

When looking to identify what challenges I would like to tackle for my capstone project, I reminded myself that the topic I will end up selecting should be meaningful with as much positive impact as possible.

This led me to discover an impending debt crisis in Singapore, which was caused by Covid-19's impact on the economy, Inflation, lack of education on the importance of financial planning, the psychological struggle of managing finances, and the encouragement of incurring unnecessary debt via the increasing trend of Buy Now Pay Later (BNPL).

From these observations, I was inspired to develop a software that aims to help others regain control of their finances. In this summary, I will expand on how I came to my decision.

As recommended by the capstone project handbook, I first explored projects that have been funded using the links provided to Community Research and Development Information (Cordis) and UK Research and Innovation (UKRI). From there, I searched for projects that I was interested in, such as health, social media, employment, and finance. The details to the projects I looked at can be found at the end of this summary.

While going through these projects, I found some of the content to be difficult to understand as being a Singaporean I lack the necessary cultural context to be able to grasp the nuances of the research results. As such, I looked for research establishments in Singapore and found the following.

Our SG Fund - Established to fund projects that aim to help the community [1]

Integrate Grant Management System (IGMS) - A centralized software where one can see funded projects supported by the National Research Foundation Singapore (NRF), Ministry of Health (MOH), Ministry of Education (MOE), and Agency for Science, Technology, and Research (A\*Star). [2]

A particular article from the National Research Foundation (NRF), titled 'Smart Nation and Digital Economy' caught my attention. The article discussed Singapore's ongoing effort to digitize the nation since 2006, these days it is focusing on Artificial Intelligence/Machine Learning to "build a digital economy." [3]

From these efforts, Singapore has become one of "the world's most highly cited" [3] for distributed ledger technologies/fintech. As stated in the article, it has also "engaged over 300 companies and started more than 60 projects focusing on sectors such as healthcare, finance, and fast-moving consumer goods." [3] These accomplishments impressed and surprised me as It was something I wasn't aware of let alone expect from our little city-state.

With this new knowledge, I started researching Fintech in Singapore and found that Singapore has a tech fund called Startup SG Tech, a FinTech Association, and a fintech event called Fintech Festival which is partly organized by the Monetary Authority of Singapore (MAS) and sponsored by tech giants the likes of Ant group, Tencent, Visa, Temasek, UOB, DBS, Google J.P.Morgan just to name a few. Speakers of the event included Lawrence Wong - Deputy Prime Minister, Taimur Baig - Managing Director of DBS, and Vitalik Buterin - Co-founder of Ethereum. [4]

As perfectly summarised in The FINTECH Book. “Successful and thriving FinTech ecosystems are generally characterized by the presence of three key elements: FinTech start-ups and entrepreneurs, investment capital to fund the growth of start-ups, and an educated community of mentors and experts” [5] These are the reason the Fintech industry in Singapore has made so much progress.

Seeing that Fintech is a well-funded and government-supported industry in Singapore, I began to read up on areas that I can contribute to, starting with the financial challenges that Singaporeans face today. Since Covid-19, many Singaporeans have been affected financially as most were not expecting a black swan event to occur. A survey carried out by OCBC showed that up to 70% of surveyees do not have sufficient savings to sustain them beyond 6 months and many more are worried about losing their jobs. [6]

Covid-19 has also had damaging effects on Singapore’s economy such as a reduction in GDP and a slowing down of economic growth according to the Macroeconomic Review published by the MAS. [7] In addition to Covid-19, the war between Ukraine and Russia has affected Singapore’s import supply chain, when there is less supply than demand this causes prices of daily goods to increase, which Singaporeans experience as inflation. [8] To make the situation worse, Singapore will be increasing GST from Jan 2024. With inflation and the increase in GST, Singaporeans can expect to have less purchasing power for every dollar they spend.

While individuals are struggling with their finances, a sector in FinTech is growing fast much to the detriment of these individuals. This sector is commonly referred to as Buy Now Pay Later (BNPL) which since 2020 has seen transactions grow from S\$114 million to S\$440 million in 2021; more than 300% in a year. [9] Based on its current momentum the trajectory of BNPL transactions is expected to grow exponentially. Currently, 38% of Singaporeans around 1.1 million people have used a buy now pay later service. [10]

How does Buy Now Pay Later (BNPL) work? Unlike traditional credit cards which require one to show proof of income before extending credit to the consumer, BNPL lacks this requirement and allows anyone who is over 18 to sign up for an account. Proof of income is important as it shows that one can service their debt, it is also used to assess how much credit should be extended to an individual. With Buy Now Pay Later account creation can be done instantaneously which will then provide users with the ability to distribute the payment for their purchases as repayable debt across three to four months.

Despite Buy Now Pay Later being a mechanism to make purchases by incurring debt this is not what is often portrayed on the website and marketing materials of these companies. Shopback one of eight BNPL companies in Singapore can be seen stating on their website “Save more when you pay smarter” [11] Atome another BNPL company encourages impulse spending by stating on their website “We live in the moment just like you, and we get that some things in life shouldn’t have to wait.” [12]

Some may make the argument that certain purchases made with BNPL are necessities such as food and groceries for lower-income families, while this is undeniable a deeper look at transaction statistics show that most purchases are not necessities.

Key findings from a fact-checked Buy Now Pay Later Report by Finder shows that “Impulse buying is the most common BNPL mistake.” The youths of Singapore, ages 16-24 who have the least experience in financial literacy and disposable income make up 40% of BNPL users. [10]

“27% of Singaporeans aged 16+ – equivalent to 783,000 people – admit to being worse off financially due to a buy now pay later mistake.” A contrast to Shopback’s statement of “Save more when you pay smarter” [10] The negative effects of debt-incurring impulse purchases have become a big enough problem that MAS and The Consumers Association of Singapore (CASE) has gotten involved.

CASE was quoted saying “raised concerns about the rising use of BNPL services, which it described as potentially giving consumers a “false perception of increased purchasing power, leading them to spend beyond their means.” [13] MAS has just recently issued a code of conduct that introduced a limit of “S\$2000 on outstanding payments that customers can have with each BNPL provider unless additional credit worthiness assessments are done.” [14]

It is worth noting that even with this new regulation of a S\$2000 outstanding payment limit, users can still incur a large amount of debt by creating accounts with other BNPL companies. Seeing that there are eight companies in Singapore equating to S\$16,000 of potential debt.

While the discoveries I found looking into the impact of the Buy Now Pay Later sector were not promising, I wondered if the statistics were biased and caused by the poor financial decisions of the minority. This led me to discover an even more concerning issue that being 1 in 2 Singaporeans do not know how much they spent in a month and those between 18 - 24 are usually the ones who have no idea how much they spent; the same age group that makes up 40% of BNPL users in Singapore. For the other half that does track their expenses even then 28% or 1 in 4 of them have the habit of overspending and their main reason for doing so is impulse purchases; [15] impulse purchase, which is encouraged by BNPL companies.

The article provides further insights as it states that the reason people do not track their spending ranges from the task being troublesome, it being an unnecessary activity, fear of seeing their financial outcome, and the additional stress the task will cause. [15]

Observing this debt-inducing and poor financial management pandemic, I went on to research existing solutions that aid the consumer in making better financial decisions. This led me back to Fintech Festival’s website where I saw that the first-place winner from the SFF Global Fintech Awards [16] was given to a company called GoalsMapper Pte Ltd. Explore GoalMapper’s website it showed that they had developed a software that has the capabilities to allow users to not only track but plan and project their finances so one can gain better insights and control. [17] However, this software isn’t available to the general public and is sold as a solution to financial consultants.

Next, I looked at banking apps and very quickly realise that different banks will not be able to track expenses from other banks so there is a lack of consolidation. Also, banking apps do not allow users to add expenses made in cash. Finally, I turned to popular expense tracking apps available on both the Play Store and App Store and found the following:

- Money Mgr.
  - Play Store rating 4.5 stars from 338k ratings. 10M+ Downloads [18]
- Monny
  - Play Store rating 4.6 stars from 9.19k ratings. 100k+ Downloads. [19]
- Monefy
  - Play Store rating 4.3 stars from 180k ratings. 5M+ Downloads [20]
- Money+
  - Play Store rating 4.7 stars from 34.1k ratings. 500k+ Downloads [21]

I then downloaded all the apps stated above and identified the features they have and lack, specifically I wanted to know if they offered financial planning and projection features like GoalsMapper. Below is a summary of what I found.

Features	Money Mgr.	Monefy	Monny	Money+
Different Account Types (e.g: Debit & Credit)	Free version limited to 15	No Limit	No Limit	Free version limited to 1
Create recurring expenses	Yes	Paid version only	Yes	Paid version only
Exporting financial data	Yes	Yes	Yes	Paid version only
Importing financial data	Specific format required	No	No	No
Methods available to add expenses	Manual input	Manual input	Manual input	Manual input
App shows advertisements	Yes	No	No	No
Expense categories	Yes	Yes	Yes	Yes
Method to categorisation expenses	Manually	Manually	Manually	Manually
Customise or add categories	Yes	Paid version only	Yes	Paid version only
Allow users to set budgets	Yes	Yes	Yes	Yes
Allow users to forecast financials	No	No	No	No
Available on desktop	Paid version only	No	No	No
Visualise financial reports	Yes	No	Yes	Yes
Monthly Subscription	S\$3.48	No	No	S\$2.48
Yearly Subscription	S\$28.98	S\$59.99	No	S\$14.98
One time fee	No	No	S\$4.48	S\$17.98

It can be observed that aside from Money Mgr all other apps require users to manually input their expenses, this explains two of the reasons why people do not track their expenses, which is that they find the task to be troublesome and creates additional stress. If someone were to have 3 expenses in a day namely, breakfast, lunch, and dinner in a month, they will have to manually input 90 times and this would be the minimum. Looking at Money Mgr which allows bulk input, I found that option does not offer many improvements as it requires users to download a file and then input their expenses into the file in a specific format [22] which is as good as inputting directly into the app but with extra steps.

Another observation is that none of the apps allow users to project and forecast their finances like GoalsMapper.

Projecting one's finances is important as it allows one to get a better picture of not only your current financial position but also that in the coming months and years. In the context of a business; tracking expenses is equivalent to accounting and projecting is having a plan for where financial resources should be allocated. It would be unthinkable if a business doesn't have a financial plan but this is often the case when it comes to personal finances.

The importance of having a financial plan and that most Singaporeans not having one can be observed in an article published by MAS, which states "more can be done to uplift knowledge of financial concepts and encourage longer-term financial planning" and in the same article "more than half of the respondents had not developed a plan for retirement savings." This survey was done in 2021, involving 2000 Singaporean aged 18 - 79 showing that the issue of there being a lack of financial planning affects Singaporeans of all ages. [23]

Seeing Singapore's overwhelming support towards Fintech and the impact a well build financial planner can have on the community in my software, I will aim to offer all relevant features that current solutions offer but it will also address the gaps in existing solutions namely finance projection and automation.

Automation is essential as this will greatly reduce the resistance there is to tracking and planning one's finances. Instead of having users manually input their expenses, my software will make it so that users can simply upload their bank statements, photos, screenshots, and even screen recording my software will then extract the relevant information. After extraction of the relevant transaction machine learning will be used to categorize transactions so users do not have to do so manually.

By reducing the amount of unproductivity work users have to do and the obstacles they face, I believe that it will make the journey of having a better understanding of one's finances easier and with that gain control over their finances and be less stressed.

Exploration projects that have been funded (UK & Singapore)

Health

- Shaping the social brain through early interactions  
Funded amount: €454,957 [24]
- Online portal and series of mental health in the workplace conferences for front-line and NHS workers post Covid-19  
Funded amount: £71,604 [25]
- Healthy older people everyday (HOPE) - Role of high protein diet on muscle and bone health  
Funded amount: Undisclosed [26]
- New youth mental wellness initiative  
Funded amount: SGD 20,000 (Maximum) [27]

## Social Media

- RISE Social Media Analytics  
Funded amount: €1,168,400 [28]

## Employment

- Skills and Employment Survey 2017  
Funded amount: £996,661 [29]

## Finance

- The mental health of higher education students and the role of finances and debt  
Funded amount: Undisclosed [30]
- Household finances and housing wealth  
Funded amount: £109,437 [31]
- YOFI - Your Finances Limited  
Funded amount: £290,683 [32]
- Machine Learning for Finance  
Funded amount: Undisclosed [33]

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