

Next Generation Financial Guidance Tool

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Abstract

Our capstone project is a “Next Generation Financial Guidance Tool,” an interactive website that exploits the concept of gamification to target Gen Y customers. We aim to provide millennial customers with a great user experience and high-quality financial guidance while at the same time helping our industry sponsor, Fidelity Investments, establish a strong connection to these customers. In this website users can learn to make wiser investments by setting their own financial goals and choosing different portfolios to realize them. They can get the latest financial news and—more importantly—share their experience of the website with friends through social media such as Facebook and Twitter. This project has 4 essential components: market research and analysis, Balsamiq Mockups design, website implementation, and feedback from potential customers.

Keywords: financial guidance; interactive game; portfolio modeling; web design

1 Introduction

Gen Y customers are a customer demographic with tremendous potential for the banking and financial services industry. Many of them have recently started personal financial plans. Based on Javelin Strategy and

Research 2009, the annual spending of Gen Y customers is expected to exceed \$2.45 trillion in the U.S. by 2015, reaching about \$3.39 trillion by 2018. Yet many major financial services companies have not put much effort into targeting them. According to the Oracle Financial Service Study only 31% of major U.S. banks have a millennial strategy; most simply have vague plans for this demographic. This is a rich and largely untapped market, and whichever company targets it most effectively will benefit greatly.

Fidelity Investments, our industry sponsor, plans on developing a product that can target and build a strong relationship with Gen Y customers. After conducting market research including online surveys and personal interviews, we have concluded that there are three key factors influencing customers' preferences for personal financial services: customization, user interface, and social media integration. Based on these results, our capstone team and industry sponsor decided to use gamification concepts in developing an interactive website that provides financial guidance to millennial customers. The core of this website is an investment game that provides a unique user experience: users are given a certain amount of virtual money to invest in a range of different portfolios. Seeing the results of their investments, they will learn to invest more wisely and efficiently. They can compete with their friends and/or share their achievements through social media such as Facebook and Twitter.

Our project contains four phases: market research and analysis, mock-up design, website implementation, and solicitation of feedback on our prototype. In the first phase we researched the importance of Gen Y customers to the financial services industry. In the second phase we used Balsamiq Mockups to design a series of pages conveying our ideas about the investment game, and presented them to our industry advisor. In the web implementation phase we constructed an interactive website on the basis of these mockup pages. In the last phase we held numerous one-on-one interviews with potential customers and modified our website in accordance with their feedback.

2 Literature review

2.1 Industry and Gen Y customers

In recent years companies in the banking and financial services industry have been under pressure to increase their profitability because of low growth and intense competition [1], which has the potential to greatly weaken customer relationships [2]. In order to acquire new customers, financial companies must employ effective strategies to strengthen customer loyalty because it can help them increase their profits through “repeat patronage, less price sensitivity, and positive word-of-mouth testimony” [2]. Furthermore, as different customer segments have different preferences, it is also important for companies to analyze them separately [3].

Gen Y customers make up an especially attractive demographic. Their buying power will be increasing over time, and they are likely to pay more for a better user experience [4]. By acquiring young customers, companies will maximize their profit over time. Gen Y customers have some unique features that differentiate them from the older generation. Most of them use social media such as Facebook and Twitter to share their ideas with friends, and word-of-mouth testimony is critical to a company’s reputation. They care more about the quality of their user interface than saving 0.5% on transaction fees [5].

2.2 Market research and analysis

Conducting market research is crucially important. It can tell companies what kinds of products they should develop to best meet their customers’ needs [6]. There are two types of market research: primary research and secondary research [7]. Primary research involves gathering data on the current market through surveys and interviews of potential customers, while secondary research involves analyzing already-published data. Data collection is critical to both kinds of market research. There are two methods of collecting data: quantitative and qualitative [8]. The quantitative method employs statistical techniques to extract information from a large amount of data. Sometimes it involves advanced machine learning and data mining

algorithms. This method is precise, but expensive and time-consuming. On the other hand, the qualitative method can better inform companies about their customers. Researchers usually combine the two methods to get a better understanding of the existing market [9].

Surveys are an essential part of market research [10]. There are four steps to designing an effective survey [11]. First, the researcher needs to decide what kind of information he wants. Second, he needs to design the most appropriate questions, format them clearly, and present them in a logical order. Third, it is important to reach the target demographic effectively. For example, the researcher should distribute the surveys personally if he plans to survey his classmates, but electronically if he plans to survey people remotely. Last, the researcher should analyze the data and clearly visualize the results [12].

2.3 Balsamiq mockups

Balsamiq Mockups is an application which helps users to build up a graphical user interface in a short time [13]. This tool has a drag-and-drop interface and some very powerful libraries, which makes the process more like sketching than web designing. It is convenient for import pictures and existing web pages, and the designer can also create links to related websites [14].

Balsamiq Mockups can also help designers communicate more efficiently with software engineers. Although designers usually have a solid understanding of their product, often they do not know much about web-design programming languages such as HTML, CSS, and Javascript. As a result, it is sometimes hard for engineers to implement their ideas. Balsamiq Mockups can help designers create a prototype that precisely conveys their ideas to engineers, who can then construct the website [15].

Finally, Balsamiq Mockups can help engineers to use agile methodology to develop a product. Modifying an existing website used to require time-consuming programming work [16]. Using Balsamiq Mockups can accelerate the development cycle. When engineers want to make changes to a current web design, they can quickly build a mockup and start programming once

they decide which changes they want to make [17]. This can save up to 80% of a project’s development time.

2.4 Web design

There are four key concepts in web design. First, developers need to keep in mind that users are impatient [18]. Most users will just scan the web page instead of reading it carefully and click the button as soon as they find something that seems like it might lead to their goal. Second, designers need to manage a user’s attention [19]. Most users will leave the page as soon as they feel bored or cannot find their desired information. To maintain their customers’ interest, designers should consider adding some interesting features or clues that can lead users to the information they are looking for. Third, developers need to use visual language such as diagrams, charts, and flash content in presenting their idea. This an interesting way to supplement the text-based web page [20]. At last, there is the golden rule called “test early, test often”: developers should regularly solicit feedback from potential customers and make changes accordingly. This makes the development cycle much more efficient [21].

3 Methodology

3.1 Surveys and interviews

Our market research is mostly based on our survey and interviews. In designing our surveys, we followed the four steps mentioned in the literature review: determining the information we wanted, designing and organizing the questions, distributing the surveys, analyzing the data, and presenting the results. Our main objective was to collect information about Gen Y customers’ financial status and their expectations for personal financial tools, so we divided our survey into three parts. In the first part we asked respondents about their background (gender, age, nationality, education background, and working status). In the second part we proposed questions concerning respondents’ current financial status (annual income, chief

source for financial news, chief purpose for saving, and current investments). In the last part we asked them about their expectations for personal financial tools (e.g., what tools they are currently using, what their chief criteria is for choosing them, what opinions they have about the use of gamification in a financial services product, and what new feature they would most like to have at their disposal). As we are targeting Gen Y customers, we decided that it was most convenient and efficient to hand out our surveys on the Berkeley campus. After collecting our information, we categorized the data and used pie charts to illustrate our results. The results gave our team valuable insight into customers' requirements and helped us figure out the initial design of our interactive investment game. For our interviews we divided potential customers into three groups: international students with no financial knowledge, American students with very good financial knowledge, and students with some financial knowledge. The interview questions solicited information about customers' personal financial investments and their reactions to our product.

3.2 Balsamiq Mockups

Building up a Balsamiq Mockup is a quick process. The drag-and-drop interface is very user-friendly and converting our idea to mockups is straightforward. Sometimes we were able to improve our prototype by adopting features from other websites. To make the mockup more interactive and realistic, we took advantage of this tool's advanced features such as creating links to other mockups or websites.

3.3 Website implementation

3.3.1 Layout design

Before implementing our website, we need to determine our layout. As our product is targeting young customers, providing them a chance to communicate with their friends, we decided to give it the look of a social media website such as Facebook. Most of our pages provide three kinds of information to our customers: a current financial news feed, the user's

investment profile, and updates to users' friends' status. Easy-to-locate buttons and links facilitate web navigation, and the bright layout gives the website an appealing look.

We used HTML and CSS to implement the layout of the website. HTML (HyperText Markup Language) is the standard markup language to create webpages. I used HTML's built-in "div" function to separate different areas on the webpage, and I used "h1" and "img" functions to separate text blocks and images. CSS (Cascading Style Sheets) is a style sheet language used for describing the formatting of a webpage written in a markup language. I used a declaration block to define the preferred style, and used selectors to declare which part of the markup a style applies to. I used CSS to define all font colors, background styles, borders and element alignments.

3.3.2 Translation from mockups to webpages

The content of our webpages is based on the original mockups. Our goal is to perform this translation while at the same time making the website more appealing and interactive. The process of creating a mockup page, which mostly involves dragging components on the screen, will take less than 30 minutes. Although this gives Balsamiq mockups the advantage of convenience and efficiency, the mockup pages are rudimentary and non-interactive compared to a real web page. In the translation phase I worked closely with Chenfan and Manisha, who took the lead in creating mockups last semester. As a web designer and programmer, I can add more appealing features while ensuring that the web pages can convey the original idea. For example, the original contact list is merely a list of names, so I added profile pictures beside every name to make the list look more like a social website. In the "Community Activity" page I added some advanced search options such as "Find People" and "Find Guidance," to help users find each other and get specific financial recommendations. I created links with the updates so that users can easily find detailed information on the Internet.

3.3.3 Feature design

Our website has many features. For each feature there are several specific functions needed to implement it. Once we finish the prototype program for a feature, we can easily generate variants by changing some of the feature's parameters. Take the "table" feature as an example: after finishing the basic code for constructing a table, we can create a new table simply by changing the names of the entries and the number of rows and columns.

The features of our website include links, buttons, text boxes, tables, diagrams, and search boxes. Links and buttons help users navigate our website; text boxes and tables display information such as financial news and recommendations; diagrams represent our analysis visually; and search boxes make the website more interactive. Links were created using the built-in "href" function. Because a button and a link are similar (both directing users from the current page to another page), I used the "div" function to define an area (for example, a square), then insert a link in this area, creating a button. When implementing text boxes, I used "div" to create a space and enter text within it. Tables are constructed by combining the "class" and "label" functions. Additionally, I used the "src" function to implement diagrams since it can help us retrieve the picture we have made. I used the "form" function to define a search option, the "input" function to specify the location of the input, and the "placeholder" function to enter the description of this search function.

3.3.4 Feedback

Our project made use of three rounds of feedback. After conducting a first round of interviews to discover potential customers' interest, we used the feedback to construct our Balsamiq mockups. To get young people's opinion of the mockups, we conducted a second round of interviews at the beginning of this semester and used this feedback to create our website. The last round of interviews was done in the middle of this semester when our website was almost 70% finished. Our goal this time was to test our website prototype and figure out what aspects we could further improve.

In response to the feedback we received, we made several major changes to the website. We combined the “target” and “my achievement” pages because users thought they were highly correlated, and it made no sense to put them in separate pages. Since our users thought that giving advice based on customers’ points (virtual money) could provide more customized service, we distinguished the content of the advice given based on the total number of points each customer had accrued. We added features such as notifications and personal profile pictures, which our interviewees thought would give our service the look of a social media website. Because users thought that the “contact” page was too rudimentary, we added a feature that let users see their friends’ updates.

4 Discussion

4.1 Competitive landscape

There are three main competitors to our product: existing personal financial tools, web or mobile applications developed by other large financial companies, and professional financial advisors. Detailed analyses follow. The first category of competitors includes mobile apps such as “Stay in budget,” “Money by Jumsoft,” “One Touch Expenser,” and “Expense Manager,” all of which have a beautiful interactive user interface and provide customers with personal financial guidance. However, these applications mostly focus on helping people manage their budget, while our product uses an investment game to educate young customers about wise investing. The game can be an attractive and entertaining means for customers to gain valuable financial knowledge.

The second category of competitors includes Merrill Lynch Wealth Management, which provides online financial services. While this financial management system is stable and reliable, it merely provides general financial information, and the user interface looks stiff. In contrast, our product keeps track of customers’ data and provides them with personalized recommendations. Furthermore, our interactive user interface is much more attractive. Friends can compare their personal financial achievements

online, and even compete with one another. This can be exciting for young people, and motivate them to play the game more often and more seriously. Word-of-mouth testimony will make our product even more popular.

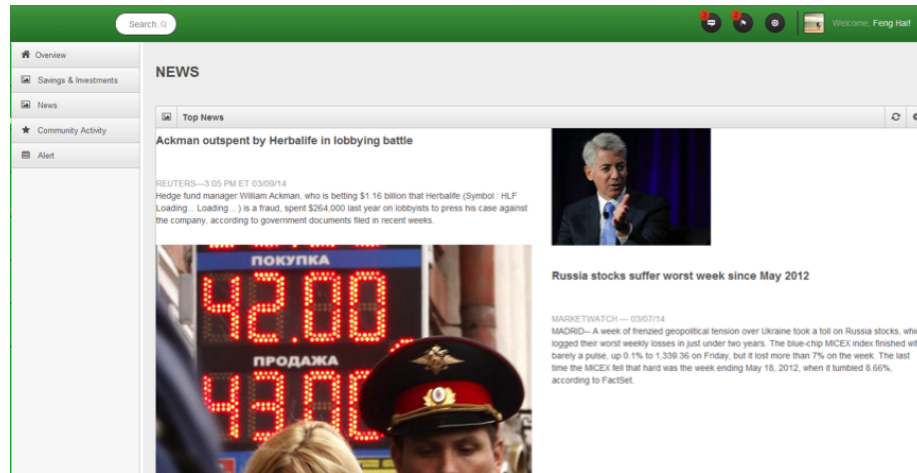
The third category of competitors is professional financial advisors. They are experienced and can provide customers with valuable advice according to their financial status. However, hiring a professional advisor is too expensive for many Gen Y customers, and neither is it very convenient because customers have to schedule a meeting with their advisor and cannot get advice whenever they want. Our product is free and can keep customers updated with the latest financial news and customized recommendations.

Our product distinguishes itself in three main ways from its competitors. First of all, its user-friendly interface will be attractive to Gen Y customers. Second, customers can have fun as well as learning better investment habits from playing the investment game. Finally, this product can be integrated into social media so that customers can share their financial achievements and compete with their friends.

4.2 My personal contribution

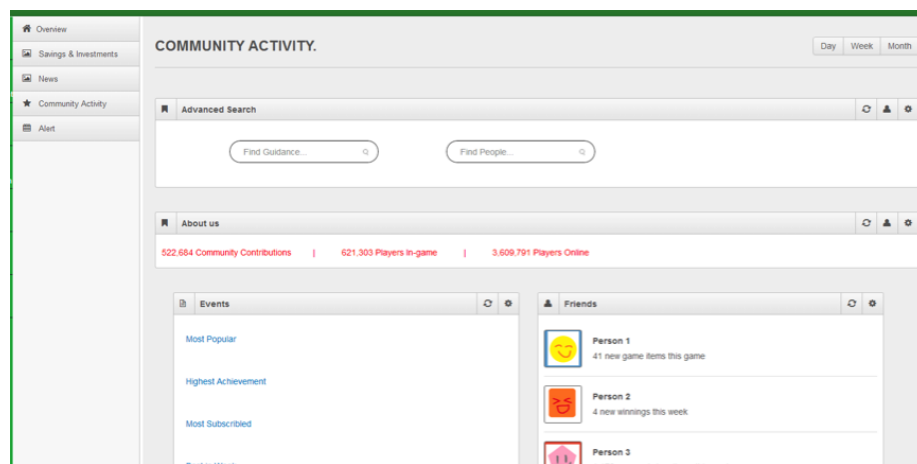
As an EECS student, I have taken the lead in website implementation in this capstone project with assistance of my teammate, Chenxue Hong. In addition, I helped collect feedback this semester and plan to help make the project poster. Out of all web pages I constructed, there are some critical pages that convey the characteristics of our product. Please find a detailed introduction to my work below

4.2.1 News



The “News” page keeps customers updated with the latest news covering different countries and different businesses. Customers can also receive notifications about breaking news.

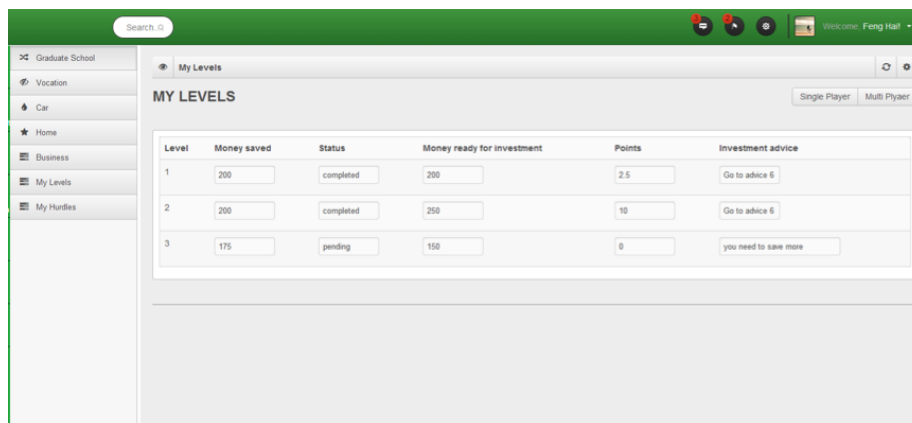
4.2.2 Community Activity



A user can join multiple communities on our website. The “Community Activity” page is divided into two categories: events and friends. In the

“events” box users can see current records (e.g., the highest achievement, the most subscribed, and the best stock portfolio) in the communities he has joined. In the “friends” box users can see the updated status of their friends. This page provides a platform for users to talk with friends and meet new people from around the world. It is a great social platform and different users can exchange their ideas and learn from each other about personal finance.

4.2.3 Achievements— My levels & My hurdles



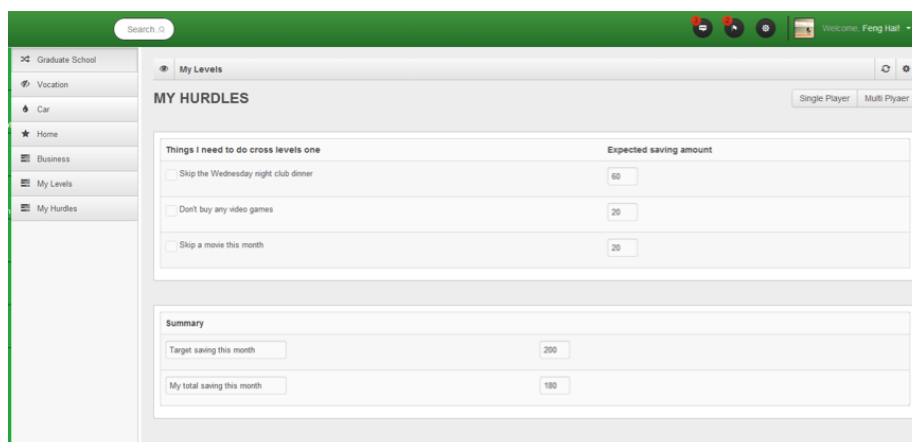
Search:

Welcome: Feng Hai

My Levels

Single Player Multi Player

Level	Money saved	Status	Money ready for investment	Points	Investment advice
1	<input type="text" value="200"/>	<input type="text" value="completed"/>	<input type="text" value="200"/>	<input type="text" value="2.5"/>	<input type="text" value="Go to advice 6"/>
2	<input type="text" value="200"/>	<input type="text" value="completed"/>	<input type="text" value="250"/>	<input type="text" value="10"/>	<input type="text" value="Go to advice 6"/>
3	<input type="text" value="175"/>	<input type="text" value="pending"/>	<input type="text" value="150"/>	<input type="text" value="0"/>	<input type="text" value="you need to save more"/>



Search:

Welcome: Feng Hai

My Hurdles

Single Player Multi Player

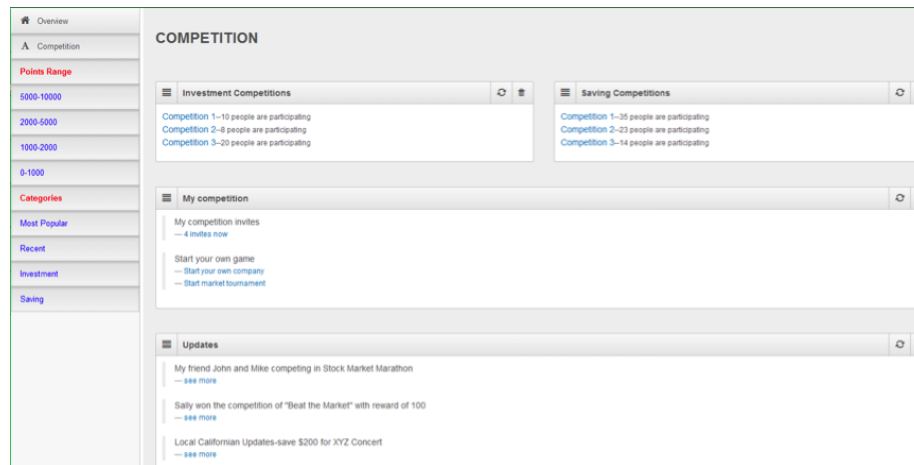
Things I need to do cross levels one	Expected saving amount
<input type="checkbox"/> Skip the Wednesday night club dinner	<input type="text" value="60"/>
<input type="checkbox"/> Don't buy any video games	<input type="text" value="20"/>
<input type="checkbox"/> Skip a movie this month	<input type="text" value="20"/>

Summary

Target saving this month	<input type="text" value="200"/>
My total saving this month	<input type="text" value="180"/>

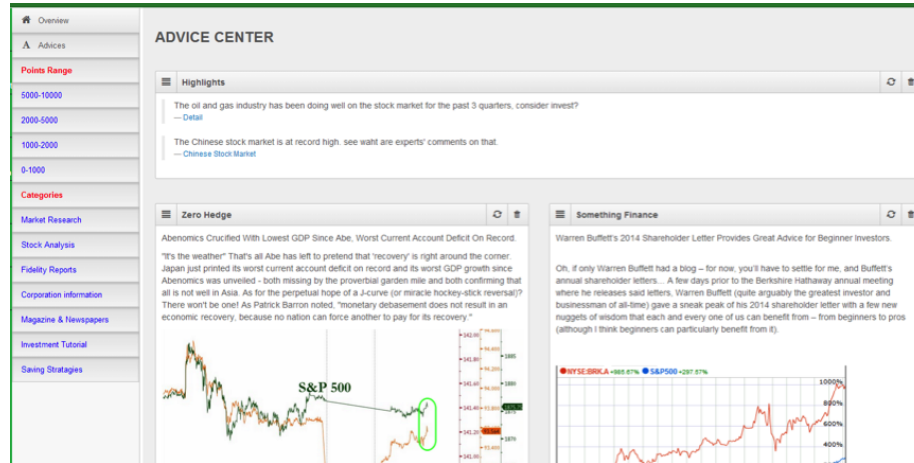
The “achievements” series contains two critical pages: “My Levels” & “My Hurdles”. “My Levels” shows the user’s current level and how much money he needs to save to proceed to the next level. Once he completes a level, we can give him specific financial advice to help him get the most out of his capital. “My hurdles” lists the specific hurdles the user must overcome such as “skip the Wednesday night club party” and “Don’t buy any video games” before proceeding to the next level. Most often, the hurdles are money-wasting habits. Our product motivates users to get rid of those habits by providing them the chance to get to a higher level and make more money.

4.2.4 Competition



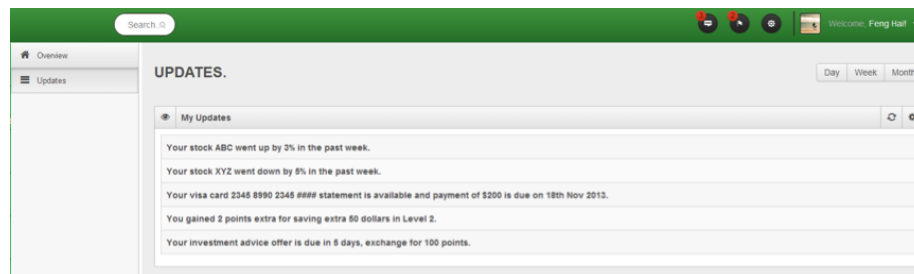
The “competition” page is another core element of our product. This is a place for users to compete. There are two kinds of games here: investment competitions and saving competitions. Users can compete with friends or strangers around the world regarding the amount of money they has gained or saved. This is a highly effective way to learn good investment habits because under the pressure and excitement of winning and losing, users tend to remember their mistakes and learn from the advice we have given them.

4.2.5 Advice Center



The “Advice Center” page provides the user with investment advice. The advice is customized to each individual customer according to their current level and current assets.

4.2.6 Updates



The “updates” page keeps track of users’ wealth and sends immediate notifications to them accordingly. This can ensure that users can make timely decisions and thereby maximize their gains.

5 Conclusion

The above-mentioned surveys have yielded three essential results. First, the majority of respondents plan to save money now or as soon as they start working. Second, the majority are “not using any financial guidance tools right now” [22]. Third, the majority “want financial guidance tools which let them earn points and compete with their friends.” [22].

After completing the website, I conducted interviews with 10 Berkeley M.Eng. students. I found that there are two very popular features. The first popular feature is that most respondents really like the idea of incorporating games into the business of financial planning. They think learning finance is useful but boring, and this game can help them stay focused. The second popular feature is that users can compete with their friends. This is much more exciting than simply exchanging ideas online.

I also collected two important suggestions. The first is that investing virtual money will become boring over time. Although it might be difficult now to link users’ bank accounts to the website, it might still be possible to convert their virtual money to coupons or gifts, and this can be a source of motivation. The other suggestion is that we should add more dynamic elements to the critical parts of the website such as the “My Hurdles” and “Competition” pages in order to more easily attract new customers.

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