Design Report of Financial Management Dashboard

QBUS 5010

1 Statement of problem

As a developing country, China has been making great efforts to develop its economy, improve social welfare, and reduce poverty (Liu et al., 2018). Indeed, China's increasing unemployment is a concern before and during COVID-19, although there is a reducing trend from 5.5% in 2022 to 5.3% in 2023 (International Labour Organization, 2020; Textor, 2023). Due to infectious risks, there were health regulations, lockdowns, and self-isolation policies during the pandemic in China. However, it simultaneously reduced people's incomes because of less working time or unemployment (Li et al., 2020). In the past few years, people's income or savings have been impacted by the increasing uncertainty, which resulted in them feeling under more stress and anxiety. For example, 58% of interviewees in China felt more anxious in 2021 than in 2020 (Zhang, 2022). Therefore, the anxious group in China should be emphasized.

Most young people in China have a strong concept of saving money and managing finances because social welfare is not as guaranteed as in developed countries (Li et al., 2008). People always work overtime and control expenses in daily life to make themselves able to cope with unknown diseases, support their parents, and guarantee the elderly life quality themselves in the future (Zhang et al., 2018). However, although people have a strong sense of financial management, they cannot intuitively understand their financial situation and know how to better manage their finances. There are already many apps trying to help people record their daily spending or investment condition. While so far, we haven't seen any apps have the function to combine the returns and losses of investment together with the work income and daily expenses. Financial management is not only about hard work and reducing expenses, but purchasing financial investment products such as bonds and stock is also essential. Combining them together can assist users in financial management. Therefore, this dashboard design combines the functions of deposit review, daily spending, and investment recording in one dashboard, making users able to interact with it and get useful information. Moreover, a module for Latest Financial and Business News and a link to view market indices are also added to this dashboard. This is to help users understand the financial market more conveniently to make better decisions on choosing financial products.

2 Objectives of the dashboard

The objective of this dashboard is to help anxious Chinese people better manage their finances; specific objectives are detailed in the following points:

- Provide a dashboard to combine the investment balance and daily earnings/spending together. In the current application market, there are many software related to bookkeeping or financial investment recording. Some of them have achieved good results. However, real wealth management should combine bookkeeping and financial management together. Combining them together for analysis can better achieve the goal of depositing more. Due to the lack of a web page or software in the current market that combines them, the goal of this dashboard is to create a platform that combines financial investment recording with daily bookkeeping to provide users with a better practical experience.

- Enable each user to form their own database through accumulated usage over time, allowing them to access history data at any time for analysis. In this dashboard, people can understand their economic situation easily and directly. If they want to know the details of each record, they can download historical data in the form of CSV files. Through this information, they are able to understand the reasons for the increase or decrease in their savings and make decisions on their next spending or investment plan based on this information.
- A good investment cannot be made without insight into the financial market. Therefore, this dashboard aims to help users access the latest financial and business news as well as the trading price changes of stocks or bonds they are concerned about more conveniently.

3 Identification and description of audience

The target audience for this dashboard is the anxious Chinese people who are under pressure to save money. Their age is generally between 18 and 50, More often between the ages of 25 and 40, as people in this age group generally have children and parents to support, which leads to a higher living expense, more significant economic pressure, and an urge demand for savings and financial management.

With the help of this dashboard, people own a database of their financial situation by updating the investment returns and losses, earnings and spending manually. They can completely use their own database, call up data from various periods for analysis, and continuously adjust their spending and investment situation based on the data analysis, current financial/business hotspots, and market changes information. In this way, users can achieve the goal of better managing their wealth and saving more money. Therefore, they will be able to pay the potential medical bills for their families and give their children and parents better living conditions; when they get old, they can live a better life without relying on their children.

4 Description of data/data source

There are two part of data sources in this dashboard. The first part is the input data from users, this data is collected from users by Element 2 and Element 4 in Figure 1. Users need to update their investment returns or losses manually in Figure 1's Element 2 and earning or spending in Element 4. Each time when users input data, it will enter the database and can be called and analyzed in the future.

The second part of the data is two outside financial information sections. Firstly, it is the latest financial/business news in Figure 1's Element 8, which is collected from the website of 'The Wall Street Journal'. Secondly, it is the link to the 'Market Index' in element 9 (Figure 1). Both of these two parts will keep a real-time update for users.

5 Explanation of affordances/features

As Figure 1 shows, there are ten elements representing ten affordances.

Element 1: Users can read their total savings every day from this element. It gives a real-time financial account for the user, which is updated automatically according to the input data from elements 2 and 4. As Equation 1 shows, this element will calculate the user's input per-day to result in their total saving. Checking changes in the deposit amount can help users better decide their spending situation and choose financial products.

$$\begin{aligned} Your\ Financial\ Account \\ &= total\ bond + total\ stock + total\ sport + total\ earning \\ &- total\ food\ spending - total\ game\ spending \\ &- total\ clothes\ spending - total\ travelling\ spending \\ &- total\ education\ speding - total\ other\ spending \end{aligned} \quad (1)$$

- **Total bond, stock, and sport:** They can be positive or negative. Users need to add a minus sign when they lose from them. If users have a return from these investments, there is no sign needed, and in calculation it just need tobe add up.
- **Total earning:** It is positive, which will be calculated by the '+' sign.
- **Total food, game, clothes, travelling, education, other spending:** They are positive numbers because they are recorded without '-' sign, and need to be subtracted in the calculation of your financial account.

Element 2: This element is combined with four interacting boxes. Firstly, users need to choose the date and then choose their investment type. The investment types include bond returns/losses, stock returns/losses, and sports returns/losses. Thirdly, they input the returns or losses from their investment. Importantly, if users type their returns, they directly input their amount. However, if users input their losses, they must put a negative amount with '-'. Fourth, they may use the last box to select dates or periods to control Element 3 (line graph). Thus, when they input the amount, selecting an investment type is requisite.

Element 3: According to Slutsky (2014), this line graph is utilized to depict the information on investment returns because it reflects the changes and differences between data. Users can interact with this graph by viewing the visualized data monthly, quarterly, Etc., through Element 2. After choosing the start time point for the visualization period, users can see their investment result trend.

Element 4: This element includes four input boxes, which is analogous to Element 2. Firstly, users must choose the date. Secondly, they choose one of the categories: earning, food spending, game spending, clothes spending, travelling spending, education spending, and other spending. Thirdly, they should input their amount of earnings or spending. In this box, the user's input should be positive for their earnings and spending because the calculation of the total financial account (Element 1) will use addition for earnings and subtraction for spending. The final box interacts with Element 5 (bar chart), which requires users to select dates or periods to change the demonstration of the bar chart.

Element 5: It is a bar chart to demonstrate the earnings and spending. Our target users' earnings may change as an independent variable due to the variation of their investments. When they have rising earnings, they may increase their specific type of spending or total spending. Thus, a bar chart is an effective graph to reflect the changes in the dependent variable (spending) (Slutsky, 2014).

Element 6: It interacts with Element 7, which allows users to choose a period to check financial results.

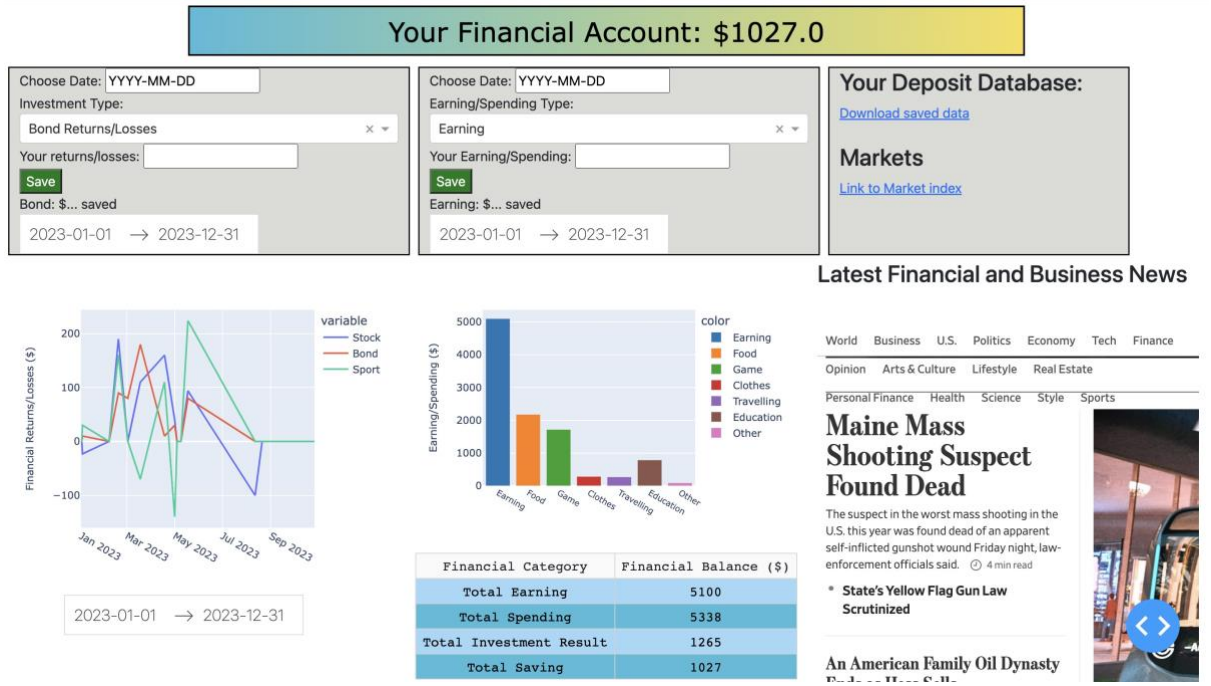
Element 7: This table is controlled by Element 6. When users select a period in Element 6, the total earnings, spending, returns, and total saving amount among that date range will be calculated automatically in this table.

Element 8: It provides the latest financial and business news, which can help users stay updated with the finance world and make better investment decisions.

Element 9: It is a link that can guide users to go to the Markt Index website relating to stock. The role of this link is to assist users in deciding on future investment composition.

Element 10: Users can use this element to download their CSV file that saves their inputted data. Indeed, it is a complete record that assist users to view their spending and investment earning.

6 Finalised design/layout



7 Reflection

- **Unable to change inputted data**

After users save or input their financial results in the dashboard, they cannot change their data. This weakness requires users to type their data precisely, especially users who plan to use their csv file for account checking. However, users can manually fix their data by a mathematical measure. Firstly, users can download their CSV file to check which data is inaccurate. The next step is to add an extra number to balance their original data. For example, users practically earned $100 yesterday. However, they type their earnings as $1000 on the dashboard. Thus, they can choose the date of yesterday to record spending with -$900, which can balance their earnings to $100. Therefore, although there is a solution to assist users in balancing data, their original input remains the same.
One of the future improvements should be based on this weakness. An affordance allowing users to change their initial inputted data may be realized.

- **The news with a small layout (Element 8)**

The position of Element 8 is relatively small. In Figure 1, Element 8 displays news to provide the latest information for users. However, the minor position leads to showing partly news, which means users need to slide their mouse ceaselessly to view the full article. Therefore, considering the current technique and the importance of news, we keep Element 8 to improve the centralization of information.
The improvement can be adding a new affordance, consumer's preference. This affordance can support users in selecting their needed affordance for this dashboard. When users remove four or five features, they may have a larger size for displaying news.

- **Limited investment categories**

This dashboard has only three investment categories (Element 2), including stock, bond, and sport. If users invest in other relatively unpopular categories such as Bitcoin, housing, metals, oil, Etc., the dashboard does not provide an utterly suitable type for them. However, for types of spending, there are six involving 'other type' to enhance the experience of the users. Therefore, we should increase investment types to improve the dashboard, satisfying the demand of a minority.

- **Inputting a minus sign**

The last shortage is related to Element 2. It requires users to add a minus sign to their input when they have a loss from their investment. That means our program cannot support user directly typing their amount to represent their losses. Thus, extending the choices of the second input box and changing the calculation of the total financial account (Element 1) can be an improvement to this weakness. For example, it may include bond returns, bond losses, stock returns, stock spending, sports returns, and sports losses. Currently, we combine them as bond returns/losses, stock returns/losses, and sports returns/losses. When the returns and losses are divided into six independent choices, users may type their amount straightforwardly. Moreover, the calculation should change to Equation 2 following:

$$
\begin{aligned}
&Your\ Financial\ Account \\
&\quad = total\ bond\ returns + total\ stock\ returns + total\ sport\ returns \\
&\quad - total\ bond\ losses - total\ stock\ losses - total\ sport\ losses \\
&\quad + total\ earning - total\ food\ spending - total\ game\ spending \\
&\quad - total\ clothes\ spending - total\ travelling\ spending \\
&\quad - total\ education\ speding - total\ other\ spending \qquad (2)
\end{aligned}
$$

Therefore, developing Element 2 may increase users' experiences and reduce input errors.

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