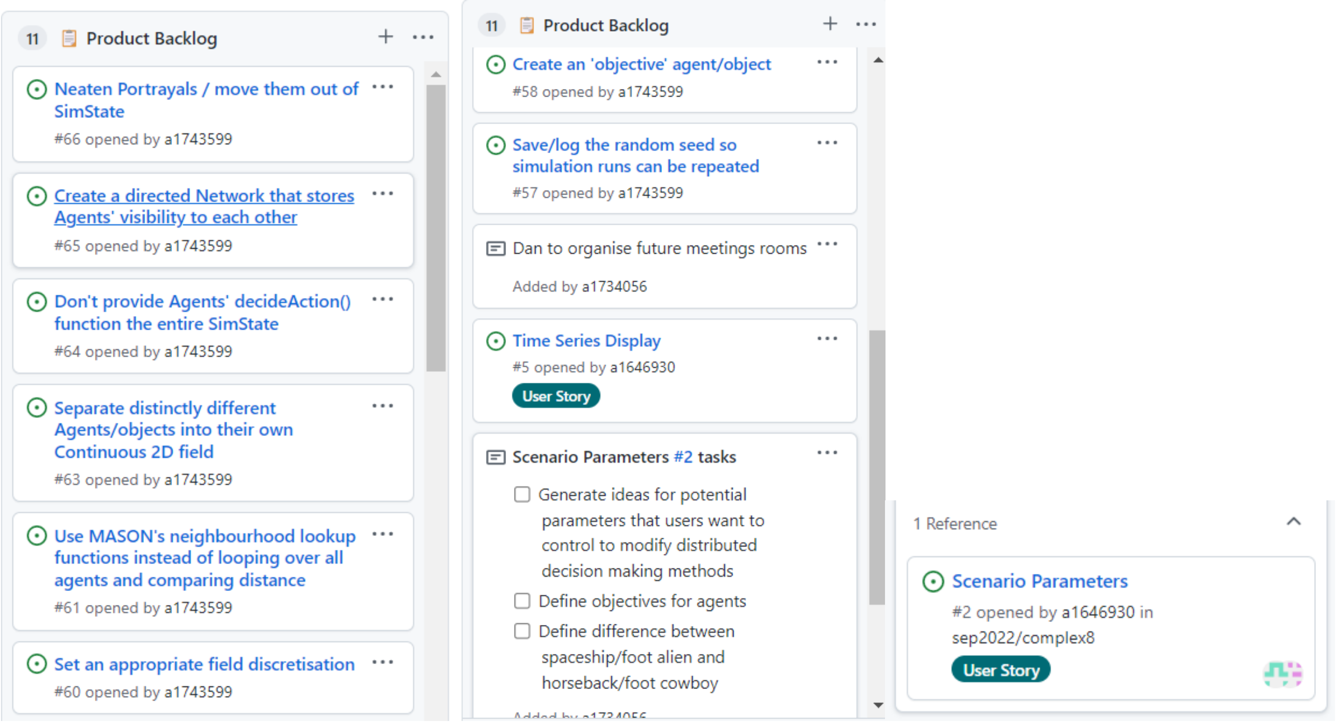
Snapshot Week 11 of Group COMPLEX 8

Defence Science and Technology Group (DSTG) and Swordfish Computing Project Proposal: Distributed Decision-Making

THE UNIVERSITY *of* ADELAIDE

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

1. Product Backlog and Task Board



11 Product Backlog

Neaten Portrayals / move them out of SimState
#66 opened by a1743599

Create a directed Network that stores Agents' visibility to each other
#65 opened by a1743599

Don't provide Agents' decideAction() function the entire SimState
#64 opened by a1743599

Separate distinctly different Agents/objects into their own Continuous 2D field
#63 opened by a1743599

Use MASON's neighbourhood lookup functions instead of looping over all agents and comparing distance
#61 opened by a1743599

Set an appropriate field discretisation
#60 opened by a1743599

11 Product Backlog

Create an 'objective' agent/object
#58 opened by a1743599

Save/log the random seed so simulation runs can be repeated
#57 opened by a1743599

Dan to organise future meetings rooms
Added by a1734056

Time Series Display
#5 opened by a1646930
User Story

Scenario Parameters #2 tasks

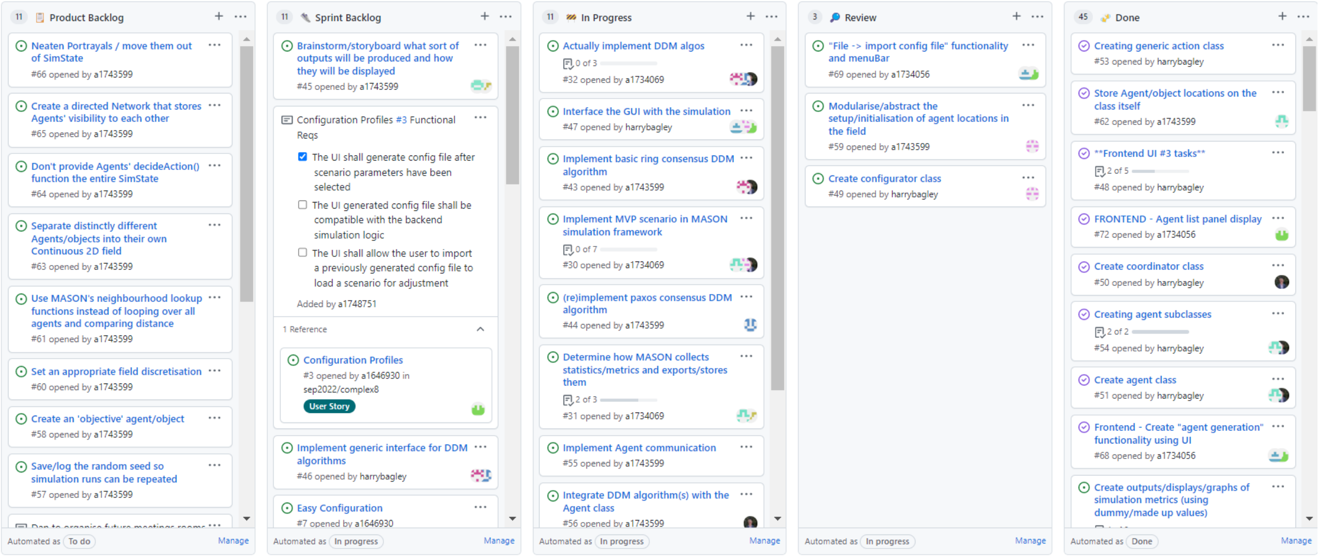
- ☐ Generate ideas for potential parameters that users want to control to modify distributed decision making methods
- ☐ Define objectives for agents
- ☐ Define difference between spaceship/foot alien and horseback/foot cowboy

Added by a1734056

1 Reference

Scenario Parameters
#2 opened by a1646930 in sep2022/complex8
User Story

Figure 1: Product Backlog Screenshot



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Automated as To do — Manage

11 Sprint Backlog

Brainstorm/storyboard what sort of outputs will be produced and how they will be displayed
#45 opened by a1743599

Configuration Profiles #3 Functional Reqs

- ☑ The UI shall generate config file after scenario parameters have been selected
- ☐ The UI generated config file shall be compatible with the backend simulation logic
- ☐ The UI shall allow the user to import a previously generated config file to load a scenario for adjustment

Added by a1748751

1 Reference

Configuration Profiles
#3 opened by a1646930 in sep2022/complex8
User Story

Implement generic interface for DDM algorithms
#46 opened by harrybagley

Easy Configuration
#7 opened by a1646930

Automated as In progress — Manage

11 In Progress

Actually implement DDM algos
0 of 3
#32 opened by a1734069

Interface the GUI with the simulation
#47 opened by harrybagley

Implement basic ring consensus DDM algorithm
#43 opened by a1743599

Implement MVP scenario in MASON simulation framework
0 of 7
#30 opened by a1734069

(re)implement paxos consensus DDM algorithm
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Determine how MASON collects statistics/metrics and exports/stores them
2 of 3
#31 opened by a1734069

Implement Agent communication
#55 opened by a1743599

Integrate DDM algorithm(s) with the Agent class
#56 opened by a1743599

Automated as In progress — Manage

3 Review

"File -> import config file" functionality and menuBar
#69 opened by a1734056

Modularise/abstract the setup/initialisation of agent locations in the field
#59 opened by a1743599

Create configurator class
#49 opened by harrybagley

Automated as In progress — Manage

45 Done

Creating generic action class
#53 opened by harrybagley

Store Agent/object locations on the class itself
#62 opened by a1743599

Frontend UI #3 tasks
2 of 5
#48 opened by harrybagley

FRONTEND - Agent list panel display
#72 opened by a1734056

Create coordinator class
#50 opened by harrybagley

Creating agent subclasses
2 of 2
#54 opened by harrybagley

Create agent class
#51 opened by harrybagley

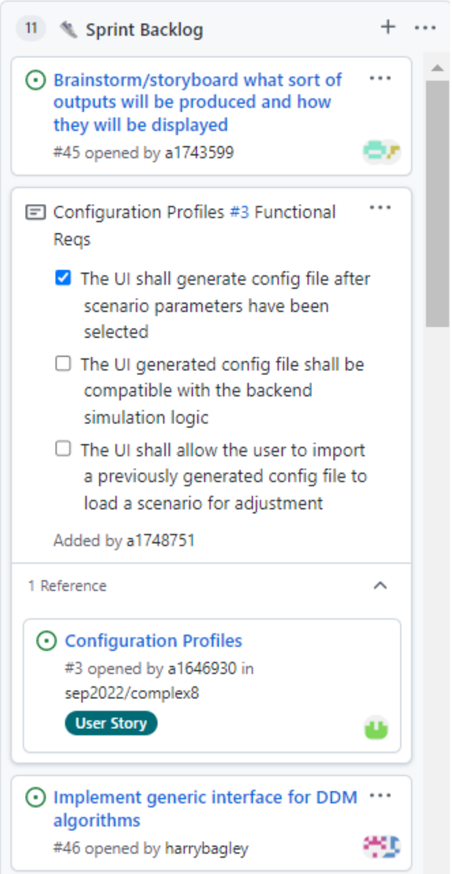
Frontend - Create "agent generation" functionality using UI
#68 opened by a1734056

Create outputs/displays/graphs of simulation metrics (using dummy/made up values)

Automated as Done — Manage

Figure 2: Task Board Screenshot

2. Sprint Backlog and User Stories:



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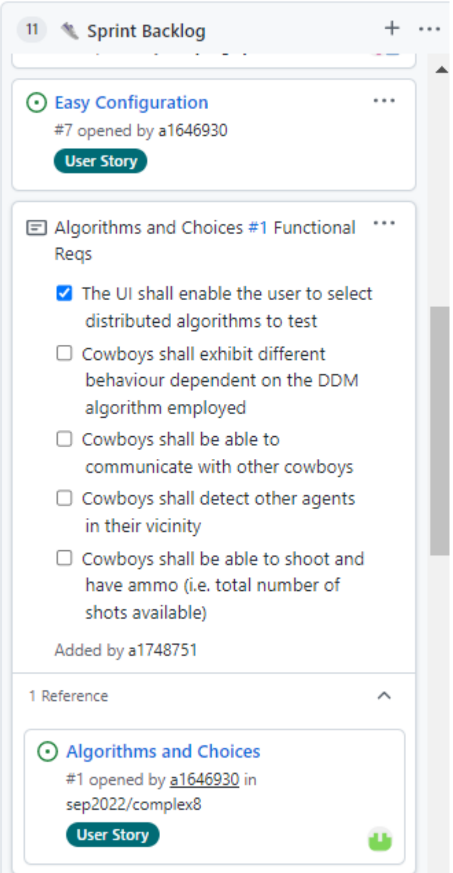


11 Sprint Backlog

Easy Configuration
#7 opened by a1646930
User Story

Algorithms and Choices #1 Functional Reqs

☑ The UI shall enable the user to select distributed algorithms to test

☐ Cowboys shall exhibit different behaviour dependent on the DDM algorithm employed

☐ Cowboys shall be able to communicate with other cowboys

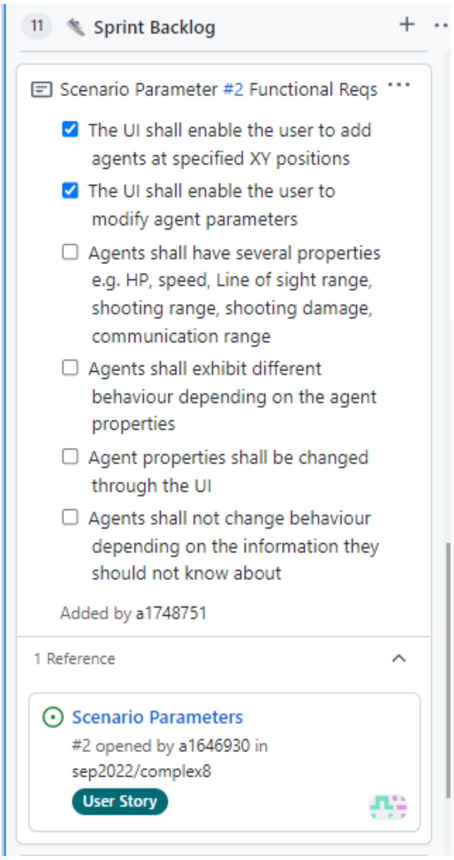
☐ Cowboys shall detect other agents in their vicinity

☐ Cowboys shall be able to shoot and have ammo (i.e. total number of shots available)

Added by a1748751

1 Reference

Algorithms and Choices
#1 opened by a1646930 in sep2022/complex8
User Story



11 Sprint Backlog

Scenario Parameter #2 Functional Reqs

☑ The UI shall enable the user to add agents at specified XY positions

☑ The UI shall enable the user to modify agent parameters

☐ Agents shall have several properties e.g. HP, speed, Line of sight range, shooting range, shooting damage, communication range

☐ Agents shall exhibit different behaviour depending on the agent properties

☐ Agent properties shall be changed through the UI

☐ Agents shall not change behaviour depending on the information they should not know about

Added by a1748751

1 Reference

Scenario Parameters
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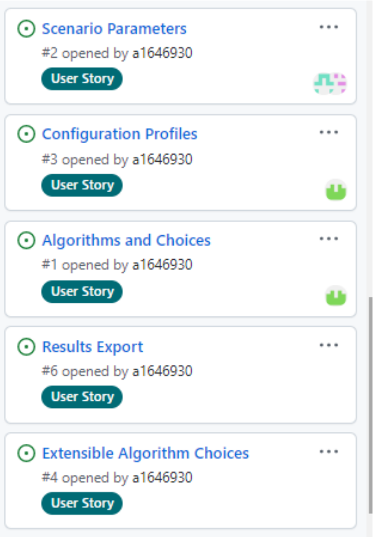


Scenario Parameters
#2 opened by a1646930
User Story

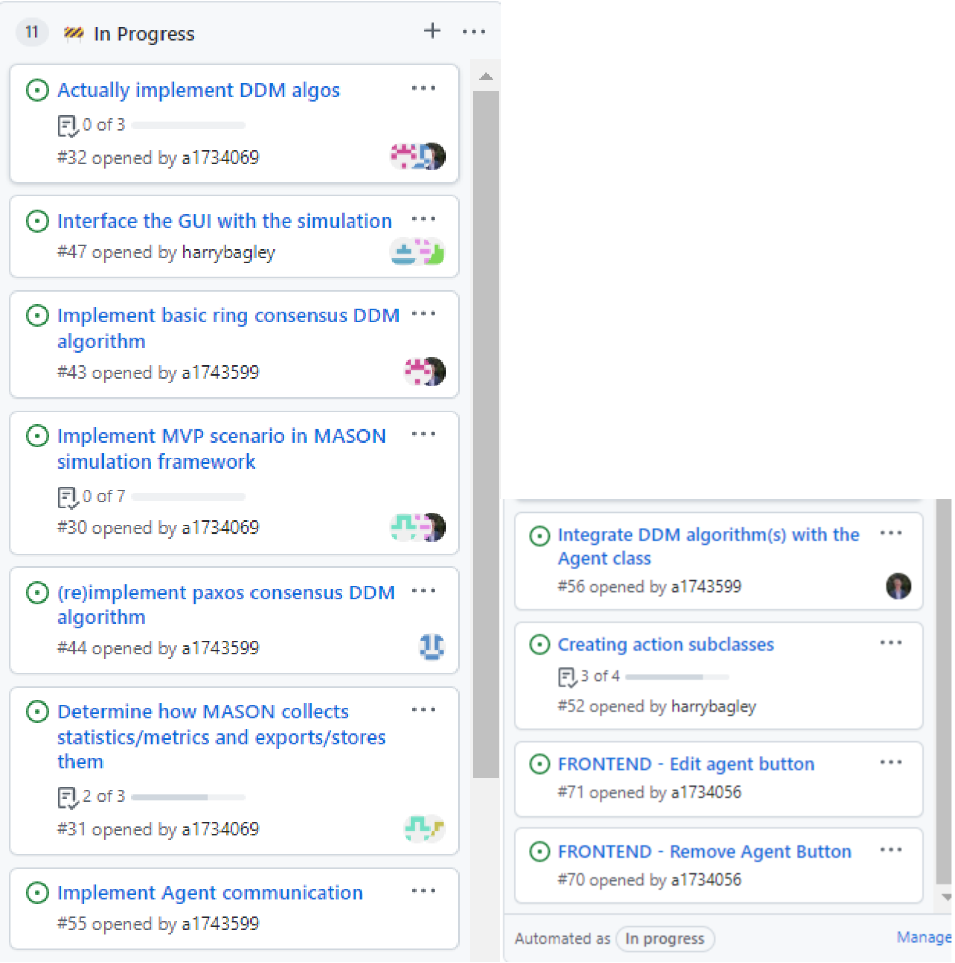
Configuration Profiles
#3 opened by a1646930
User Story

Algorithms and Choices
#1 opened by a1646930
User Story

Results Export
#6 opened by a1646930
User Story

Extensible Algorithm Choices
#4 opened by a1646930
User Story

In-progress items:



11 In Progress + ···

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Integrate DDM algorithm(s) with the Agent class ···
#56 opened by a1743599

Creating action subclasses ···
3 of 4
#52 opened by harrybagley

FRONTEND - Edit agent button ···
#71 opened by a1734056

FRONTEND - Remove Agent Button ···
#70 opened by a1734056

Automated as In progress Manage

Figure 3: Sprint 3 in-progress items

No new user stories have been included into this sprint so far. Therefore, the current user stories and their descriptions for this sprint are:

1. Configuration Profiles: saving configuration settings in some manner such that to re-run an experiment, all the parameters do not need to be manually input again.
2. Scenario Parameters: providing the user with control over the experimental parameters before the simulation begins.
3. Algorithms and Choices: allowing the user to select a type of distributed decision-making algorithm to experiment with.
4. Results Export: moving the logs of the simulation into a results format which are useful to the experimenter in comparing distributed decision-making algorithms.
5. Extensible Algorithm Choices: allowing the user to easily add new decision-making algorithms to the pre-defined list provided by “Algorithms and Choices”

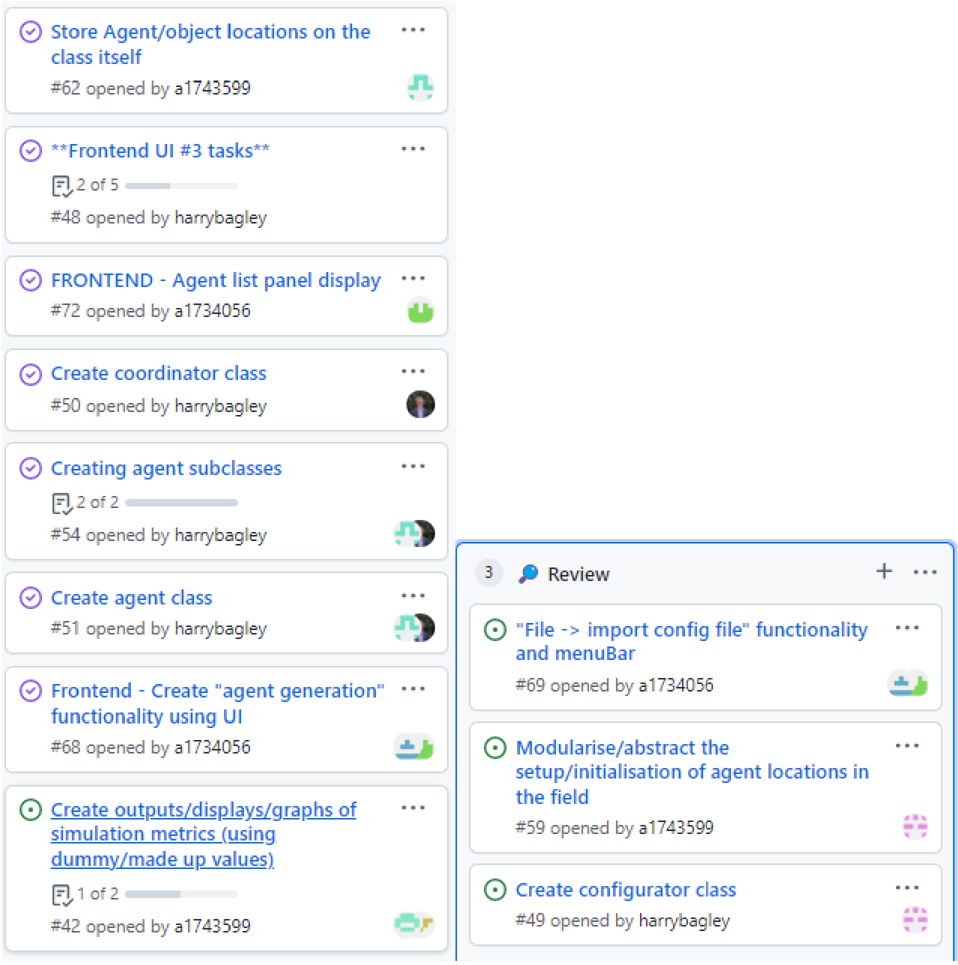
Progress has been made on all these user stories in previous sprints. The aim for this sprint is to complete the final touches in order to get them all ticked off and achieve our MVP. This will be achieved by the end of the sprint by the team’s integration of all the different software components including the front-end, the simulation, the scoring modules, the output modules and the DDM algorithm modules.

3. Definition of Done:

- Code written and commented
- Documentation written and updated
- Code peer-reviewed
- Documentation peer-reviewed
- Code architecture conforms to specified design pattern.
- Tests written and passing
- Non-functional requirements met (UX, performance, availability)
- Acceptance criteria fulfilled

4. Summary of Changes:

Since the last team snapshot, these items on the sprint backlog were completed:



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The items awaiting review will be reviewed and merged into the main git branch, then moved to ‘done’ in the team’s next weekly meeting.

Over the last sprint, the team was able to complete a lot of tasks and make significant progress in implementing the simulation. This work was mostly undertaken in sub-teams which included the frontend, the backend, the algorithms team and the outputs team, in order to target last sprint’s priorities.

The frontend team were able to complete tasks #48, #72 and #68 which involved implementing a panel to show the list of agents being added to the simulation, and further modularisation of the code.

The backend team worked on tasks #62, #50, #54 and #51 which involved implementing the simulation using the MASON framework whilst adhering to the defined architecture developed at the beginning of the project.

The algorithms team made significant progress on their tasks which involved creating implementations of various DDM algorithms. Whilst the simulation is being developed this team have had to undertake this work decoupled from the rest of the code. Therefore greater progress is envisaged when these parts can be integrated together.

Finally, the output team also developed code in isolation to the simulation to generate displays of data. This contributed to tasks #42.

The remainder of the sprint is focused on integrating all these components to reach an MVP simulation that can address the 5 given user stories. Progress on integration has already begun. Nathan has worked closely with the algorithms team to link their implementations in with the simulation. Harry has begun integrating the work of the outputs team with a scoring class in order to assist in displaying results. And the front-end team have been briefed on how to begin the simulation to tie it in with their code. Progress has also been made by Vinh to further improve the visibility and understanding of messages during the game.