5COM2007-0905-2023 Principles and practices of large-scale programming.

CWK4 CARE report

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Technical Report

Tasked with the responsibility of developing an early prototype of a game our team, comprised of four members we were able to device ways to tackle a variety of tasks each tailored to suit specific needs of the game as per the specification provided in the case study.

Taking advantage of numerous software packages to be specific; Jira software for Kanban, GitHub as repository tool, WhatsApp for effective communication. We were able to measure our progress, reach out to one another and most importantly posted and updated our daily contributions on GitHub and Kanban respectively. Our project plan as stipulated in fig xx acted as our daily guide as it clearly detailed out the task's specification and guidelines as well as deadlines. Apart from the weekly in person group meetings, we also had two online sessions a week which were meant to show our current progress from the in-person meeting where each member had a chance to share their screen and show to others what he did to meet the group agenda.

Thanks to this module that we were able to utilize software like GitHub and Kanban board for the first time. GitHub being very efficient in areas such as version control, enabled members to track and manage changes to software codes, which were then reviewed by the second developer in charge of the tasks and upon approval and testing of the latter the task in question, was marked as a success.

We took advantage of the project management tools offered in GitHub, such as project board whose spreadsheet helped us to track our work. One drive which was another option we could have been used for the repository management of our work as it has both File storage and version history which allows users to store files in the cloud as well. In addition to allowing them to revert to previous versions of the file, OneDrive could not offer the same benefits as GitHub and despite it having the two similarities it lacked a method of amending codes and branches preventing developers to work simultaneously, due to lack of a built-in version control. One drive also lacks various collaboration features such as pull request, code reviews and integrated issue trafficking which makes collaboration difficult.

For our project implementation we preferred the use of **IntelliJ** as our development environment over BlueJ, due to extensive features for code development, code navigation, debugging capabilities, auto-completion and although it's a primarily a professional tool, it supports educational use through its Edu Tools plugin which allows for creating and managing interactive programming courses. On the other hand, BlueJ provides basic tools for editing, compiling and testing java code as well as providing a UML diagram within the system. It includes a simple debugger and interactive testing features but lacks more advanced development tools. In summary, Blue j whose core purpose is for teaching and thus completely opposite in what this project was aimed at which is preparing us for future professional roles hence the need of using Intelli J . In contrast IntelliJ is a robust, full featured IDE designed for professional developers offering a far greater functionality but at a complexity and cost. In general, each tool excels in its respective environment and for this instance we assumed that our program leader was preparing us on a professional basis and thus the need to specify IntelliJ in the assignment guidelines.

With the need of organizing, managing and visualizing tasks and projects, we took advantage of Microsoft whiteboard and Kanban board which share some similarities on how they can be utilized especially in

collaborative environments. With both providing a visual means of organizing information, this helped the team to see the status of the tasks and projects at glance fig xx and fig xx provides a layout of our Microsoft whiteboard and Kanban respectively (figures xx), below enabling markers to have a clear follow up of events or tasks in those three weeks designated for the project each week had different tasks which had to be completed in a span of five business days and left the weekends for demonstration during the online meetings.

The accessibility of this tool allowed group members to access the Kanban though their pc or mobile device. After a team member updated the Kanban board, these changes were instantly visible to all group members helping to keep everyone on the same page. In summary of the two, While Microsoft Whiteboard is generally used for more freeform creative and collaborative efforts and Kanban is specifically designed for workflow visualization and project management, their functionalities overlap in areas related to visual task management, collaboration, and flexible adaptation to different work scenarios. This was not a major issue as they both enabled us to organize information visually, collaborate effectively, and manage the project dynamically.

Finally, there was the social media platform “WhatsApp” developed by Brian Acton, that enabled members to post any urgent queries regarding the project. This was the backbone of the project success and was where we were able to arrange, confirm and re-schedule meetings. While other platforms such as snapchat, Facebook and Telegram could offer various communication features. We decided WhatsApp was right for us. This is due to its blend of simplicity and widespread adoption.

At times it was a challenge organizing meetings due to incompatible schedules, but I would like to thank my group members namely Ubong Udoette, our primary project manager who was also the primary developer , Mathew Lay, one of the secondary developer and reviewer , Saad Nahian, one of the secondary developer and tester, and finally James Karanja, the author of this report and one of the secondary developers as well as secondary project manager for ensuring that the group had a successful project and all the project agendas were adhered to.

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UML Diagram:

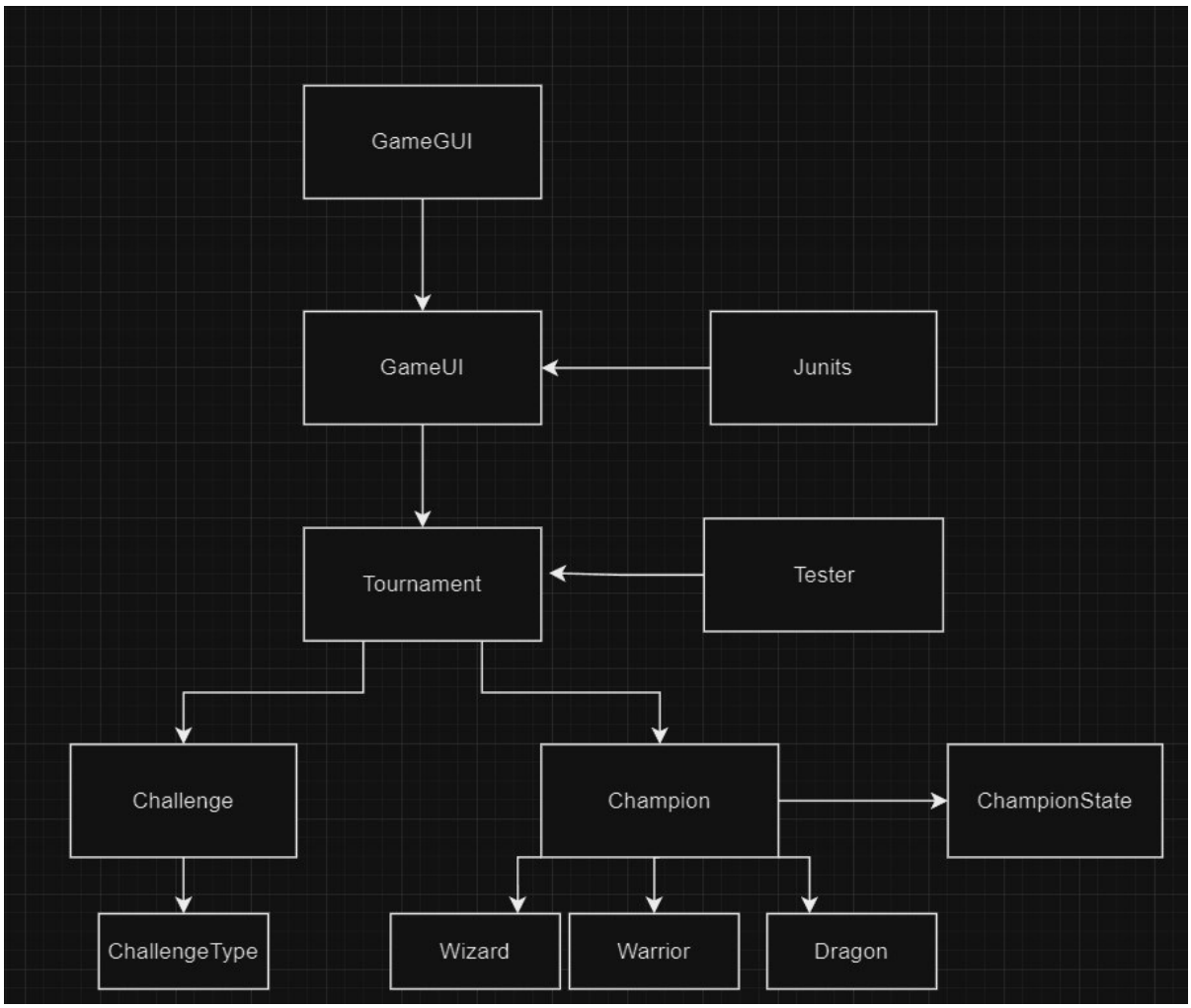

Figure 1: UML Diagram of CARE Project

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Appendix:

The figures below show some of the episodes of WhatsApp communication during the project.