

M8: User Interface Evaluation

From: Basketball Guzzlers

To: The Smalltalkers

CS 2340: Objects & Design

Wednesday, November 21st

Why Heuristic Evaluation?

We are evaluating The Smalltalkers who are also doing a stock trading application called StockMarket.

A heuristic is an informal “*method for helping in solving of a problem*” (Wiki: heuristic). A heuristic evaluation is basically a usability evaluation on a user interface. What happens is a small number of people evaluate the UI based on a list of common usability principles, which we call heuristics. This makes it easy for us to complete this evaluation as most of the rules are based on common sense. We chose the heuristic evaluation because of its pervasiveness in the industry, rendering it popular and most accessible. The advantages of a heuristic evaluation versus a cognitive walkthrough or a think aloud protocol analysis is its relatively rapid time frame and its reasonable feedback. Also, a heuristic evaluation is naturally geared to an audience of either 3 or 4 evaluators, which is perfect for our small sized group. In addition, with more than one person evaluating the user interface, it gives a broad overview of the different problems that could arise that would be difficult for just one person to capture.

We plan for each evaluator to go through the user interface several times, inspecting the various windows and buttons, comparing them to the list of Jakob Nielson’s ten recommended heuristics. Each of our evaluators will inspect the interface alone, so that the results are unbiased and independent. We will have the evaluators write the results in a template as shown:

Example Problem

Category: <category of problem>

Summary: <a short summary>

Description: <a thorough description>

Rating: <number, 0-4>

The flexibility of the heuristic evaluation is that it is possible to do the evaluation on a prototype or even on a prototype on paper only.

Results of Heuristic Evaluation

Daniel Dixon

Unlimited Money

Category: Money

Summary: Users can add unlimited money.

Description: Account Holders can add a ridiculous amount of money. The application can be crashed by adding too much money.

Rating: 1

View Price Report

Category: User Interface

Summary: View Price Report button does nothing.

Description: Clicking on the "View Price Report" Button does nothing.

Rating: 0

View Profit Report

Category: User Interface

Summary: View Profit Report button does nothing.

Description: Clicking on the "View Profit Report" Button does nothing.

Rating: 0

Text Cut Off

Category: User Interface

Summary: Login Window's title is cut off.

Description: The size of the login window is too small and cuts off the title at the top. The window's size should be static.

Rating: 0

Edit Users

Category: User Interface

Summary: Cannot edit users from the Admin window.

Description: When the "Edit User" button is clicked on in the Admin window it just says, "A user with the same name exists in the system." It does not matter which user is highlighted.

Rating: 3

Linh Le

Add Investments

Category: StockMarket - Broker

Summary: Window is used by brokers to add investments to the market

Description: Buttons are easy to find and perform the requested functionality.

Brokers can also make their own markets.

Rating: 3

Administrator window

Category: Administrator window

Summary: Administrators use window to define different users and add different account holders.

Description: Buttons are easy to use. Edit user functionality is not working.

Functionality for adding a new user opens a new pop-up menu. It would be more preferable to be able to add users from within the same window and pressing add admin, add accountholder, add broker.

Rating: 3.5

Main Window

Category: StockMarket - Account Holder

Summary: Window for Portfolio owners

Description: Current account holder's name is not displayed. Since a user might have multiple accounts, it would help them if the name is displayed. User does not check when adding investments whether or not user already has the investment.

Buttons perform functionality. Change simulation speed should be a slider instead of dialogue.

Rating: 3

Login Window

Category: Login window

Summary: Window for users to login into the system

Description: Window is plain, simple, and works.

Rating: 4

Joseph Jo

Administrator Window Passwords

Category: General User Interface.

Summary: Administrators have access to all passwords

Description: In the Administrator Window, administrators have access to any user's passwords, which is very bad UI design.

Rating: 4

Edit User

Category: General User Interface.

Summary: Administrators cannot edit user

Description: In the Administrator Window, when clicking on the Edit User button, a window pops up saying that, "A user with the same name exists in the system."

Rating: 4

Window Sizes

Category: General User Interface.

Summary: Window sizes too small

Description: In the first login window, the title of the window is cut off and the username and password text fields are also cut off.

Rating: 2

Main Window Columns

Category: General User Interface.

Summary: Columns in main window confusing

Description: The columns in the main window with all the investments are too cluttered and confusing to understand without any labels.

Rating: 3

Simulation Speed

Category: General User Interface.

Summary: Simulation update is confusing

Description: It is not obvious when the simulation is updating and what it means when it updates. What is the default timeframe and why isn't it obvious?

Rating: 3

Profit Report

Category: General User Interface.

Summary: Profit report does nothing

Description: When clicking on the View Profit Report button nothing happens.

Rating: 3

Price Report

Category: General User Interface.

Summary: Price report does nothing

Description: When clicking on the View Price Report button nothing happens.

Rating: 3

Colin Vinson

Reports do nothing.

Category: General User Interface.

Summary: Clicking 'Reports' do not open a new window. Not really a good UI evaluation point, though.

Description: Same as above.

Rating: 3.

Multiple purchases of the same investment not grouped.

Category: General User Interface.

Summary: Multiple purchases of the same stock are not grouped within portfolios.

Description: If you shares of a stock multiple times, they are stored as separate investments. Therefore, you have to sell each group individually as well, which is frustrating.

Rating: 3.

Clicking 'Sell' generates wrong dialog.

Category: General User Interface.

Summary: Clicking 'Sell Investment' generates an incorrect dialog.

Description: When 'Sell Investment' is clicked and the amount of shares requested to be sold is invalid, the dialog box following the action states 'unable to purchase xxx shares'.

Rating: 1.

Date in 'View Investment Details' displayed as time from epoch.

Category: General User Interface.

Summary: Clicking 'View Investment Details' displays time from epoch.

Description: The 'bought on' date on the 'View Investment Details' window is displayed in days from the beginning of the market which could prove cryptic to those who don't understand how the system works.

Rating: 2.

Differing Buy and Sell prices encourage cheating.

Category: Price System.

Summary: Differing Buy and Sell values encourage cheating.

Description: The differing Buy and Sell values enable a person to pause the simulation and continuously buy and sell on the same day and make a profit.

Rating: 2.

Clicking 'Edit User' creates error.

Category: General User Interface.

Summary: Clicking 'Edit User' creates error.

Description: Clicking 'Edit User' in the admin screen generates an 'A User with the name already exists' dialog.

Rating: 3.

Current Day Not Shown In Account Holder Screen.

Category: General User Interface.

Summary: Current Day Not Shown In Account Holder Screen.

Description: Same as above.

Rating: 2.

Usability Report

Overall we found that StockMarket by The Smalltalkers was a robust application that needed little editing to bring it up to a higher level. With a little bit of polish, many of the minor usability issues could be resolved and the user experience could be heightened. We will list and highlight 3 areas, which would benefit from altering your prototype to enhance its usability.

General Overview

Usability concern #1:

Static textboxes, buttons, menu bars, and titles hinder the user experience by frequently cutting off words or titles.

Usability concern #2:

Data in columns are not aligned often giving of a feeling of claustrophobia.

Usability concern #3:

There are too many dialog boxes that could easily be remedied by other alternatives.

Specifics of usability concern #1:

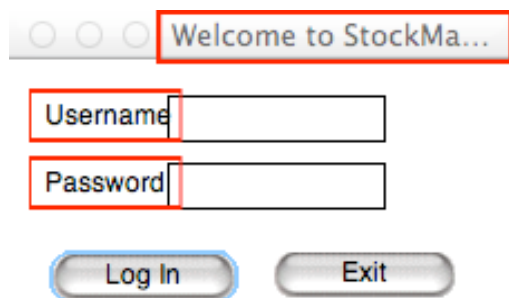


Figure 1.

As seen in figure 1, the title of the window is cut off ("Welcome to StockMarket" is "Welcome to StockMa" by default) and the "Username" text is touching the text box. The "Password" text is align with the text above, as is the text box above, but the two text boxes should have been shifted a few pixels to the right so that the text should not overlap. Also,

the “Log In” button and the “Exit” button are the same size, which could or could not be a bad thing, depending on the test. It works okay here. As a side note, it is nice that the tab key will tab between the textboxes and the buttons.

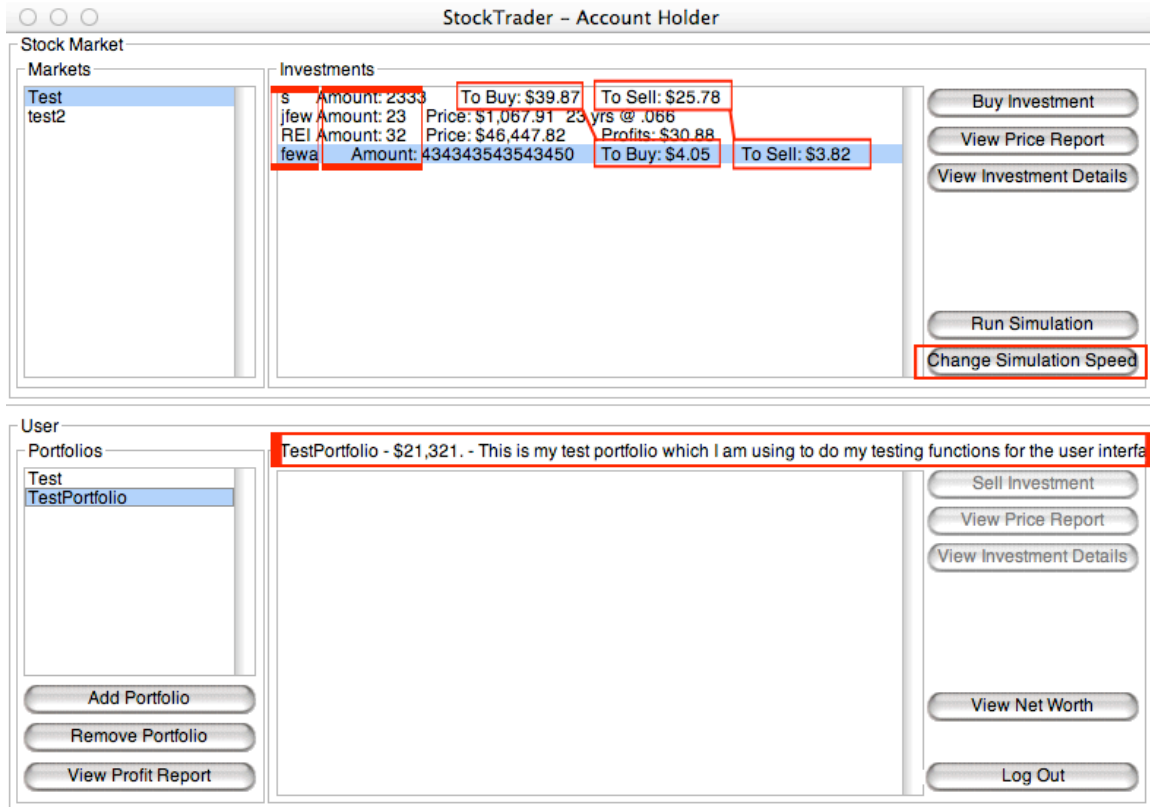
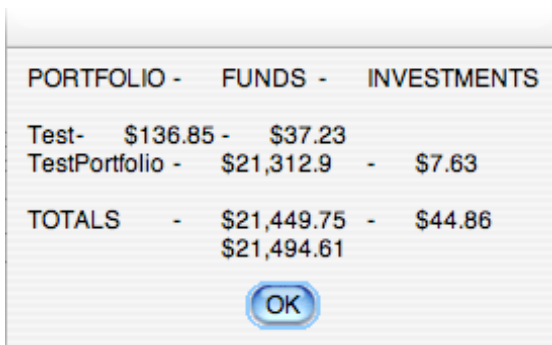


Figure 2.

When in Account Holder mode, as seen in Figure 2, we see that if you give a description to a Portfolio (lower part of window) that is quite lengthy, its description is cut off so that you cannot read anymore of it without resizing the window. Also, as previously stated, we see another button, “Change Simulation Speed,” (which by the way took me a long time to find due to the overall clutter) is barely contained in its button due to its extended title. Usability concern #1 deals with a certain discomfort users might face when using the application as text that disappears or is enclosed in a tight bubble might induce claustrophobia or a sense of incompleteness.

Specifics of usability concern #2:

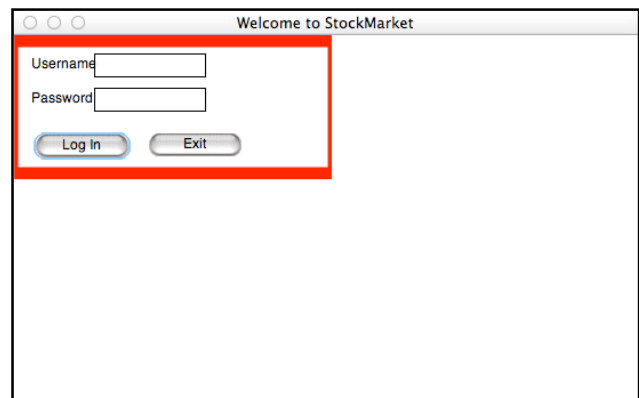
The issue with usability concern #2 is in the fact that much of the data when clumped large table is often unreadable. This is most apparent in Figure 2 where it's hard to tell where each column starts or ends. Also, there is too much clutter and it also induces claustrophobia. A little bit of space in between each column would help and also if the columns were labeled with the label name this would help a lot. In the first row the "To Buy" price is extremely disjointed with the third buy price in the third row. Also, what happens when one of the investments do not have a certain column? How can we tell if a certain investment is a stock, bond, REIT, or something else? Also, see figure 3 for the general clutter in all the dialog boxes. It is often difficult to comprehend anything.



PORTFOLIO	FUNDS	INVESTMENTS
Test-	\$136.85	\$37.23
TestPortfolio -	\$21,312.9	\$7.63
TOTALS	\$21,449.75	\$44.86
	\$21,494.61	

OK

Figure 3.



Welcome to StockMarket

Username

Password

Log In Exit

Figure 4.

Specifics of usability concern #3:

To add multiple users, multiple investments, multiple portfolios, etc. would pop up with many dialogs and makes using the program very cumbersome. Having an input field that shows the current selection allows for multiple additions to be very efficient. Along with this, as you can see in Figure 4, any time you resize any windows, the layout is not flexible enough to accommodate. You can either choose a dynamic layout that allows for deviance or hard code a certain width and height.