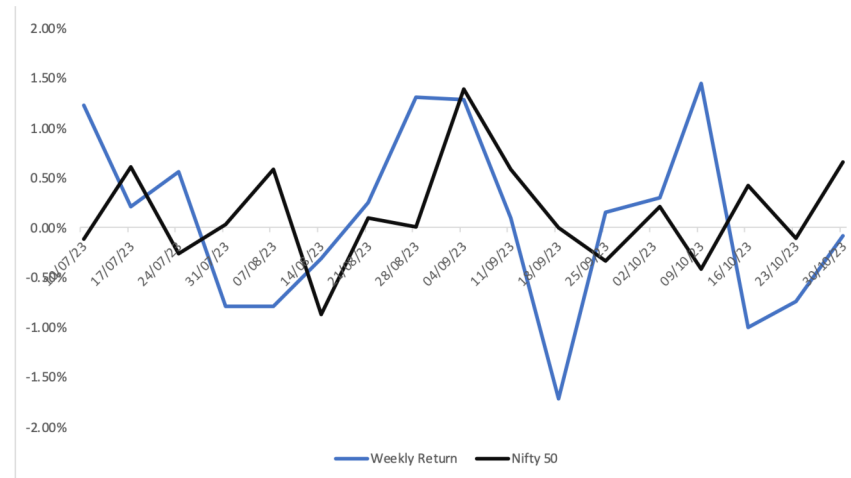
# Current State

- Historic investment data is available from July'23 to Oct'23
- A high fluctuation is observed in monthly returns.
- At a more granular level, on comparing weekly returns against market index it is observed that higher losses are observed in investment portfolio compared to Market.
- This indicates a scope for optimization in the process.

Month on Month Returns



Weekly Returns and Market Index



# Current State

- Returns less than 0 are considered a defect to calculate DPMO

total number of defects observed      D =

total number of units processed      N =

number of defect opportunities per unit      O =

Defects Per Opportunity      DPO =

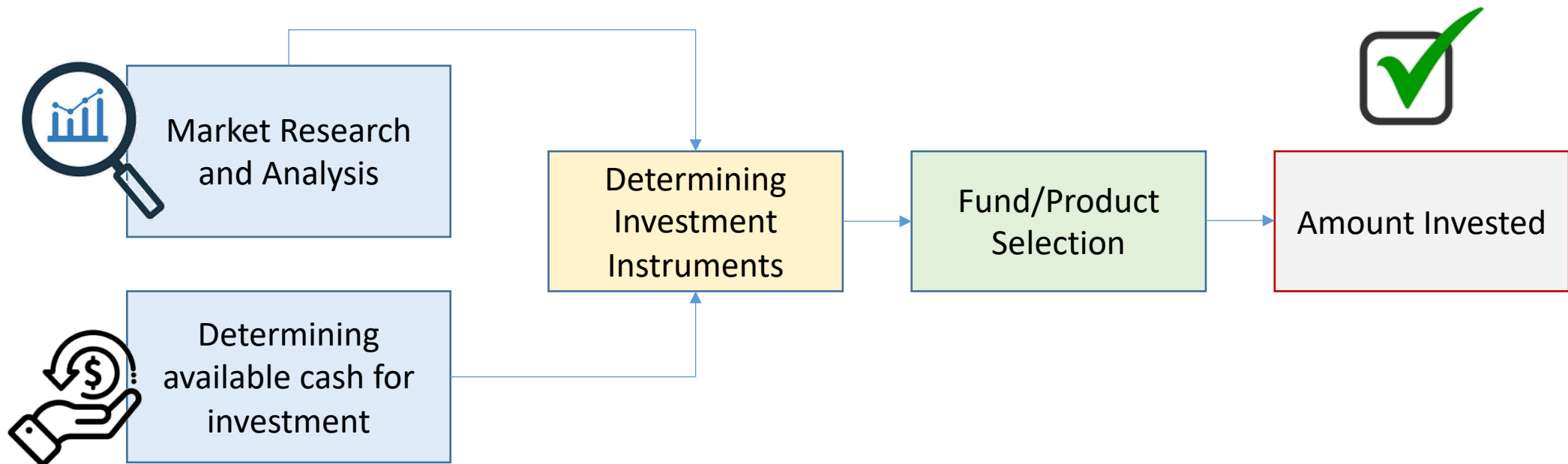
Defects per Million Opportunities     

Yield Rate     

Sigma Level

# Current State – Process Map

- Currently asset category and fund selection is done on an ad-hoc basis as and when information is received, or funds are available.
- Amount is adjusted on a yearly basis



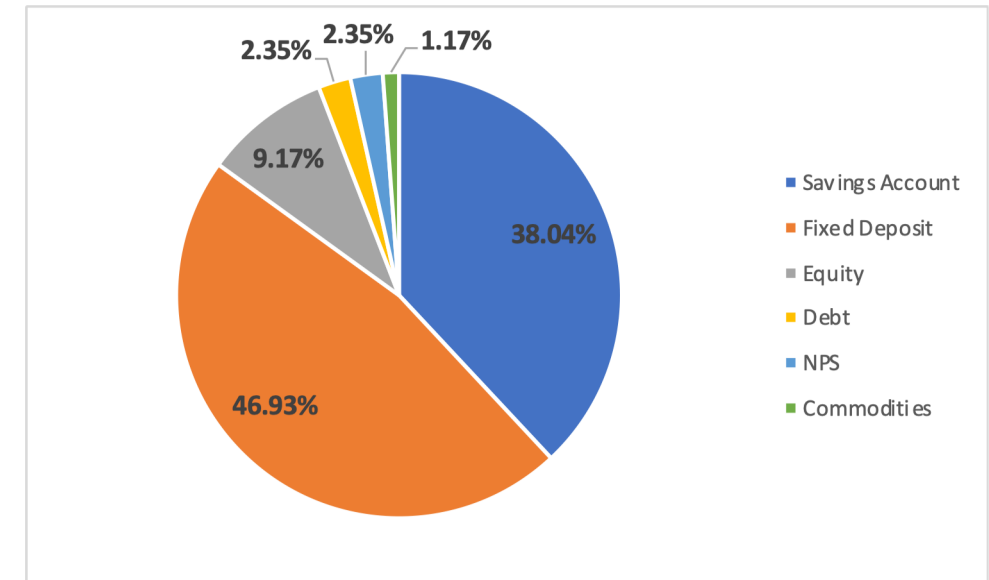
# Analysis – Comparison with Benchmarks

**Monthly Returns on Investment Categories**

Month	Savings Account	Fixed Deposit	Equity	Debt	Commodities	NPS
July'23	0.25%	0.42%	3.09%	0.54%	1.62%	0.83%
Aug'23	0.25%	0.42%	0.39%	0.57%	0.52%	0.35%
Sep'23	0.25%	0.42%	1.05%	0.61%	-5.17%	0.10%
Oct'23	0.25%	0.42%	-2.63%	0.51%	8.51%	-0.40%
Benchmark	0.30%	0.50%	1.00%	0.75%	0.50%	0.75%

- There is significant opportunity to “eliminate waste” from the investment portfolio as funds are not distributed efficiently within Instruments. Funds/products with less returns need to be eliminated from the portfolio.
- Majority of funds are invested in Fixed Deposit (46.93%) and Savings Account (38.04%) which are yielding the least returns. On analyzing further, the monthly returns observed on both these categories are less than the industry average in the same categories.

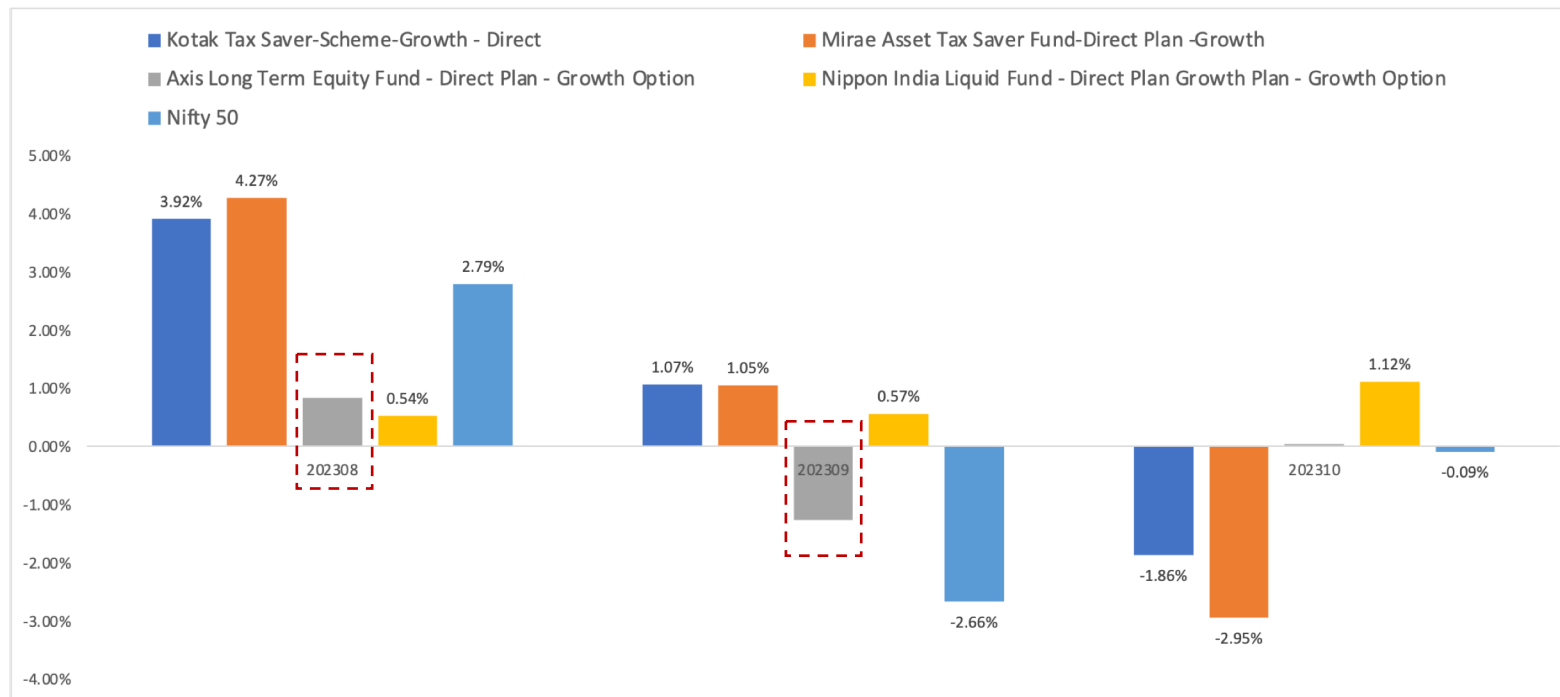
**Breakup of Amount Invested**





# Analysis – Current return on Investment

- There is significant difference in performance observed in different funds within the same category as well.
- Certain Equity funds like “Kotak Tax Saver-Scheme-Growth”, “Mirae Asset Tax Saver Fund-Growth” are generally performing better than the market index.
- “Axis Long Term Equity Fund – Growth” has been underperforming the index “Nifty 50”.



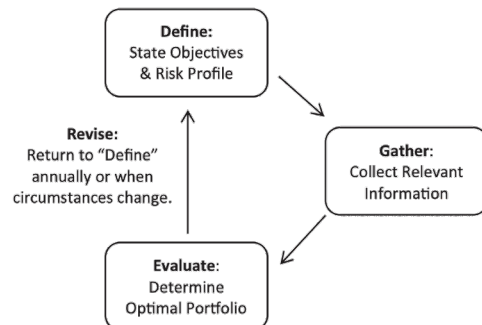
Monthly Returns on Invested Funds

# Analysis – Market Trends and Benchmark Analysis

- Leveraging 5S to consume vast information information
  - Sort(Seiri): After going through multiple articles, only articles from relevant sources like Money Control, Investopedia, Zerodha Varsity were selected. Only recent articles (past 2 years) were then filtered.
  - Set in Order(Seiton): Information was then categorized into logical categories like 1) Instruments Available 2) Factors to consider while selecting an instrument/product 3) Determining amount to invest 4) Selecting products to optimize portfolio.
  - Shine (Seiso): A document was then created based on categories mentioned above to ensure information is available in an organized manner whenever needed.
  - Standardize (Shitsuke): Document is maintained in a consistent format. Techniques mentioned along with sources and examples are highlighted for all categories.
  - Sustain (Shoshin) : The document maintained is easy to traverse and new information can be added as and when received.

# Recommendations

- To manage risk while increasing returns, funds should be diversified in different asset classes. Priorities should be determined based on the risk and term under consideration. Different Strategies that can be tested are mentioned in the table below.
- *Cost and Effort*: Information on approximate returns and risk needs to be updated, post which it will take 4-5 hours to test different fund allocation strategies and identify the optimal distribution. Additional capital of 30,000 INR (360 USD) can be used for initial stages.
- *Control*: This activity will be undertaken at least once a year to accommodate most recent trends and information. Also, in case overall portfolio has negative returns for more than 1 month, the portfolio will again need to be re-balanced.



Asset Class	High Risk	Moderate	Liquid
Equity	35%	30%	20%
Debt	15%	10%	15%
Commodities	5%	10%	10%
Fixed Deposits	25%	30%	30%
Others	20%	20%	25%

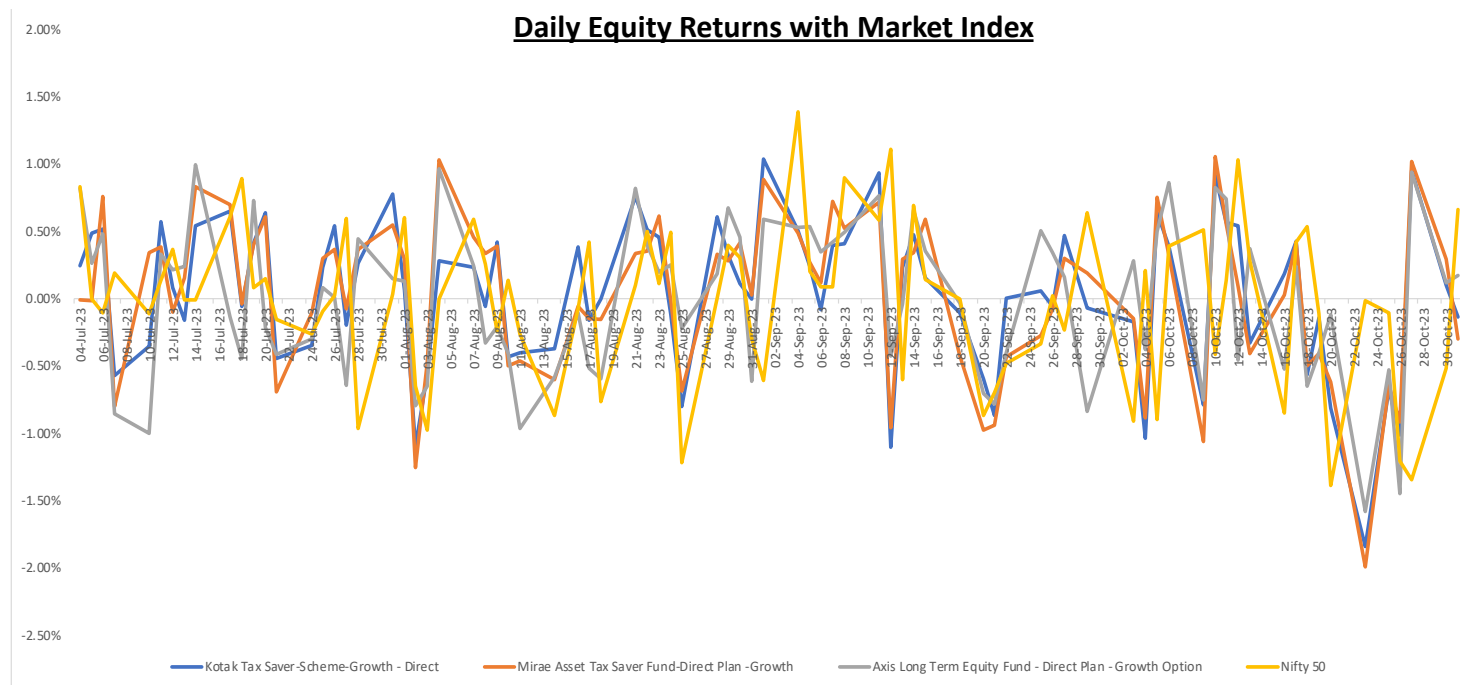
## Potential Strategies

## Investment Instrument Characteristics

Instrument	Approximate Return	Risk	Liquidity	Time Horizon
Bank Deposits	2-3%	Low	Low	Short-Term
Debt Schemes	7-9%	Low-Medium	Low-Medium	3-5 years
Fixed Income Alternatives	7-10%	Medium	Medium	5+ years
Equity Mutual Funds	12-15%	Medium-High	Medium-High	10+ years
Stocks	15-20%	High	High	15+ years
Gold	8-10%	Medium	Medium	5+ years
PPF	7-8%	Low	Low	10+ years
ELSS	12-15%	Medium-High	Medium-High	10+ years
NPS	8-10%	Medium	Medium	Long-Term
FD	4-7%	Low	Low	Short-Term

# Recommendations

- Once asset classes are narrowed down based on risk and returns, products within asset categories can be shortlisted based on historic returns and consistency. As Fixed Deposit and Savings account investments were significantly underperforming compared to benchmark below mentioned alternative investments can be considered. Similarly, as previously mentioned, in Equity category “Axis Long Term Equity Fund” is underperforming as well for which alternate options can be considered.
- Cost and effort:** An effort of 4-5 hours a month is needed to research new funds and compare returns. Initial capital 30,000 INR (360 USD) mentioned in the previous section, will be sufficient to experiment at a fund/product level as well.
- Control:** This activity should be undertaken at least once in a quarter or if significant loss/gain is incurred in a week ( $>2\%$ ).



## Fixed Deposit Options

Name	Tenure	Highest Interest
AXIS Bank	6 months - 5 years	5.75% - 7.00%
SBI Bank	3 Months - 10 Years	3.00% - 6.50%
Equitas Bank	7 Days - 10 years	3.50% - 7.25%
HDFC Bank	3 months - 10 years	4.50% - 7.00%
ICICI Bank	3 months - 10 years	4.50% - 6.90%

## Top Equity Funds

Fund Name	Category	Risk	1Y Returns
Baroda BNP Paribas Liquid Direct Fund	Debt	Low to Moderate	7.0%
Mahindra Manulife Liquid Fund	Debt	Low to Moderate	7.1%
Aditya Birla Sun Life Liquid Fund	Debt	Moderate	7.1%
Quant Liquid Direct Fund	Debt	Low to Moderate	6.9%

# Appendix A: Data Collection

## Sample Data: Month on Month Invested Amount

Date	Kotak Tax Saver-Scheme-Growth - Direct	Mirae Asset Tax Saver Fund-Direct Plan -Growth	Axis Long Term Equity Fund - Direct Plan - Growth Option	Nippon India Liquid Fund - Direct Plan Growth Plan - Growth Option	nifty 50	equity	gold	Savings Account	Fixed Deposit
03-Jul-23	1,79,771	90,111	1,13,344	21,824	19,247	3,83,227	6,004	9,98,490	20,00,000
01-Aug-23	1,86,824	93,959	1,14,289	21,941	19,784	3,95,072	6,101	10,00,986	20,08,333
01-Sep-23	1,88,822	94,943	1,12,845	22,066	19,258	3,96,610	6,133	10,03,489	20,16,701
03-Oct-23	1,90,304	95,199	1,15,275	22,199	19,622	4,00,778	5,816	10,05,997	20,25,104
31-Oct-23	1,85,274	92,138	1,12,837	22,313	19,233	3,90,248	6,311	10,08,512	20,33,542

## Sample Data: Month on Month Returns

Date	Kotak Tax Saver-Scheme-Growth - Direct	Mirae Asset Tax Saver Fund-Direct Plan -Growth	Axis Long Term Equity Fund - Direct Plan - Growth Option	Nippon India Liquid Fund - Direct Plan Growth Plan - Growth Option	nifty 50	equity	gold	Savings Account	Fixed Deposit
01-Aug-23	3.92%	4.27%	0.83%	0.54%	2.79%	3.09%	1.62%	0.25%	0.42%
01-Sep-23	1.07%	1.05%	-1.26%	0.57%	-2.66%	0.39%	0.52%	0.25%	0.42%
03-Oct-23	0.78%	0.27%	2.15%	0.61%	1.89%	1.05%	-5.17%	0.25%	0.42%
31-Oct-23	-2.64%	-3.22%	-2.11%	0.51%	-1.98%	-2.63%	8.51%	0.25%	0.42%