CS6750: Assignment M1

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Abstract— I will be focusing on increasing financial literacy. Adults and young adults often find themselves unable to make the correct decisions when it comes to financial planning. This is because people in this age demographic are not always well equipped to make the most accurate and informed decisions.

1 PROBLEM SPACE

Financial literacy is a topic that many people struggle with on a day-to-day basis. Many people struggle with how much they should budget, how much to put in their retirement accounts, or how much to save towards their next vacation. Users often do not understand the risks and pitfalls with certain trading options (such as cryptocurrency or stocks and options trading) or do not often know where to invest their extra cash. People usually tend to sit on extra cash for a long time and miss out on making any returns at all. The target is to provide adults and young adults with tools and information to make informed decisions about their financial planning and literacy.

Our problem space can be analyzed as personal finances, and how difficult it is to access financial literacy as a topic. This is largely due to taboo when it comes to speaking about money. Instead, they give out vague and non-descriptive information when it comes to investing or saving for a rainy day.

Some advice that people tend to hear is "Yeah buy 50 shares of AAPL and just wait for the money to roll in" or, "Buy VTSAX today, and never worry about your 401k" or "I just let the robo-investor take care of all my money in my 401k". All this advice is great advice, but one should not buy or sell a security just because someone told them to do so. Instead, the user will now understand that holding onto 50 shares of AAPL in the long run is beneficial because tech stocks trend positive in the long run and holding these stocks pays dividends. There is nothing wrong with either buying VTSAX or using robo-investor, but the user needs to fully understand what the potential benefits and pitfalls are. Why

VTSAX? Why robo-investors? What stock portfolio should I let my robo-investor handle?

2 USER TYPES

The intended users for this application are young adults and adults who either want to learn about financial literacy or who want to further develop their financial literacy to make informed and confident decisions. The redesign will focus on educating people, so they are able to make smarter decisions about their money. When evaluating the user types, we must take the following into account:

- **Demographic of our audience** – Adults and young adults, both men and women of all ages. Financial literacy does not have to stop after you retire, it is a lifelong learning process.
- **Level of Expertise** – We will consider both novice and expert users. We will evaluate how they interact within the interfaces and how their level of financial expertise helps them navigate through the interface. This redesign will target those who have little to no knowledge about financial planning and literacy to those who have an intermediate knowledge to give them the tools to succeed. Users are motivated to be literate in financial planning as it will provide them extra comfort and security for years to come and provide them a rainy fund for big purchases such as a house, a car, and unforeseen expenses such as surgeries, ambulance visits, etc.
- **Their motivations for engaging in the task** – The user wants to increase their financial literacy to make informed decisions on financial topics. The user wants to understand how budgeting and securities pricing works, and how they can use this information and build safe and confident financial practices.

3 EVALUATION OF EXISTING INTERFACES

This needfinding phase will help us evaluate existing interfaces and how users might interact with them. There are several interfaces that help people evaluate and understand finances, but often these interfaces either do not provide the whole picture or assume the user already has some financial knowledge. Applications like Vanguard or Mint do provide users the ability to save and invest but solely focus on budgeting and financial projection or give users too many options when it comes to stock trading or retirement options.

This phase will help us gather financial information necessary for the user before they make a choice, whether it is, for example, to invest in a stock or to contribute to your 401k or save that money for a summer vacation. Research will be focused on financial applications such as these which will simulate how users interact with the actual application and we will tackle issues such as: What are their biggest gripes? Where do they struggle? What would they rather see instead?

We can also look at the user's levels of expertise within a certain interface. How long would it take for a novice user to do the same task compared to an expert user who already has sufficient knowledge to properly plan and invest their money.

3.1 Data Inventory

Regarding data inventory, evaluation of the existing interfaces can help us populate some of the items. The primary data we will gather is who our users are, what their tasks and subtasks are and what do they need to achieve? We would also need to consider a broad range of users.

3.2 Potential Bias

In this scenario, we might run into confirmation bias, where we see what we want to see. We might tunnel vision ourselves on a specific part of the interface or the UI and solely focus on that part. To avoid this, we would want to use some of the UI components users are already familiar with and understand what their pitfalls are and understand how or why this would make a user tick. By doing so, we would build an interface that users are not only familiar with but also engineer an interface they want to use and will continue to do so in the future.

4 INTERVIEWS

This needfinding phase will help us home in on specific questions and interactions with our end user. Ideally, we would want to conduct this interview before we begin our design process. This process will help us identify the users' needs, tasks, and purpose in a more detailed and informative view. This method will elaborate on certain nuances that cannot be captured via surveys. Through interviews, we could tackle different interviewees such as:

- Domain experts – Someone that can give us a large and open-ended perspective of the interface and its shortcomings.
- Novice user – Someone who is not so familiar with the interface but would like to learn and grow by using the interface.
- Average user – Someone who uses the interface on a semi day-to-day basis, but still does not understand either the nuances of the interface or does not have a lot of domain knowledge pertaining to the interface and its capabilities.
- Fanatic Users – Someone who uses this interface every single day and spends but might not be a domain expert.

With interviews, we will be able to investigate the participants' thoughts and understand why they preferred a certain behavior over the other. This is a more targeted way of gathering information from our users and will help us understand why certain tasks are performed when the users are interacting with the interface.

The interview will be framed in such a way that it will be open-ended and semi-structured, meaning that participants will be allowed to go in depth where they want to and explain how a certain feature inhibits or helps them on the interface. Ideally, we would want to see how the user interacts with the interface and make informed financial decisions based on their financial literacy.

The interview will either most likely be conducted on Zoom or similar software or face-to-face. I will most likely either consult my classmates or friends and family.

Some of the sample questions for the interview include (subject to change, not an exhaustive list):

1. Walk me through your thought process before you buy a security on your favorite exchange
2. Throughout the years, what resources have you used to increase your financial literacy?
3. Do you feel comfortable bringing up financial planning and financial literacy in a public setting? Why or why not?
4. What would you tell yourself 10 years ago, when it comes to financial planning and literacy?

4.1 Data Inventory

The interview should help us define some of the items on the data inventory list, such as who the users are, what their task is and what the user was trying to accomplish. We can further break this down into sub-tasks such as picking one stock over the other or picking bonds over stocks, etc.

4.2 Potential Bias

In this process we could run into confirmation bias. Our questions could be framed in a way that we only want the interviewee to give us the answer we are looking for. We would overcome this by not asking any leading questions and making sure my opinion does not pollute their responses. I will also review the script with another user (not an interviewee) to practice and review it myself.

Another potential bias we might run into is voluntary bias. This occurs when only strongly opinionated people tend to volunteer for the interviews. When performing quantitative analysis, we might measure this extreme view and have a risk of over-sampling them. To avoid this, I plan on not revealing the script of the interview beforehand and confirm their conclusions with other methods.

Lastly, we might also run into recall bias. This type of bias occurs when people are not good at recalling how they felt during a certain task or certain actions they might have taken when performing said task. I plan on avoiding this by asking the interviewees specific questions related to the interface and how they were able to navigate from A to B to get their entire thought process.

5 SURVEYS

This needfinding phase will help us evaluate a broad range of users and give us a wider interaction with our end user. Ideally, we will conduct this survey before we start our design to identify the users' needs, tasks, purpose, and their hesitations. This method will help provide many responses in a relatively small-time frame. This phase is like the interview phase, but through surveys we will be able to target a broader audience.

The survey will likely be hosted on SurveyMonkey or similar software. It will mainly be distributed amongst students in the class, and friends and family, if necessary, to capture a large audience.

Some of the sample questions from the survey include (subject to change, not an exhaustive list):

1. How old are you?
2. What were your financial goals 5 years ago and have they changed since?
3. What would you like to know about financial planning?
4. What are some resources you use to develop your financial literacy?
5. On a scale of (1-5), how financially literate are you? Please explain why.

5.1 Data Inventory

The survey should address all the items on the data inventory list, provided they are well articulated and are able to generate the answers we seek. The qualitative information we gather from the survey should address who the users are, and will focus on their goals, tasks, and purpose.

5.2 Potential Bias

This section has some overlap with the previous needfinding strategy: Interviews. They might share the same bias, but they are a little different on how they occur between interviews and surveys.

In this scenario, we might run into confirmation bias. The survey questions can be framed in such a way that the responses can elicit the answers we are looking for. This can be avoided by challenging my prior beliefs empirically and not asking leading questions. Before releasing my survey to possible respondents, I will make sure to review this survey myself and have another person (not a survey respondent) analyze the questions.

We might be also subject to voluntary bias where only strongly opinionated people tend to volunteer for the surveys. To avoid this, we will not reveal the entire survey to the respondents before they start the survey and make sure we can confirm any conclusions with other methods.

Lastly, we could also run into recall bias, where people are not necessarily good at recalling a task, or their train of thought while performing said task in the past. This could lead to incorrect and misleading data, and to avoid this we should accurately set the context of the task, so people are more prone to thinking out loud while filling out the survey.