**Agile Development Process Framework and the Role of**

**Personal Experiences in Workplace Culture**

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**Software Development Using Agile**

**Project Development and Communication**

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**Part 3: Product Support Infrastructure**

To ensure smooth development and track progress effectively, a combination of tools has been selected to support both development and DevOps needs. These tools will help automate processes, track tasks, and maintain a continuous integration and delivery pipeline.

**Infrastructure for Backlog and Progress Tracking:**

**JIRA**: JIRA is the primary tool for managing the backlog and tracking tasks throughout each sprint. It allows for the breakdown of user stories into work items, assigning them to team members, and monitoring progress with boards and reports. The reporting features of JIRA, including burndown charts and sprint velocity reports, are particularly beneficial for tracking remaining work and ensuring deadlines are met (Scrum.org, 2022).

A screenshot of a computer

Description automatically generated(https://github.com/desktop/)

**GitHub**: GitHub serves as the code repository, utilizing pull requests to manage code reviews before merging changes into the main branch. This practice enhances code quality through collaborative review and feedback. Additionally, GitHub integrates seamlessly with JIRA, allowing for automatic updates to task statuses when work is completed, promoting transparency in the development process.

**CI/CD Infrastructure:**

**Jenkins**: Jenkins is employed for continuous integration and delivery (CI/CD). Whenever code is committed to GitHub, Jenkins automatically pulls the latest changes, runs tests, and deploys the code to the staging environment. This setup ensures that the code is tested and deployed quickly without manual intervention, significantly improving the efficiency of the development pipeline (Hollosi, 2011).

**Potential Technical Challenges:**

**JIRA and GitHub Integration**: One technical challenge encountered was ensuring proper synchronization between JIRA and GitHub. To address this, webhooks were implemented to automate status updates in JIRA whenever a developer completes a task and pushes code to GitHub. This integration enhances the workflow and keeps all team members informed.

Jenkins Pipeline: Setting up Jenkins for automated builds and tests presented initial challenges, particularly with the configuration for testing scripts not running as expected. After troubleshooting, modifications were made to the Jenkins file to ensure all tests run successfully before code is deployed to the staging environment. This proactive approach minimizes the risk of deploying untested code.

**Tracking and Reporting Tools:**

**JIRA Reports**: JIRA’s built-in reports provide insights into the team’s sprint velocity, task completion rate, and remaining work. These reports are used during sprint reviews to evaluate team performance and inform future planning.

**New Relic**: For performance monitoring, New Relic is utilized. It tracks the performance of the application in real-time, enabling the team to identify potential bottlenecks or errors early in the process. This visibility is crucial for maintaining application quality and responsiveness.

**Conclusion**

This sprint focused on completing foundational features like account creation while establishing a robust support infrastructure to ensure continuous progress in future sprints. By utilizing tools such as JIRA for backlog management, GitHub for code repository and collaboration, and Jenkins for automated builds and deployment, the team has developed a transparent and efficient system to track, test, and deploy code effectively.

The initial technical challenges encountered have been addressed through automation and integration strategies, reinforcing the importance of continuous learning and adaptability in the Agile process. With these systems in place, the team is well-prepared to move into the next sprint, confidently addressing challenges while delivering value to stakeholders.

**Reference**

Hollosi, J. (2011). Integrating PHP with Windows® (1st ed.). Microsoft Press.

Scrum.org. (2022). The Scrum Guide: The Definitive Guide to Scrum. Retrieved from <https://www.scrum.org/resources/scrum-guide>

New Relic. (n.d.). What is New Relic? Retrieved from <https://newrelic.com>