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I Sys 520

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Final Write Up: Investing Game

Executive Summary

There are many programs out there to learn how to invest and pull information from online sources.

Most of these programs however are focused in individual stocks that are publicly traded on the U.S.

stock exchanges. I want to learn more not just about stocks but indices that are traded globally. I am

going to be starting my first job in a couple of months and I want to understand the principles of value

investing, particularly in these global stocks and indices. When I sign my paperwork about how I want to

invest my savings, I want to have a good idea where and why.

Therefore, I created an investing tool to create value portfolios in equities. The program is created to

create global value portfolios, compare them, and track them over time. In order to better learn the

global equities, I decided to create a game. The game is used mostly as a simple benchmark while the

program itself is meant to help the user familiarize themselves with stocks and indices.

Implementation Documentation

This project consists of six main processes:

1. New Game

2. Explore New Stocks
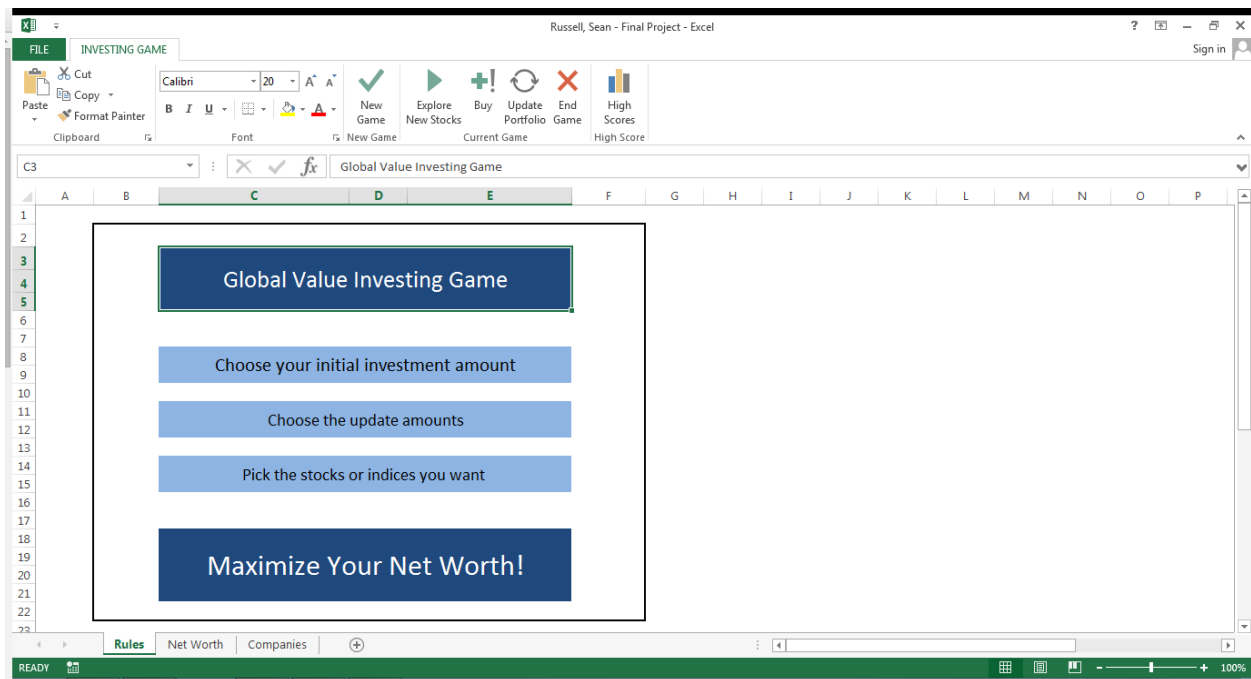
3. Buy

4. Update Portfolio

5. End Game

6. High Scores

I will begin with the introduction to what you see when you open the project and then walk through each of the major processes.

Introduction

When you first open the document you will see three open sheets. They are the rules, net worth, and companies sheets. You will notice that the ribbon on top of the screen is adjusted to only allow simple functionality and the macros for the game.

The rules sheet is a brief overview of the game. The net worth is the summary of your portfolio when updated as well as information relative to the game you are playing. The companies sheet is the skeleton for the securities you will be exploring and buying.

Rules sheet

Net worth sheet

Companies sheet

New Game

This is the first process to get the game going. It asks for you to name the game, set an initial investment amount (basically how much you want to invest over the course of the game period), as well as the number of updates you want to provide yourself with.

New game input box

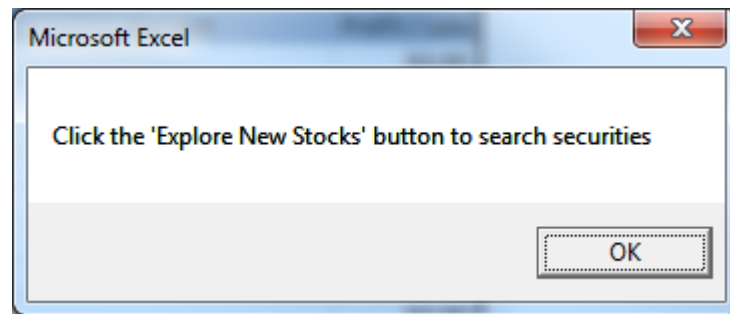From these inputs, the game initializes on the net worth tab and allows for functionality with the other processes. Prior to this, the other buttons will not function. After initializing the game, you will be prompted to start exploring stocks and indices.

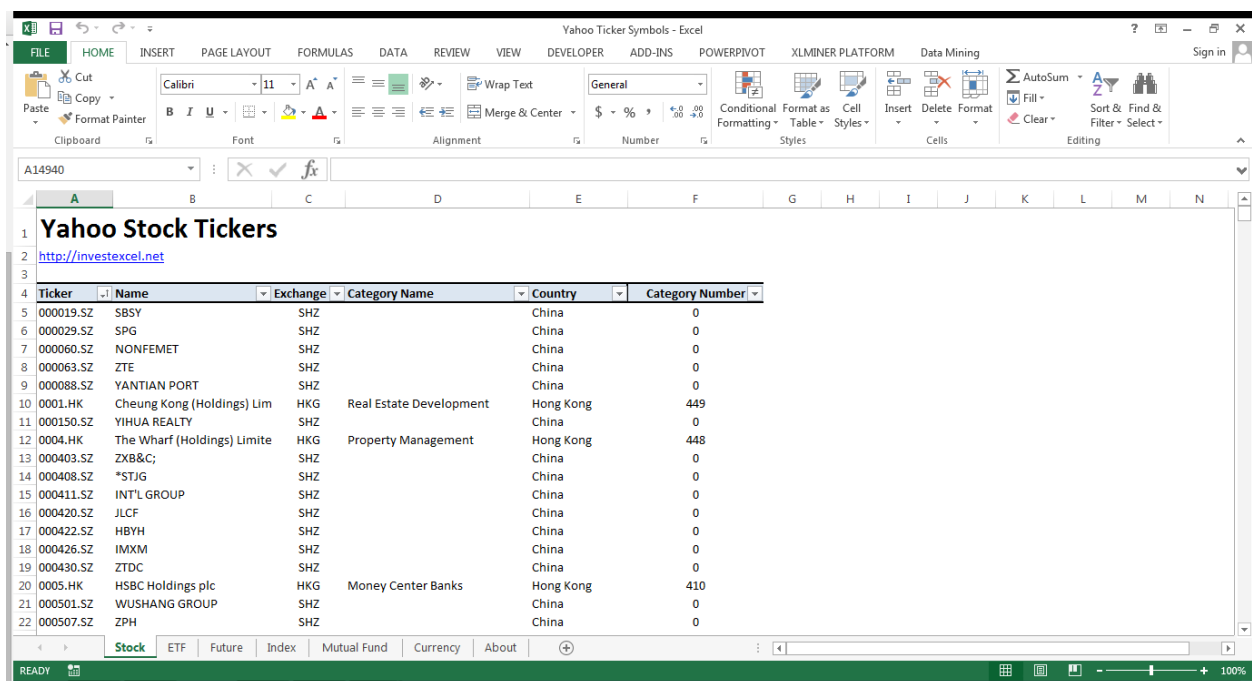Message box after initializing the game

Initialized Game

Explore New Stocks

This is a process that has a lot of steps to it. The main ones are the following:

- Scrape securities data file

- Initialize user form
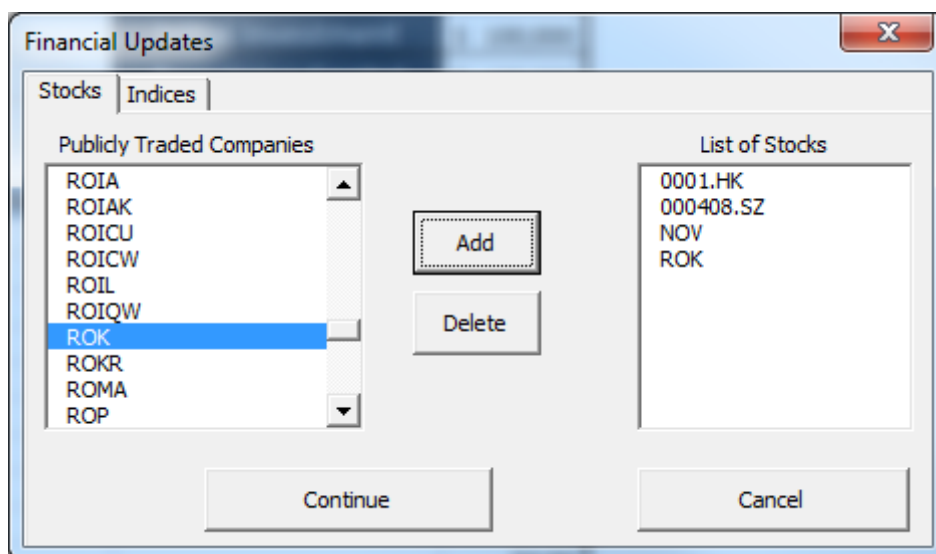
- Create companies page from Yahoo Finance

First, by pressing the button, the program will go and gather all of the publicly traded stocks and indices'

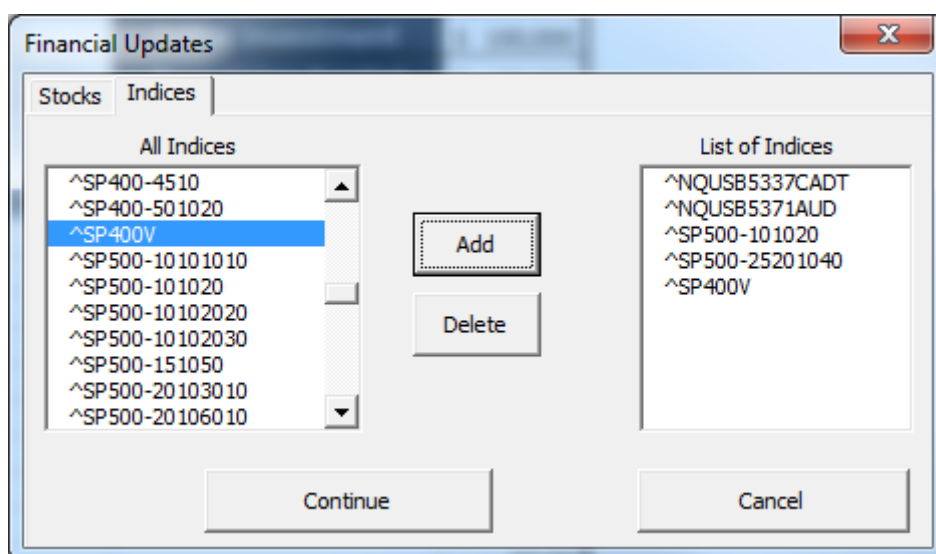ticker names and add them to their respective lists in the user form.

Yahoo Stock / Index Ticker Database

After scrapping this data file, the macro will create a user form with lists of the global equities with the

functionality to move them to be analyzed. Within this user form, you can add the stocks and indices

you want, delete them from your lists, cancel the user form, and continue to download their

information.

Stock tab of user form

Index tab of user form

By pressing the continue button, the macro will pull the financial data from Yahoo Finance and organize

the information into the companies sheet. Before allowing you to see the companies sheet, you are

notified that you can buy securities.
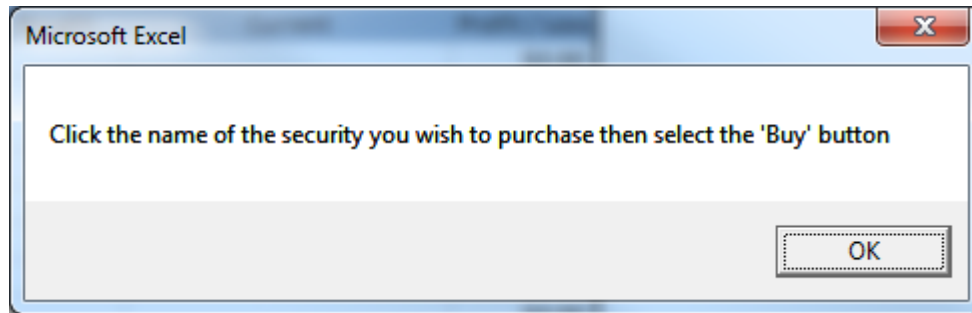
Message after gathering data from Yahoo Finance

Companies sheet after gathering data from selected stocks and indices

Buy

After pulling down the desired company data, you can now purchase securities. Selecting the name of

the security you wish to purchase. Follow this by clicking the buy button which will prompt you verify

that you want to purchase that stock. The process for purchasing a security is based on where you place

the active cell. I could have used a user form to take out input error but I wanted the user to be able to

purchase stocks from the company dashboard instead of going to another user form.
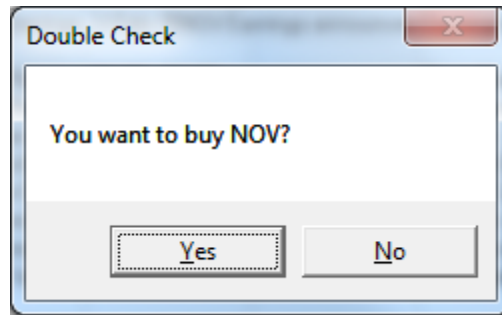
Verify prompt

Once the user verifies that they want to purchase the security, the purchase price and the company

name is sent to an Access database representing your current portfolio.

Update Portfolio

Once the user has purchased the securities they want, they are able to click the update portfolio button

which imports the portfolio database and place it on the net worth sheet. Here the securities'

information, game stats, and net worth stats are updated.

Net worth sheet after updating portfolio

By using up all of your updates, the game will automatically end and move through the process. You can add more securities up to your remaining capital but you won't have their performance unless you update the portfolio. The idea here is that the user could create a portfolio and set it aside for a significant amount of time as a value investor instead of constantly checking their portfolios.

End Game

The game will end by either pressing the end game button or by running out of updates. Once the game is ended, the net worth and companies sheets are cleared. The portfolio database is sent to the high score database and the portfolio database is cleared for the next game.

High Scores

You will be shown the high scores naturally after ending the game. However, if the user wants to see the leaders in the past, they can look at them at any time. The most recent game with its portfolio will not be sent to the high score board and shown until the user decides he want to terminate the game.

High score sheet

The information is sorted into a table for the user to see the desired results.

Learning and conceptual difficulties

I learned a great deal doing this project. I learned the value of effectively planning out not only your objective but a detailed process on how you intend to complete it. I tend to be fairly thorough upfront but I realized how much more important this is when you are working with multiple files and databases. Alongside the planning stage, I learned a lot about interacting with databases, pulling information from the web, error handling, and dynamic objects. I found a lot of my difficulty during the project had to do with simple little errors as well as dealing with dynamic objects. A lot of my time was spent trying to find workarounds to a pivot table, a query, or a table that wouldn't update with new data. In addition to the updating, a large amount of my time was spent getting the data into fixed locations because I had a hard time setting dynamic locations (particularly when sheets were being added and deleted often). I feel that I created the functionality that I wanted with the project given the time but I realize that there are many ways that I could have done things simpler.

Assistance

I did not receive any assistance on this project. I was heavily sifting through forums, previous projects, and online articles for insights about certain process or codes. I applied a lot of the concepts from the online sources but copied only a handful of lines of code. Apart from that, I did not have any coding assistance from TA's or the Professor on this project.