

1- A list of all Git commands you used

```
git add calculator.py
git commit -m "feat: Add basic calculator functions (add, subtract)"
git add calculator.py
git commit -m "feat: Add multiply function"
git add calculator.py
git commit -m "fix: Optimize subtract function logic (introducing bug)"
git status
git log --oneline
git add calculator.py
git commit -m "feat: Add divide function with zero check"
git diff '7e2d4d1~1' 7e2d4d1 -- calculator.py
git status
git stash
git reset --hard 4f5baa8
git log --oneline
python3 calculator.py
git stash pop
git push --force origin
```

2-Screenshots of your terminal output

```
macbook@macbooks-MacBook-Air Konecta-tasks % git add calculator.py
macbook@macbooks-MacBook-Air Konecta-tasks % git commit -m "feat: Add basic calculator functions (add, subtract)"
[main 2e81a04] feat: Add basic calculator functions (add, subtract)
1 file changed, 7 insertions(+)
create mode 100644 calculator.py
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git add calculator.py
macbook@macbooks-MacBook-Air Konecta-tasks % git commit -m "feat: Add multiply function"
[main 4f5baa8] feat: Add multiply function
1 file changed, 8 insertions(+), 4 deletions(-)
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git status
On branch main
Your branch is ahead of 'origin/main' by 4 commits.
(use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   calculator.py

no changes added to commit (use "git add" and/or "git commit -a")
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git log --oneline
127b8db (HEAD -> main) feat: Add divide function with zero check
7e2d4d1 fix: Optimize subtract function logic (introducing bug)
4f5baa8 feat: Add multiply function
2e81a04 feat: Add basic calculator functions (add, subtract)
1a70157 (origin/main) solve the merge
0b555bf docs: Add collaboration goal to main
857f3f6 docs: Add collaboration goal to main
e15cdd4 feat: Refine Git learning goal
e47ab7f docs: Add project goals section
29228a4 feat: Add simple greeting feature with Python script
3c6b5b8 feat: Initial project setup and README
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git diff '7e2d4d1~1' 7e2d4d1 -- calculator.py
diff --git a/calculator.py b/calculator.py
index 8f06e68..6814da4 100644
--- a/calculator.py
+++ b/calculator.py
@@ -2,8 +2,8 @@
 def add(a, b):
     return a + b
 def subtract(a, b):
-    return a - b
-# Add this new function
+# THIS IS THE BUG! Should be 'a - b'
+    return a + b # Intentional bug: changed to addition!
 def multiply(a, b):
     return a * b
 print(f"Adding 5 and 3: {add(5, 3)}")
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git stash
Saved working directory and index state WIP on main: 127b8db feat: Add divide function with zero check
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git reset --hard 4f5baa8
HEAD is now at 4f5baa8 feat: Add multiply function
macbook@macbooks-MacBook-Air Konecta-tasks % git log --oneline
4f5baa8 (HEAD -> main) feat: Add multiply function
2e81a04 feat: Add basic calculator functions (add, subtract)
1a70157 (origin/main) solve the merge
0b555bf docs: Add collaboration goal to main
857f3f6 docs: Add collaboration goal to main
e15cdd4 feat: Refine Git learning goal
e47ab7f docs: Add project goals section
29228a4 feat: Add simple greeting feature with Python script
3c6b5b8 feat: Initial project setup and README
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % python3 calculator.py
Adding 5 and 3: 8
Subtracting 10 and 4: 6
Multiplying 6 and 7: 42
```

```
macbook@macbooks-MacBook-Air Konecta-tasks % git push --force origin main
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 900 bytes | 900.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Hager706/Konecta-tasks.git
1a70157..4f5baa8 main -> main
```

3-Your final calculator.py file

```
#calculator.py
def add(a, b):
    return a + b
def subtract(a, b):
    return a - b
#Add this new function
def multiply(a, b):
    return a * b
print(f"Adding 5 and 3: {add(5, 3)}")
print(f"Subtracting 10 and 4: {subtract(10, 4)}")
print(f"Multiplying 6 and 7: {multiply(6, 7)}")
print(f"Dividing 20 by 5: {divide(20, 5)}")
#calculator.py (at the very end of the file)
#Some new experimental print statement
print("Experimental feature: Fibonacci sequence next")
```

4-Written Explanations

1-Briefly explain how git log and git diff helped you identify the erroneous commit.

git log helped me see the history of commits, so I could identify which commit introduced the bug. Then, git diff allowed me to compare the buggy commit with the previous one, so I could see exactly which line caused the problem.

2-Explain why git stash was necessary in this scenario.

git stash was necessary because I wanted to temporarily save my current code changes without committing them so git safely stored my changes, and I was able to bring them back later

3-Crucially, explain your choice between git reset --hard and git revert. Detail the pros and cons of the method you chose in this specific scenario, and when you would use the other method.

I chose `git reset --hard` because I wanted to completely remove the buggy commit from the history this method was faster and cleaner since I was working alone and didn't need to preserve the commit record

Pros: • Fully removes the commit and its changes • Keeps history clean

Cons: • Rewrites history • Dangerous on shared branches

I would use `git revert` instead if I was working in a team or on a shared branch, because it's safer and keeps the history intact by adding a new commit that undoes the previous one

5-Briefly explain the difference between `git stash pop` and `git stash apply`.

`git stash apply` applies the stashed changes but keeps them in the stash list, so you can reuse them again if needed

`git stash pop` also applies the stashed changes, but removes them from the stash list after applying

the repo link : <https://github.com/Hager706/Konecta-tasks>