# Reflection on Bouncing Ball Animation Project

## Introduction

This project involved creating a simple bouncing ball animation using Python's turtle graphics library. The experience was not only a test of my programming skills but also an opportunity to deepen my understanding of version control systems, specifically Git and GitHub.

## What I Learned

- Version Control with Git and GitHub: One of the key learning points was using Git and GitHub effectively. I gained practical experience in managing and organizing code within a repository, which is essential for collaborative development.

- Pull Requests and Merging Code: I learned how to create pull requests, a crucial feature for proposing changes to the codebase and requesting code reviews. This project helped me understand how to review changes, discuss potential improvements, and merge these changes into the main branch, ensuring that the codebase remains stable and up-to-date.

- Branch Management: I learned about branches, which are essentially different versions of the repository. I practiced creating and switching between branches, allowing for parallel development of features without affecting the main or master branch. This is particularly useful for isolating development work without disrupting the functioning version of the project.

## Challenges Faced

- Code Optimization: One of the initial challenges was optimizing the animation to run smoothly. Implementing `screen.tracer(0)` significantly improved the rendering performance.

- Understanding Git Commands: Initially, the various Git commands and their specific purposes (e.g., `git fetch`, `git pull`, `git merge`) were confusing. Over time, through trial and error and a lot of reading, I became more comfortable with these commands.

## Overcoming Challenges

- Research and Practice: To overcome these challenges, I spent time researching best practices for using Python's turtle module and Git commands. Practicing these commands on small test projects helped cement my understanding and build confidence.

- Community Resources: Leveraging online forums and community discussions was immensely helpful. Engaging with the community allowed me to learn from others’ experiences and get feedback on my approach.

## Future Projects

- Automated Testing: In future projects, I plan to incorporate automated testing from the start. This will help ensure that each part of the code functions correctly and will aid in maintaining code quality throughout the development process.

- Advanced Git Techniques: I aim to learn more about advanced Git features such as rebasing and using interactive rebase for cleaner commit histories.

## Conclusion

This project was not only about developing a simple animation but also about learning the tools and techniques that are essential for a collaborative and professional software development environment. I am excited to apply these skills in future projects, ensuring better structured and more efficient code management.

## GitHub Link

https://github.com/Vedant4150/Software-Development-Fundamentals