The Giving Game: Project Log

The Giving Game

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Contents

Week 1

This week I managed to ...

Monday 30th of March 2015

Today I met with my supervisor. We discussed the project plan I made before the start of the poject. We agreed to meet at least once a week. This meeting will take place each monday at 10.30 a.m. with the exception of next week. Next week the meeting will take place on Tuesday at 11.00 a.m. because of Easter. This week I will be working on designing the simulator and the literature study.

Tuesday 31th of March 2015

I used this day to improve my knowlodge of Python. I searched the internet for Python packages and frameworks I might be able to use. For example I found the Qt framework which I will use for the user interface of the simulator. I read the documentation for this framework and for other packages and I did some tutorials.

Wednesday 1st of April 2015

Today I started designing the simulator. I did most of the designing on paper and I put some thoughts in the design document. Tommorow I will continue with the design of the simulotor and try to finnish the design document.

Thursday 2nd of April 2015

I continued working on the design of the simulator. I have the most important parts of the Back-End figured out. I also created some pseudocode for the Agents and the Goods. Tommorow I will create a more visual design.

Sunday 5th of April 2015

Today I added the visual parts of the design. The design is finnished, any changes or additions I come across during the implementation will be documented in the design document.

Week 2

Tuesday 7th of April 2015

Today I me with my supervisor. We discussed the design document I created last week. I have to pay attention to the following when creating the simulator:

- Comunnity percentage
- Perishable and durable goods with a perish factor between [0, 1]
- Production time of a perishable product
- Multiple goods with the same type, for example 8 perishable goods and 2 durable goods.

For the theoretical research I will compare the random rule and the balance rule with the goodwill rule, because these rules are special. During the research I will try to find more rules with the same properties. I also started working on the Python code for the simulator. I have created a simple simulation for the random rule with durable goods. This piece of code will be used as a foundation for the whole simulation.

Wednesday 8th of April 2015

Today I created a simple simulation for perishable goods. I had some trouble with the implementing the goods. Updating and changing the values of the goods was a bit difficult, because they existed in multiple locations. I decided to assign a few agents as default producers of goods which made creating new goods easy, problem solved. I now have a simple simulation for sustainable and perishable goods, both types can be used during the same simulation. For the perish factor I use a value between 0 and MAX_INTEGER, this is alot easier and more logical than using a value between [0, 1]. The good perishes after n times the good has been given. A new good is produced after m transactions. Friday, Saturday and Sunday I will try to figure out how I should implement the calculation of the community effect and in how the balance should be implemented. I also want to try to create a visualisation of the simulation process. If i can see what is happening it will be much more easy to conclude that the simulation is working correctly.

Friday 10th of April 2015

Today I took my time to look at the Qt framework and VisPy. I managed to create a simple input GUI and i created a testfile for VisPy. I figured out how I can implement the Qt framework with the code from the past few days. Tommorow I will try to visualise the input and the ouput of the simulation. At the end of this week I hope I will have a simple simulation with a GUI for the input and the output. If I manage to do this it will be alot easier to create the rest of the simulator, because I will already have a working foundation/framework which allows me to only having to add code on top of the already existing code.

Saturday 11th of April 2015

I continued working on the GUI.

Sunday 12th of April 2015

Today I finnished the simple input and output for the simulation. The foundation is done.

Week 3

Monday 13th of April 2015

Today I met with my supervisor. I got some new insights. I have to change a few things in the code, which are explained in the design document. I also got some articles to read from my supervisor. This week I will try to find some more literature on my own if I manage to make progress with the simulator.

Tuesday 14th of April 2015

Today I continued working on the compiler and made the necessary changes to the code. I managed to create a more advanced Input interface where the user can set different values for each good. I also managed to print the transaction realtime. This was a struggle, because threads didn't seem to work correctly. After hours I looked back on a different method which didn't seem to work at first. Luckily this same method did work the second time, I have no idea how though. The code is a mess right now, but frustration has taken a toll on me so I will continue with this tomorrow.

Wednesday 15th of April 2015

Today I created a more advanced output interface where the results can be shown realtime. I also figured out how I can show the giving game progress realtime with vispy. Performance is starting to be an issue. I

am considering to implement an interface where the user can choose what and when a graph/data needs to be shown. A new window will open and the user can save the results to a file.

Friday 17th of April 2015

I was not satisfied with the how the UI looked so I wanted to change it. I didn't think this would take alot of time, but in the end it did take alot of time. At the end of the day I managed to create a better looking and better usable interface. Tommorow I will add most of the funtionalities. Creating the UI was a struggle because the layouts I used were difficult to position. The UI I managed to create makes use of fixed sizes and is therefore less scalable in size.

Saturday 18th of April 2015

I continued with the UI. I managed to create a very user friendly interface. Alot of data can be shown, because the all the necessary function are present. Tommorow I will figure out which calculations need to be done and which data needs to be shown.

Sunday 19th of April 2015

Today I managed to create the calculation of the yield curve. A few things are still not clear for me. I don't know how I should implement the balance in the yield curve. Because the X-axis needs to be predefined if I want to have a correct yeild curve. I also added some controls to the simulator, but performance is starting to be an issue. Tommorow I will try to figure out how I can solve this problem and I will do some more literture research to come up with another selection rule.

Week 4

Monday 20th of April 2015

Today I did some more research and managed to create a basis for maybe two more selection rules. These rules are bases on two other game theories, prisoners dilemma and the centipede game. I also tried to figure out how I can solve the performance problem. I managed to figure out how threads work in Python. Threads might be the solution after all. I also added the balance rule to the simulator.

Tuesday 21th of April 2015

Today I met with my supervisor. We discussed some more options. I understand the Yield curve now. The Community effect should be calculated by calculating the transaction percentage of each good for each agent. Each good is used in a certain amount of transactions. This amount is a percentage of the total transactions. We also decided to create two different simulations. One simulation executes the transactions one after the other, the other simulation executes the transactions parallel.

Wednesday 22th of April 2015

Today I managed to fix the matplotlib plots. I can now have multiple plots on the same screen. I also tried to calculate the community effect. These calculations are a bit difficult to understand so it's not fully done. I can also plot a correct yield curve.

Thursday 23th of April 2015

Today I added an option to choose between simulation types, parallel and one by one.

Friday 24th of April 2015

Today I created a table of contents.

Saturday 25th of April 2015

I managed to finish the calculation of the community effect and I also created an animated visualisation.

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12