Defence Science and Technology Group (DSTG) and Swordfish Computing Project

Distributed Decision-Making

THE UNIVERSITY of ADELAIDE

Sprint Retrospective 2 – a1734056

Group COMPLEX 8

a1734056	Hayden Lee
a1734069	Vinh Nguyen
a1743599	Nathan Van der Hoek
a1744852	Harrison Bagley
a1746088	Daniel O'Connor
a1746146	Patrick Capaldo
a1748751	Sarah Damin
a1749935	Sam Davies
a1773841	Hayley Richardson

What went well in the sprint?

In the second sprint, the team was well acquainted with the project and familiar with the agile project management methodologies. We were able to collectively implement the improvements that we committed in the first sprint retrospective. Firstly there was a lot more focus and direction both in the meetings and in our individual work, which each team member was able to share in the shared 'weekly updates' document. As a result, the meetings were streamlined, and more measurable tasks were being accomplished. From a software development perspective, this was a substantial improvement as more time and resources were being directed into looking to the future and more action-oriented, instead of reviewing activities over the past week. Communication was also significantly improved, as there was a lot of questions and discussions between various sub-teams. Use of the slack channel was also improved, which helped facilitate updates with the product owner.

What could be improved?

An agreed consensus was that the GitHub project board was still not being used to its full capability. There was very little breakdown of tasks, which mean that cards were not really being moved across each column even if work was being done. The standup bot was also not being used everyday as intended, and the overall activity of standup acknowledgement was low. These factors collectively resulted in difficulties in tracking day to day progress, although we addressed this as best we could with the 'weekly updates' document. However, entries into this document were not being made until the morning of the meeting, which sometimes made catching up on weekly activities inefficient. Overall, this resulted in a little uncertainty within the software development team which slowed down some parts of the sprint.

What will the group commit to improve in the next sprint?

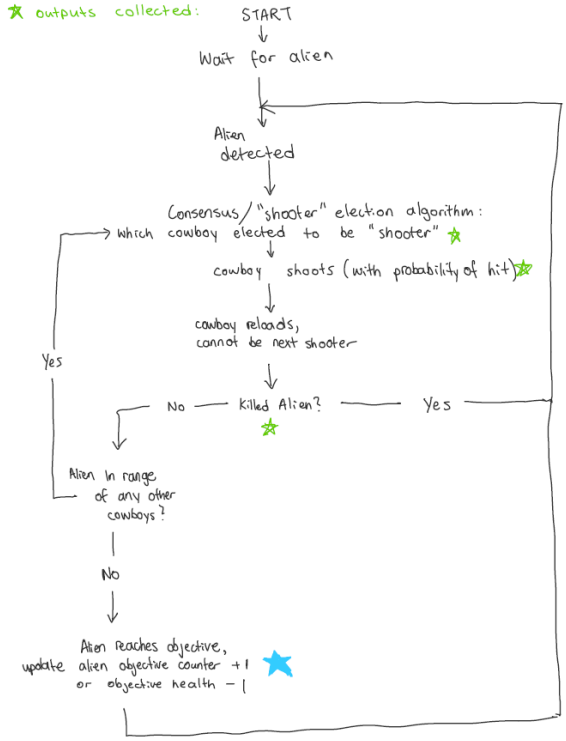
The group will be maintaining the GitHub project board more regularly to ensure that sprint tasks are being accomplished on time. This will include each individual taking responsibility for refining, specifying, and breaking down sprint backlog user stories into tasks. This will also done for the product backlog tasks so that they can be easily assigned during the sprint planning meeting. For the weekly update document, we will also include screenshots/tasks from the GitHub board to present a clearer summary of what was accomplished in each week. We will also develop better habits for this document in terms of writing our summaries before Monday to allow for enough time for people to read before the meeting. We also aim to be more disciplined with the Slack standup bot and use it to properly document what we plan to work on for that day. In addition to the Slack standup channel, we will also maintain communication in the complex8 general channel so that we reach out to our product owner without hesitation if we come across any uncertainties. These changes should ameliorate the difficulties experienced in this past sprint, which should help software development for the upcoming sprint.

Comment on your progress this sprint

My tasks:

- Metrics / outputs #25
- Configuration Profiles #3
- Frontend GUI
- Cowboy behaviours

The first task I was assigned and worked on was the metrics/outputs task, which involved formally specifying what outputs will be collected from a (MVP) simulation to compare DDM algorithms. To contextualise this and formulate appropriately measurable metrics, I broke down and generated a cowboy behaviour flowchart which I presented and discussed briefly with the behaviours team:



Effectiveness Metrics

1. User specifies simulation runtime.
   How many aliens reach objective during the specified timespan?

Simulation output tabulated

DDM Algorithm	Number of aliens that reached objective
Alg 1	10
Alg 2	20
Alg 3	30

⇒ Alg 1 performed best

2. User specifies objective health.
   For each alien that reaches objective, decrement health counter.
   How long does it take before health reaches 0?

Simulation output tabulated:

DDM Algorithm	objective Time survived (seconds)
Alg 1	10
Alg 2	20
Alg 3	30

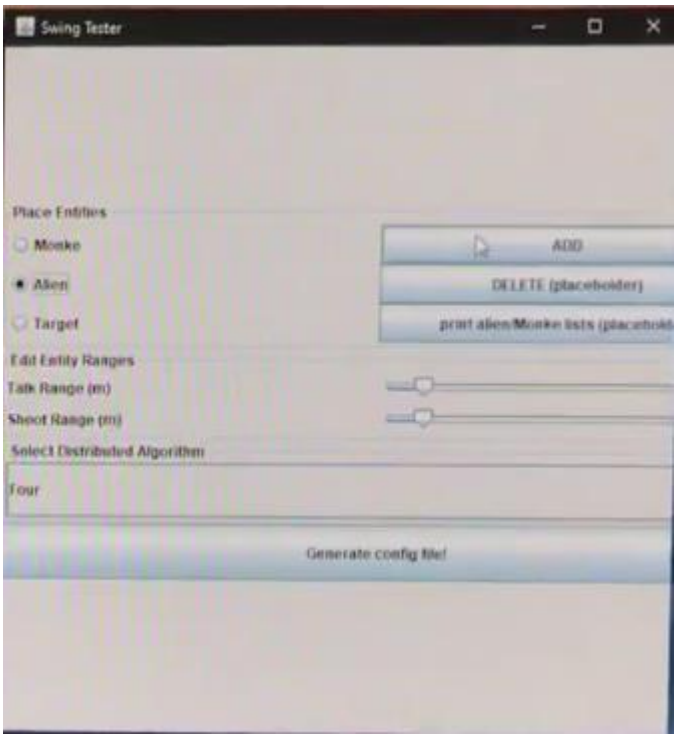
⇒ Alg 3 performed best

Recorded event outputs:

Objective health 100
Alien 1 detected
cowboy 1, 2, 7 in range
cowboy 2 with 0.9 probability elected shooter
cowboy 2 FAIL hit
cowboy 1, 7 in range
cowboy 7 with 0.8 probability elected shooter
cowboy 7 SUCCESS hit
Alien 1 destroyed

Objective health 100
Alien 2 detected
cowboy 4 in range
cowboy 4 with 0.9 probability elected shooter
cowboy 4 FAIL hit
no cowboys in range
no elected shooters
Alien 2 reached objective and destroyed
Objective health 99

The effectiveness metrics will be based on the number of aliens that reach the objective or the length of time that the cowboy HQ survives, depending if the user specifies a simulation runtime or cowboy HQ health respectively. I also worked on extending the frontend UI to interact with the user created configuration profiles. This involved learning how to work with JSON files and setting up functionality with the frontend mockup to actually produce cowboy and alien agents. At the end of a sprint, the UI was able to generate and store lists of user-created agents, which could then be outputted as a .json object. A screenshot of the UI and an example of a config.json file is shown below.



26 lines (26 sloc) | 491 Bytes

```
{
    "aliens": [],
    "Monkes": [
        {
            "yPos": 77,
            "Talk Range": 10,
            "Shoot Range": 10,
            "ID": 0,
            "xPos": 93
        },
        {
            "yPos": 25,
            "Talk Range": 10,
            "Shoot Range": 10,
            "ID": 1,
            "xPos": 4
        },
        {
            "yPos": 86,
            "Talk Range": 10,
            "Shoot Range": 10,
            "ID": 2,
            "xPos": 66
        }
    ]
}
```

As I was mostly working on my own for these tasks, the complexity was relatively high which kept me preoccupied throughout the sprint. A screenshot of my commits for the UI is shown below.