

**AMERICAN COLLEGE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE**

**Masters Program**

**Software Engineering**

**Lab Report on Git and GitHub Exercise**

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**Lab Report: Git Mastery Challenge**

**1. Setting Up the Repository:**

*Step 1:* **Creating the GitHub Repository**

I started by visiting GitHub (<https://github.com/>) and logged in. Then, I clicked on the "+" icon in the top right corner and selected "New repository." I named the repository "GitMasteryChallenge" and initialized it with a README file.

*Step 2:* **Initializing Local Git Repository**

On my local machine, I opened the terminal and navigated to the desired directory for my project. I ran the commands:

* I run “git init”

This initialized a new local Git repository and linked it to the GitHub repository.

*Step 3:* **Adding README.md File**

I created a new file named README.md in the project directory, added a brief description of the purpose of the repository, and committed the changes:

* I run git add README.md git commit -m "Initial commit: Add README.md" git push -u origin main

This completed the setup of the repository.

**2. Branching and Merging:**

*Step 4:* **Creating and Committing to feature-branch**

I created a new branch named "feature-branch" using:

* I run git checkout feature-branch

I made some commits to this branch:

* I run git add <my file directory> git commit -m "commit message"

*Step 5:* **Switching and Making Changes to README.md on Main Branch**

I switched back to the main branch and made changes to the README.md file:

* I run git checkout main # Make changes to README.md
* git add README.md
* git commit -m "Change in README.md on main branch"

*Step 6:* **Merging Changes from feature-branch into Main**

I merged the changes from feature-branch into the main branch:

* I run git merge feature-branch

*Step 7:* **Resolving Merge Conflicts**

If there were any merge conflicts, I resolved them by editing the conflicted files, adding the changes, and completing the merge:

* I run git add <resolved-files> git merge --continue

**3. Collaboration:**

*Step 8:* **Inviting a Collaborator and Creating collaborative-branch**

I invited a classmate as a collaborator on my GitHub repository. They created a new branch named "collaborative-branch" and we both made some commits each to this branch using the same process as in Step 5.

*Step 9:* **Merging collaborative-branch into Main**

We merged the changes from collaborative-branch into the main branch:

* I run git checkout main git merge collaborative-branch

**4. Pull Requests:**

*Step 10:* **Creating pull-request-branch and Opening a Pull Request**

I created a new branch named "pull-request-branch" using:

* I run git checkout pull-request-branch

I made a few commits to this branch and opened a pull request to merge these changes into the main branch on GitHub.

*Step 11:* **Requesting Review and Approval**

I requested my classmate, who is a collaborator, to review and approve the pull request on GitHub.

**5. Resolving Issues:**

*Step 12:* **Creating and Closing an Issue**

I created a new issue on the GitHub repository, describing a problem or enhancement. I referenced the issue number in one of my commit messages. Then, I closed the issue by resolving the problem or implementing the enhancement.

**Submission Info:**

I pushed all my changes to the GitHub repository:

* I run git push origin --all

I provided the URL of my GitHub repository (https://github.com/BethelhemA/GitMasteryChallenge.git) for submission.

**Additional Notes/Comments:**

I found this exercise to be a comprehensive and hands-on way to reinforce my Git and GitHub skills. Handling branches, pull requests, and collaboration scenarios provided a practical understanding of version control management. Resolving merge conflicts and addressing issues added real-world problem-solving experience. Overall, this exercise was valuable in enhancing my proficiency in using Git and GitHub for collaborative software development.