CA314 Scrabble - Final Assignment

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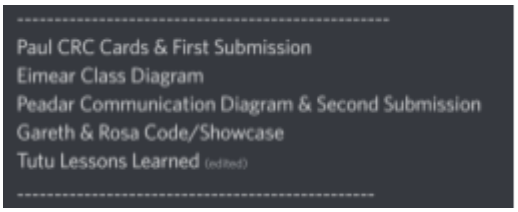
GitLab Repo Link: https://gitlab.computing.dcu.ie/duannr2/ca314-scrabble

Introduction

In this report, we will summarize the final state of our Scrabble project, any changes we made since the presentation and the lessons we learned along the way including what we would do differently.

Agile Method Summary

At the end of this project, we had a good idea of how the agile process works and can enable better development of software projects. During the project, we have shown how we have been organising frequent standups with each other and also tracking our progress during each submission via Jira.
During this final stretch of the project, we wanted to keep on top of things before we had our presentation. We continued to have frequent meetings with each other to delegate our work and share feedback on how we were doing.
We did not continue to keep up with the Jira board as it was just another tool that we would have to check and keep up with alongside our project and other college work. Instead, we worked much better from meeting to meeting delegating clear sections of work to each member and then checking on those tasks in the next meeting. We also sent a message after each meeting into our chat to show what we had talked about and the work delegated, here is an example of the delegation of work for the slideshow presentation:



Example of our delegation for the slideshow

Final Form of our Project

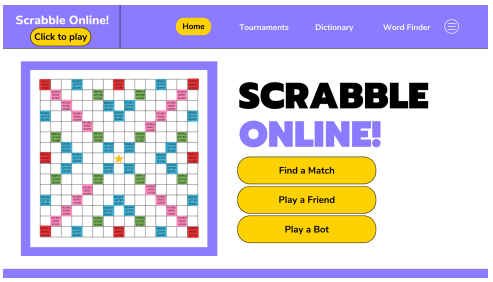
Our final submission for the project is a terminal version of Scrabble. We did not have time to research and implement both UI and Networking for our game while also getting all the classes working how we wanted to we decided to prioritise as a team to get the backend working and present it in a terminal version instead of a GUI.

We were able to create implementations for all of the classes that we planned including a player class, board class, tile rack class and others from our class diagram. You can see the full code for our classes in our GitLab repo *here*.

To run the terminal version of scrabble you just have to go into the src directory and run the main.py file, this file is the runner file for the game, it is pretty short and mostly just used functions of the classes to run the game.

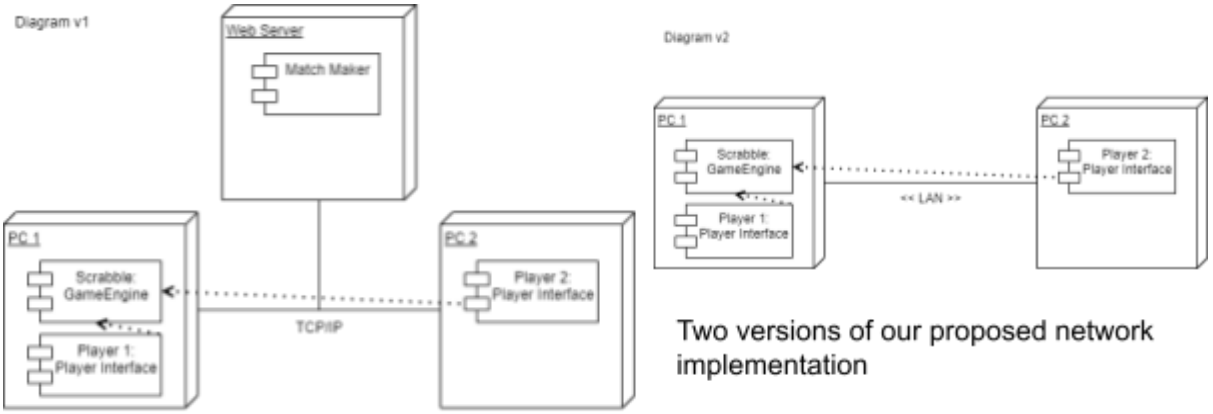
The UI class is the main class the runner file accesses it is a pseudo-façade for the rest of the classes, it contains the board, tile bag, dictionary and all the player objects for the game.

One interesting thing we did to the UI class (and also the board) was to implement the singleton pattern, we did not want the code to have the ability to create more than one UI object because that would require the code to instantiate a lot of new objects and do setup for them, so we implemented the singleton pattern, and then if a new instance of the UI class is made it instead redirects to the already existing UI object.



We would have liked to implement a more full UI and also tried out networking, but at the end of the time we had to prioritise what we wanted to get done, we had plans to do our UI using PyGame to create a UI similar in style to our UI mockup.

We also had our initial plans to implement the networking, we had created our initial network diagram during the second submission which laid the foundation for what we would do, like how the class diagram planned out how we would implement the classes.



Two versions of our proposed network implementation

Changes made since the Presentation

Not much has changed since the presentation, mostly code has just been cleaned and neatened in the repo (commented code is found in /src not /prototype), and we also did some further bug fixing and testing before recording the demonstration below, you can find some of the testing we did in the prototype directory, each test-x.py file was used to test different objects and interactions.

Demonstration

Linked here is a quick two-minute walkthrough of our terminal version of scrabble.
https://www.youtube.com/watch?v=GKwvZ0jES9g&ab_channel=GarethHogan

Lessons learned

Here are some of the lessons we learned from all parts of the submission:

- Regular meetings work well: Regular meetings to discuss the upcoming deliverables and work to be done worked well to motivate us and to not stagnate the team in getting things done.
- Design before Implementation: Getting our entire design out of the way before starting implementation helped us to know what exactly we needed to get done when we were coding instead of adding things as we discovered we needed them
- Add methods to classes: Dividing our work into the OO style with lots of classes and methods inside them helped immensely when putting together the final runner for the game. Because of all the methods we had built into our classes we only needed a short main.py with three functions `setup()`, `main()` and `replay()` to power the main loop of the game.

Here are some things we would do differently if we did this again:

- Create a consistent meeting time: before each meeting, we would have to discuss what time and where (online or in person) and it slowed down the meeting. It would be better next time to have a consistent weekly time and place that everyone can attend.
- Be more ambitious with tasks delegated: especially during submissions 1 and 2 we think we could have divided more work earlier so we did not come under as much time pressure near deadlines.
- Divide work better by strengths: Some of our team were not as strong at programming so during the final implementation we had less work to give them, we should have delegated other things to them such as research or prototyping of UI and Networking
- Took on work earlier: We were a bit late in starting to prototype and implement, we should have gotten the basics implemented earlier so that in the short time between submission 2 and the presentations we might have been able to do UI and Networking

Meeting Minutes

Here are the minutes for the meetings we had since submission 2:

Tuesday 15/11, 11.00-11.15
Attendants: Peadar, Gareth, Rosa, Eimear
- Overview of what has to be done for the last 2 submissions
- Prioritised what parts to do first, get it working on the backend before UI and network
- Divided work to be done, everyone does a class by Sunday, meet on Monday or Tuesday

Thursday 24/11, 12.00-12.30
Attendants: Paul, Gareth, Rosa, Eimear
- Discussed progress in implementation
- Made up an overview of what the presentation would look like
- Split up the presentation of the slideshow into parts and delegated them

Sunday 27/11, 16.00-16.30
Attendants: Paul, Peadar, Rosa, Tutu, Gareth
- Went through and gave feedback on everyone's slides
- did a mock run-through of how we would do for the presentation