Prerequisites:

- **Git** installed.
- **Visual Studio Code (VS Code)** installed.
- A terminal/command prompt.

Part 1: The Setup (Creating the Paradox)

Scenario: We are writing a story file. You will act as two different authors ("Alice" and "Bob") trying to write the ending of the story at the same time.

Step 1: Initialize the Project

1. Create a folder named conflict-lab.
2. Open it in VS Code.
3. Open the Terminal in VS Code (Ctrl + ~ or Terminal > New Terminal).
4. Initialize the repository:
   Bash
   git init

Step 2: Create the Baseline

1. Create a file named story.txt.
2. Add the following text:
   Plaintext
   Once upon a time, there was a brave knight.
   The knight traveled to the dark forest.

3. Commit this baseline:
   Bash
   git add story.txt
   git commit -m "Chapter 1: The beginning"

Part 2: The Divergence (Parallel Development)

Step 3: Branch A - The "Happy Ending"

Now you are Author A.

1. Create a new branch:
   Bash
   git checkout -b happy-ending

2. Modify story.txt by adding this line to the end:
   Plaintext
   The knight found a chest of gold and lived happily ever after.

3. Save and commit:
   Bash
   git add story.txt
   git commit -m "Wrote the happy ending"

Step 4: Branch B - The "Tragic Ending" (The Conflict)

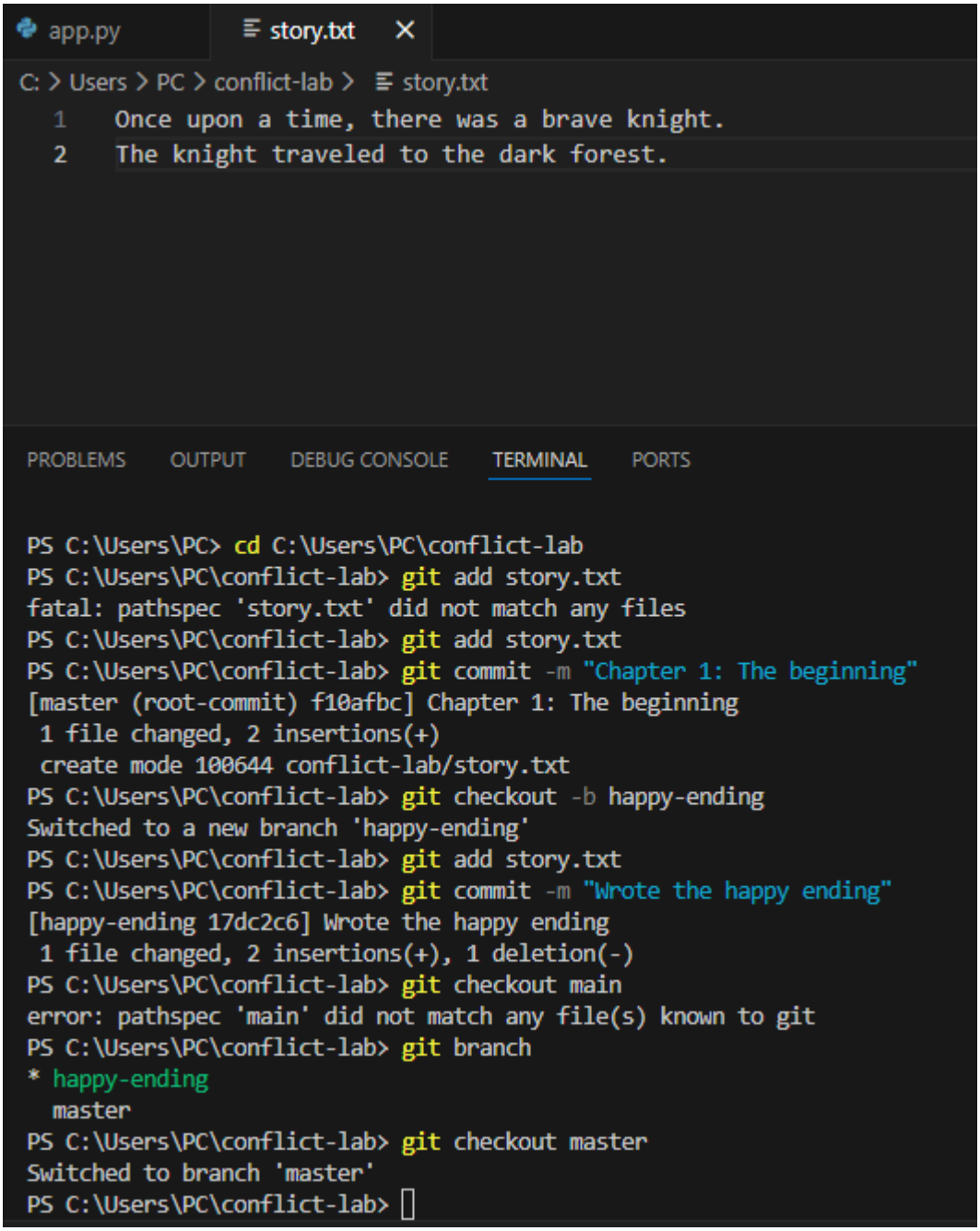
Now you switch back to the main timeline and become Author B.

1. Switch back to main:

   Bash

   git checkout main

   (Notice the "happy ending" text disappears. You are back at the start.)



2. Modify story.txt by adding a **different** line to the same spot:
   Plaintext
   The knight was eaten by a dragon. The End.

3. Save and commit:
   Bash
   git add story.txt
   git commit -m "Wrote the tragic ending"

Part 3: The Collision (Merge Hell)

Step 5: Attempt the Merge

You are now on the main branch. You try to merge the happy-ending branch into your tragic story.

Bash

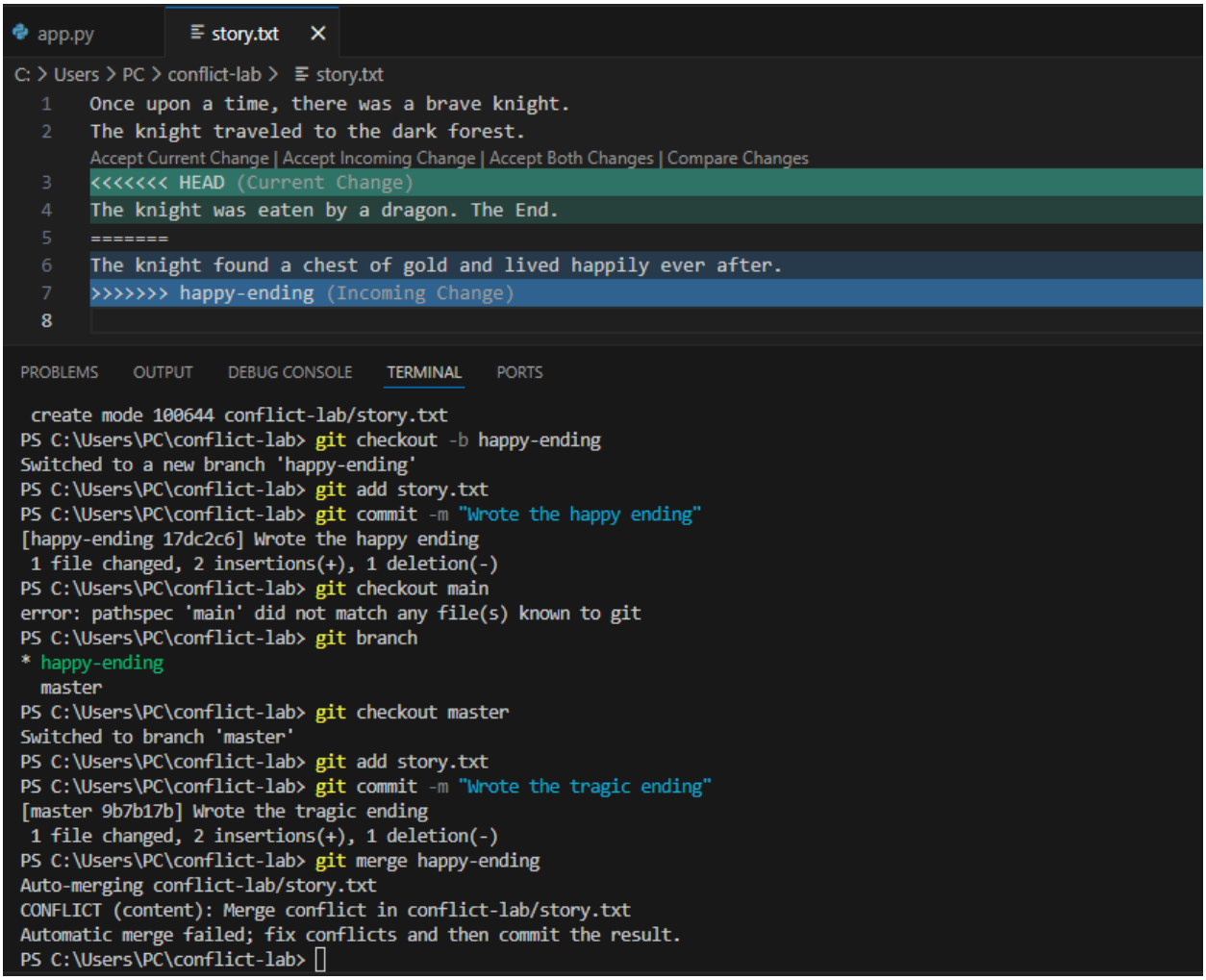
git merge happy-ending

Expected Output:

Auto-merging story.txt

CONFLICT (content): Merge conflict in story.txt

Automatic merge failed; fix conflicts and then commit the result.



Part 4: Visual Resolution (The Fix)

Instructor Note: This is the most important part. Students usually panic here. Show them how the tool makes it easy.

Step 6: Open the Editor

Look at story.txt in VS Code. You will see something that looks like this:

You will see colorful highlights and buttons provided by VS Code:

- **<<<<<<< HEAD (Current Change):** This is the "Tragic Ending" (what was already on Main).

- =======: The divider.
- **>>>>>>> happy-ending (Incoming Change):** This is the "Happy Ending" (what you are trying to merge in).

Step 7: Choose Your Destiny

VS Code provides clickable buttons (small gray text) above the conflict:

- Accept Current Change (Keep the dragon).
- Accept Incoming Change (Keep the gold).
- Accept Both Changes (Keep both).

Action: Click **Accept Incoming Change**.

- *Observation:* The strange symbols (<<<<<, ====, >>>>) disappear, and only the "Happy Ending" text remains.

Step 8: Finalize the Merge

Now that the file looks correct, you must tell Git you are done.

1. Save the file.

Run the commands:
Bash
git add story.txt
git commit -m "Resolved conflict: Chose the happy ending"

app.py story.txt

C: > Users > PC > conflict-lab > story.txt

```
1   Once upon a time, there was a brave knight.
2   The knight traveled to the dark forest.
3   The knight was eaten by a dragon. The End.
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\PC\conflict-lab> git add story.txt
PS C:\Users\PC\conflict-lab> git commit -m "Wrote the happy ending"
[happy-ending 17dc2c6] Wrote the happy ending
 1 file changed, 2 insertions(+), 1 deletion(-)
PS C:\Users\PC\conflict-lab> git checkout main
error: pathspec 'main' did not match any file(s) known to git
PS C:\Users\PC\conflict-lab> git branch
* happy-ending
  master
PS C:\Users\PC\conflict-lab> git checkout master
Switched to branch 'master'
PS C:\Users\PC\conflict-lab> git add story.txt
PS C:\Users\PC\conflict-lab> git commit -m "Wrote the tragic ending"
[master 9b7b17b] Wrote the tragic ending
 1 file changed, 2 insertions(+), 1 deletion(-)
PS C:\Users\PC\conflict-lab> git merge happy-ending
Auto-merging conflict-lab/story.txt
CONFLICT (content): Merge conflict in conflict-lab/story.txt
Automatic merge failed; fix conflicts and then commit the result.
PS C:\Users\PC\conflict-lab> git add story.txt
PS C:\Users\PC\conflict-lab> git commit -m "Resolved conflict: Chose the happy ending"
[master f645cc1] Resolved conflict: Chose the happy ending
PS C:\Users\PC\conflict-lab>
```