**Introduction to C++ – Task 3**

A screenshot of a computer

Description automatically generatedGitHub repository: <https://github.com/halenf/itcpp-task3>

A screenshot of a computer

Description automatically generatedMerge commit: <https://github.com/halenf/itcpp-task3/commit/3c171472100f6e538f4b9b43bedd75c73831833a>

A screenshot of a computer

Description automatically generatedPull request: <https://github.com/halenf/itcpp-task3/pull/1>

**Problem Statement:**

When working collaboratively on computer software, it can be difficult to share changes between team members, especially when everybody is working on different parts of the project on different devices at different times. This results in a lot of time spent collating everyone’s work into a cohesive project, which must happen multiple times over the project’s life to ensure the work each member has done is compatible.

Online file-hosting services like Microsoft’s OneDrive and Google’s Google Drive can make the sharing of resources much easier. However, this can make it really difficult to keep track of changes made to the project files, because in order to share your work, any existing files must be overwritten.

Git is a version control system, allowing users to manage and keep track of a project as it progresses. Git projects or “repositories” can be saved online using third-party file-hosting software such as GitHub which works with Git, adding features to make the process of software development even easier. This includes “branches”, which are versions of the project that can be worked on separately and “pull requests”, that allow changes to the project to be reviewed before being accepted to catch issues before they occur. These services record the entire history of the project as it is worked on, including old versions of files, interactions between team members, and all changes, providing plenty of ways to identify the source of bugs and problems within the project. Having the repository stored online also allows all team members to access it from any device as long as they have an internet connection.

In order to use the service effectively you need to have a good understanding, making it harder for inexperienced users to work efficiently. This can also result in a messy repository, making it difficult for newcomers to the project to understand what sections serve what purpose. Many services like GitHub are free to use, but often have useful features locked away behind a paywall. This can make the service tough to use for teams working on a tight budget.

**Resources:**

*Branching and Merging with GitKraken*, GitKraken, retrieved 5/5/23, <https://help.gitkraken.com/gitkraken-client/branching-and-merging/>.

*Creating a pull request – GitHub Docs*, GitHub, retrieved 5/5/23, <https://docs.github.com/en/pull-requests/collaborating-with-pull-requests/proposing-changes-to-your-work-with-pull-requests/creating-a-pull-request>.

*Git vs Github -What’s the Difference?*, 14/12/22 K. Oguejiofor via Cloud Infrastructure Services, retrieved 5/5/23, <https://cloudinfrastructureservices.co.uk/git-vs-github-whats-the-difference/>.