Coursework Feedback: The Ballad of Cells and Ants

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This document lays out your scores and commentary feedback for the first coursework of CS141 Functional Programming.

Correctness 24/24

Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6	Ex. 7	Ex. 8
2/2	2/2	5/5	5/5	4/4	1/1	2/2	3/3

Elegance 13/18

Your code is well structured throughout and, where you were able to find a suitable FP abstraction, quite clean. There are definitely some places where a better pattern would have helped the code a lot: mostly around Exs 3 and 5. It is very cool that you have implemented some in-line testing tools to help yourself write good code, but it might have been a good idea to extract these into a different module, so that it doesn't impact the readability of the original work.

Justification 18/18

The justification is extremely thorough and showcases excellent understanding of FP fundamentals. There are some slightly odd choices of separators in a few places (what does /==–==/ mean?) but this doesn't impact the quality of the writing. Well done for going through some alternative approaches and weighing up the pros and cons. Please bear in mind that the report for Coursework 2 is bounded above at 2 pages, so you will need to write concisely to include your architectural choices and evaluation in there.

Ex. 9 30/40

You have implemented Langton's Ant according to the specification, and it renders nicely. The code is easy to follow. The "iterate" function could have skipped the need for "getStateAtN". Good use of a where block to hide these definitions from the top level. The documentation is clear, as for Exs. 1-8. Given your strong understanding of FP, there was definitely scope to do something more exciting and show off a bit of extra FP flair!

General Comment (may be blank)

The choice to profile and test some of the trickier parts of the coursework is very interesting and shows good intuition for FP. We have considered this to be a small extension to the coursework and have increased your mark accordingly (+5).

Total mark: 90 / 100

Some additional notes, which might overlap with the above:

- Recall that elegance, justification and Ex. 9 are marked on (roughly) the 20 point marking scale, which is a subjective assessment of the quality of the approach, not a strict "right or wrong".
- To improve elegance, always look for appropriate idioms, patterns and abstractions that match the problem at hand. A good grasp on Prelude (and, for Hurtle, `Control.Monad` and the `megaparsec` library) will go a long way.
- For a superior mark on justification, make sure you are explaining your code in detail, and addressing all the questions asked in the specification. In the second coursework, your high-level choices will go in the report, but the code is still expected to be readable and easy to navigate.