A Farm Simulation using Swing and Concurrency

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March 12, 2020

1 Introduction

This report aims to describe the work developed for the first assignment of the course of 'Software Architecture', explaining the overall architecture and describing its components and respective communication channels and elaborating on the adopted solutions for concurrency. We also mention how the work was distributed amongst the authors.

The Java application has the purpose of conducting harvest simulations on an agricultural farm. Along with the technical aspects of the implementation, we also elaborate on the adopted solutions for concurrency. Efforts on making the UI highly usable and the code readable and well documented are also stated here. All code developed is publicly accessible in our GitHub repository:

`https://github.com/FilipePires98/AS/`.

2 The Agricultural Farm

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2.1 Control Center

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2.2 Farm Infrastructure

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3 System Architecture

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3.1 Components

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3.2 User Interface

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4 Concurrency Strategy

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4.1 Communications

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4.2 Farmers

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5 Documentation

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6 Discussion

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Regarding the work distribution amongst developers, a close-contact strategy was defined where each worked on a piece of software according to a predefined plan. The project structure and architecture was decided in conjunction, as well as the key concurrency solutions chosen.

Nevertheless, some relatively independent task distribution was defined: João implemented the Granary and Path monitors, while Filipe did the Storehouse and Standing monitors; João established socket communications and respective message processors, while Filipe designed the user interface and respective interaction with the remaining components. Bug and error solving was made along the development phase by both developers any time it was required.

Once the final version of the application was completed, this report and the code documentation became our primary concern, with both contributing equally.

7 Conclusions

After completing the assignment, we drew a few conclusions regarding the topics here explored and our endeavor to deliver work of quality.

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References

1. Óscar Pereira, *SA: Practical Assignment no.1*, University of Aveiro, 2019/20.