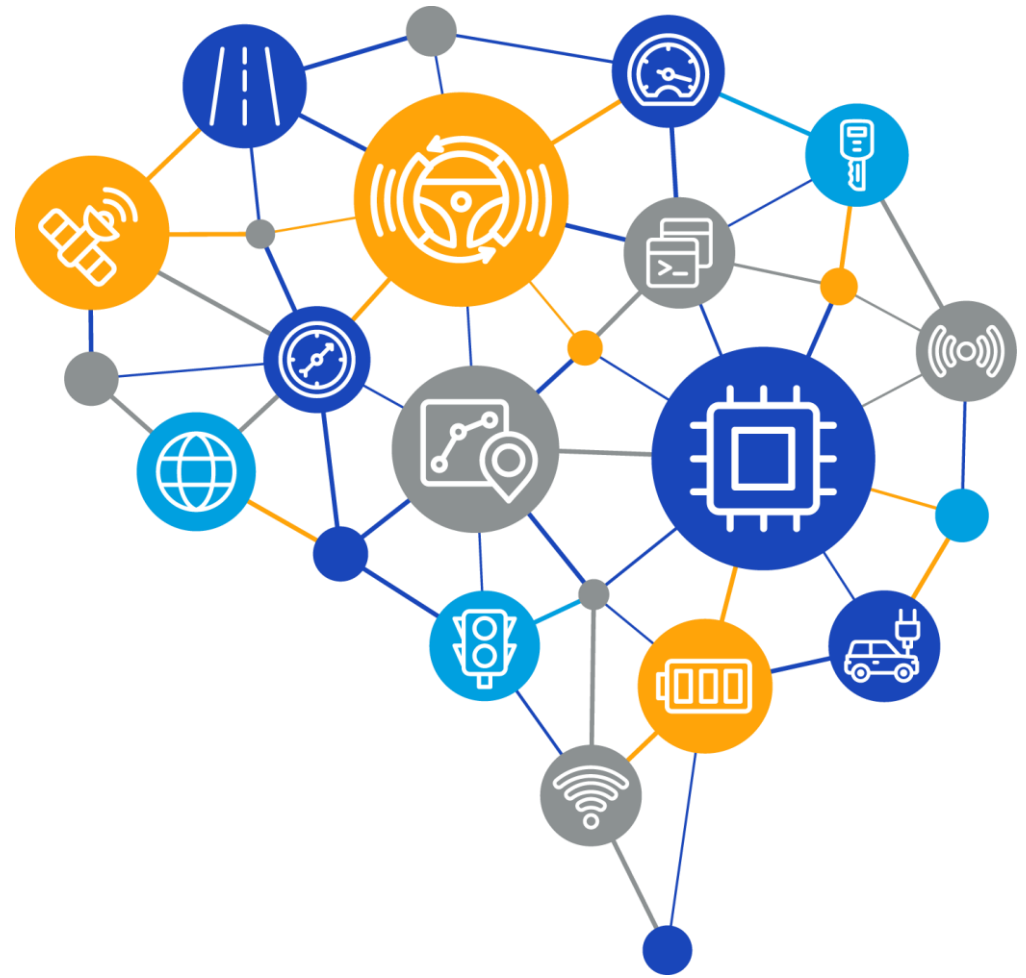


# 소스트리 브랜치 활용

Version Control and  
Git & Github basics

2022.05

강환수 교수

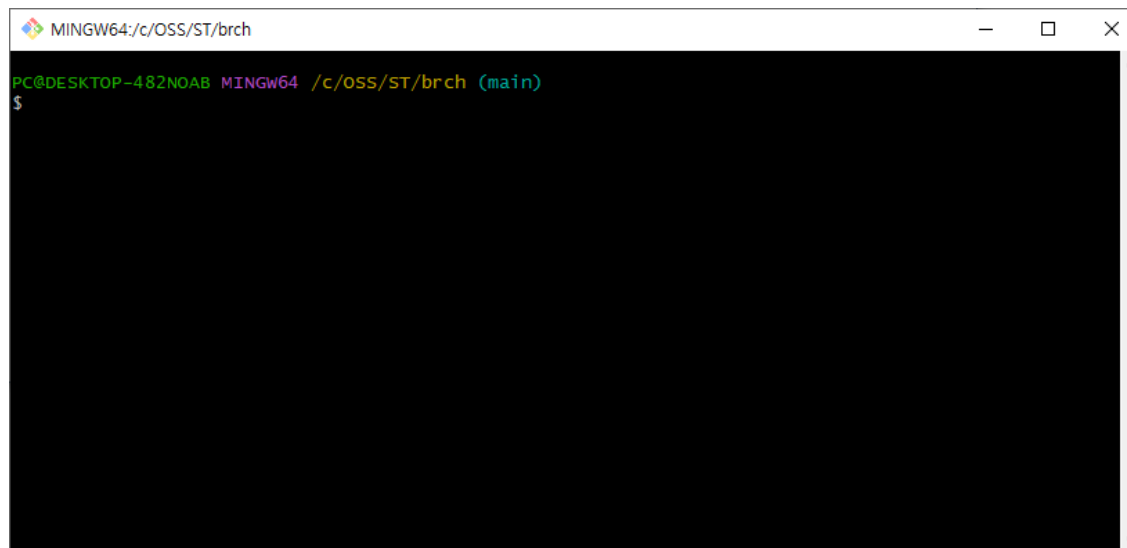
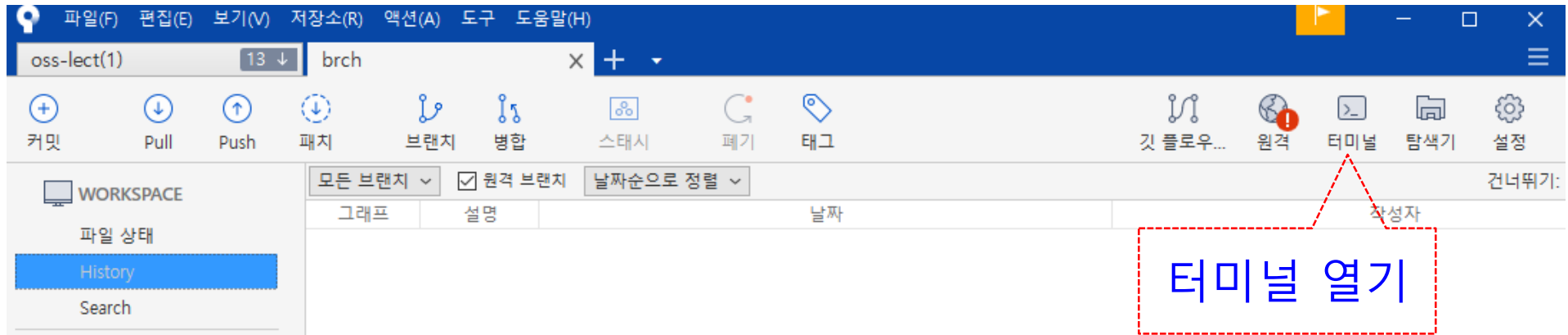


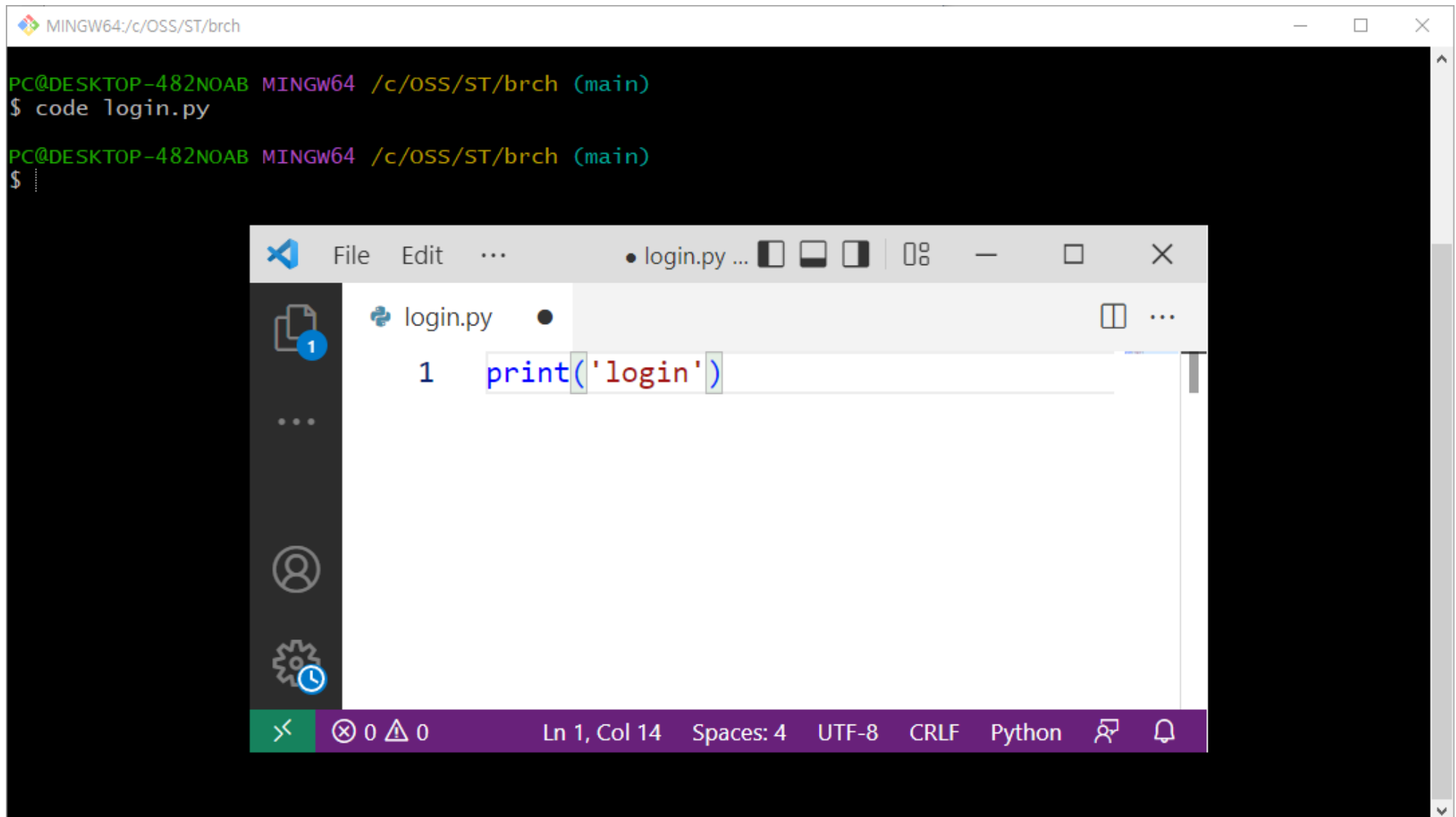
- New tab +
  - Add 메뉴
    - 작업 경로 지정
      - 뒤에 wbrch 입력
        - » 추가 버튼

The screenshot shows the 'Add a repository' dialog in Sourcetree. The title bar includes menu items: 파일(F), 편집(E), 보기(V), 저장소(R), 액션(A), 도구, 도움말(H). The toolbar has icons for Local, Remote, Clone, Add, and Create. The main area contains the text 'Add a repository' and 'Choose a working copy repository folder to add to Sourcetree'. Below this are three input fields: '작업 경로:' (Work Path) with a search button '탐색' (Search), '이름:' (Name), and 'Local Folder:' with a dropdown menu showing '[루트]' (Root). A blue '추가' (Add) button is at the bottom.

# 메뉴 터미널 열기

깃과 깃허브 Python language





The screenshot shows a terminal window and a code editor. The terminal window, titled 'MINGW64:/c/OSS/ST/brch', displays the following commands and output:

```
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ code login.py

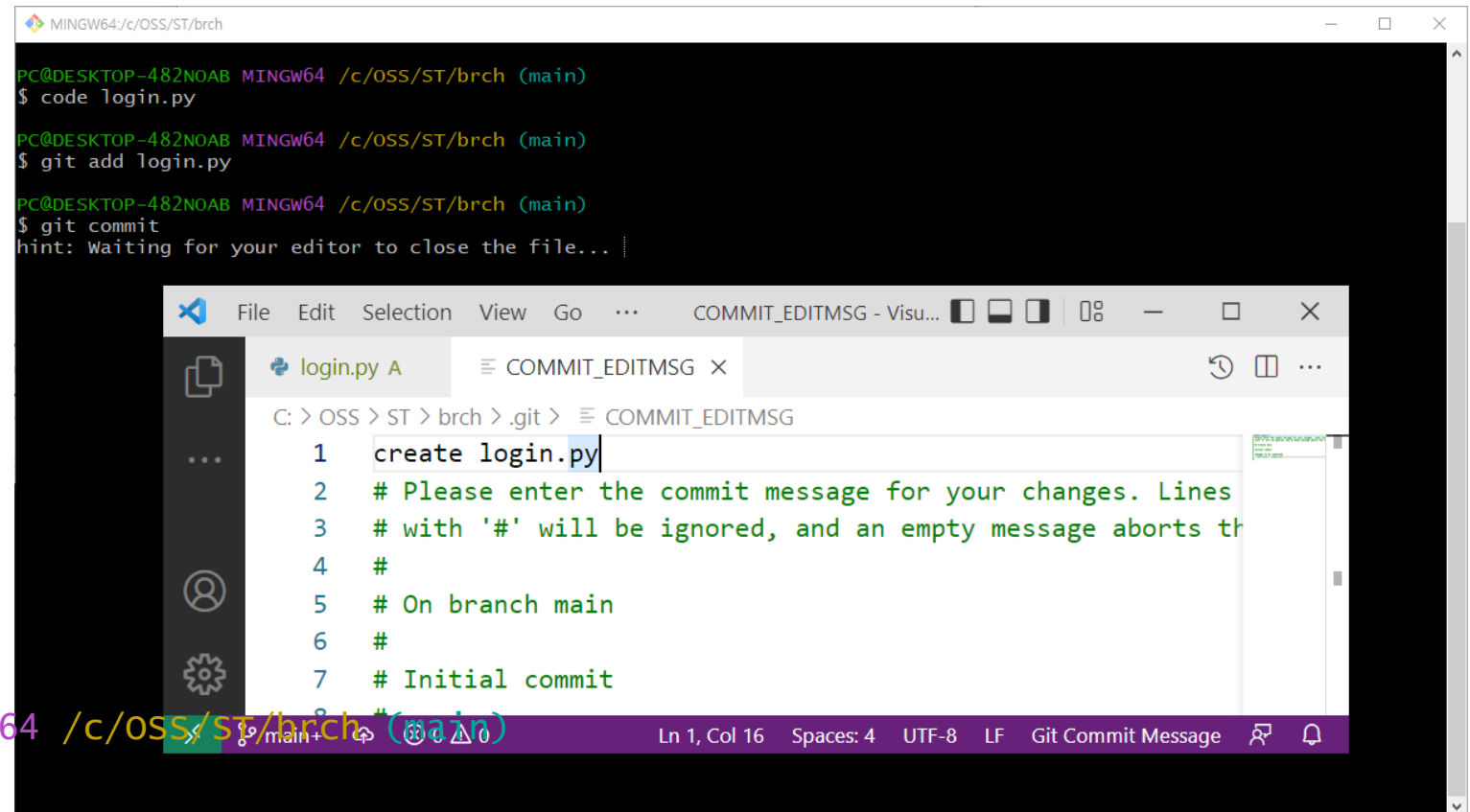
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$
```

The code editor, titled 'login.py ...', shows the following code:

```
1 print('login')
```

The status bar at the bottom of the code editor indicates the current position is 'Ln 1, Col 14', with 'Spaces: 4', 'UTF-8', 'CRLF', and 'Python' encoding.

- -m 없이 vscode에서 메시지 작성하고 반드시 저장 후 닫기
  - 그래야 정상적으로 커밋이 수행



The screenshot shows a terminal window and a VS Code editor. The terminal window displays the following commands and output:

```
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ code login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ git add login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ git commit
hint: Waiting for your editor to close the file...
```

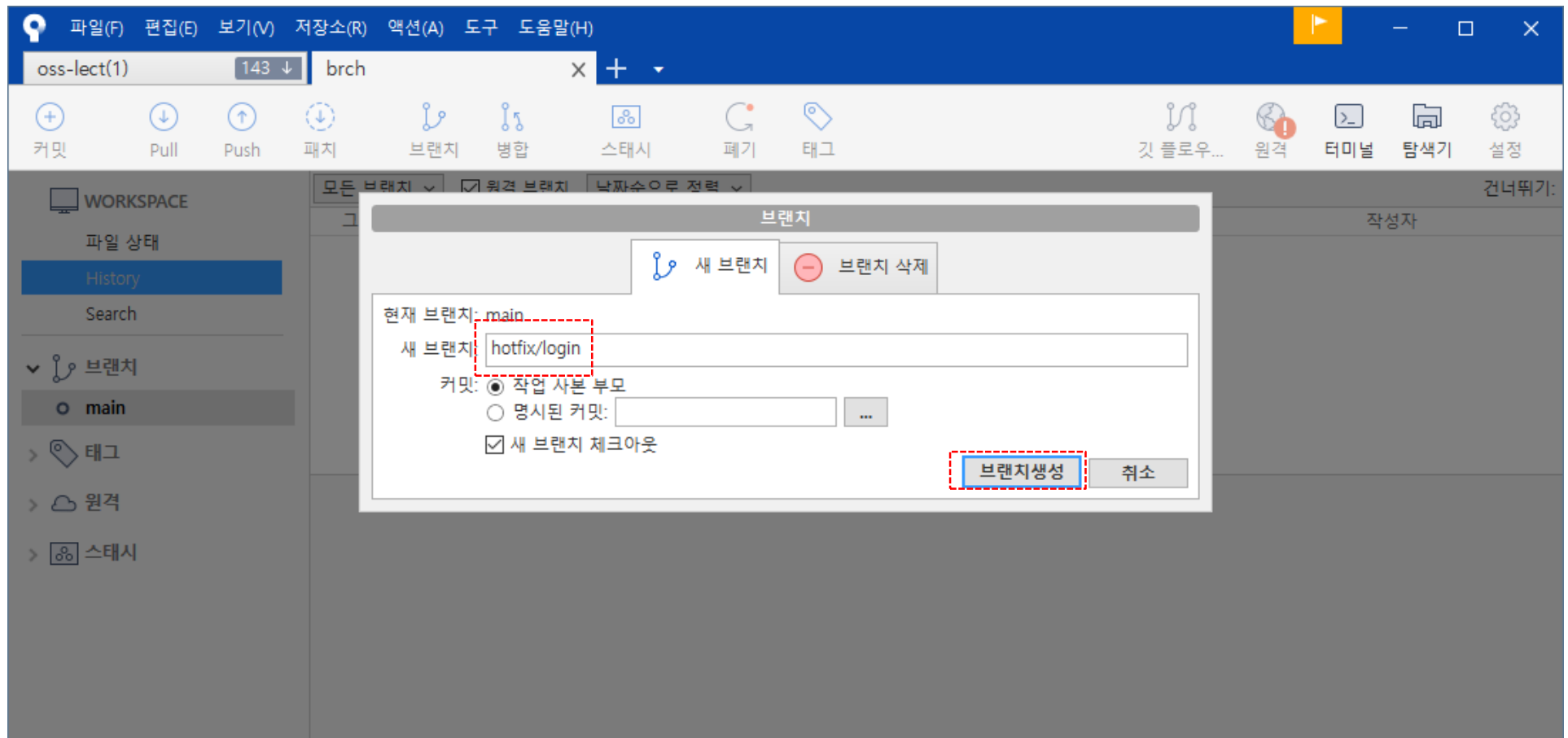
The VS Code editor shows the 'COMMIT\_EDITMSG' file with the following content:

```
C: > OSS > ST > brch > .git > COMMIT_EDITMSG
1 create login.py
2 # Please enter the commit message for your changes. Lines
3 # with '#' will be ignored, and an empty message aborts th
4 #
5 # On branch main
6 #
7 # Initial commit
```

```
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ git add login.py
```

```
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ git commit
[main (root-commit) cdc8fd8] create login.py
1 file changed, 1 insertion(+)
create mode 100644 login.py
```

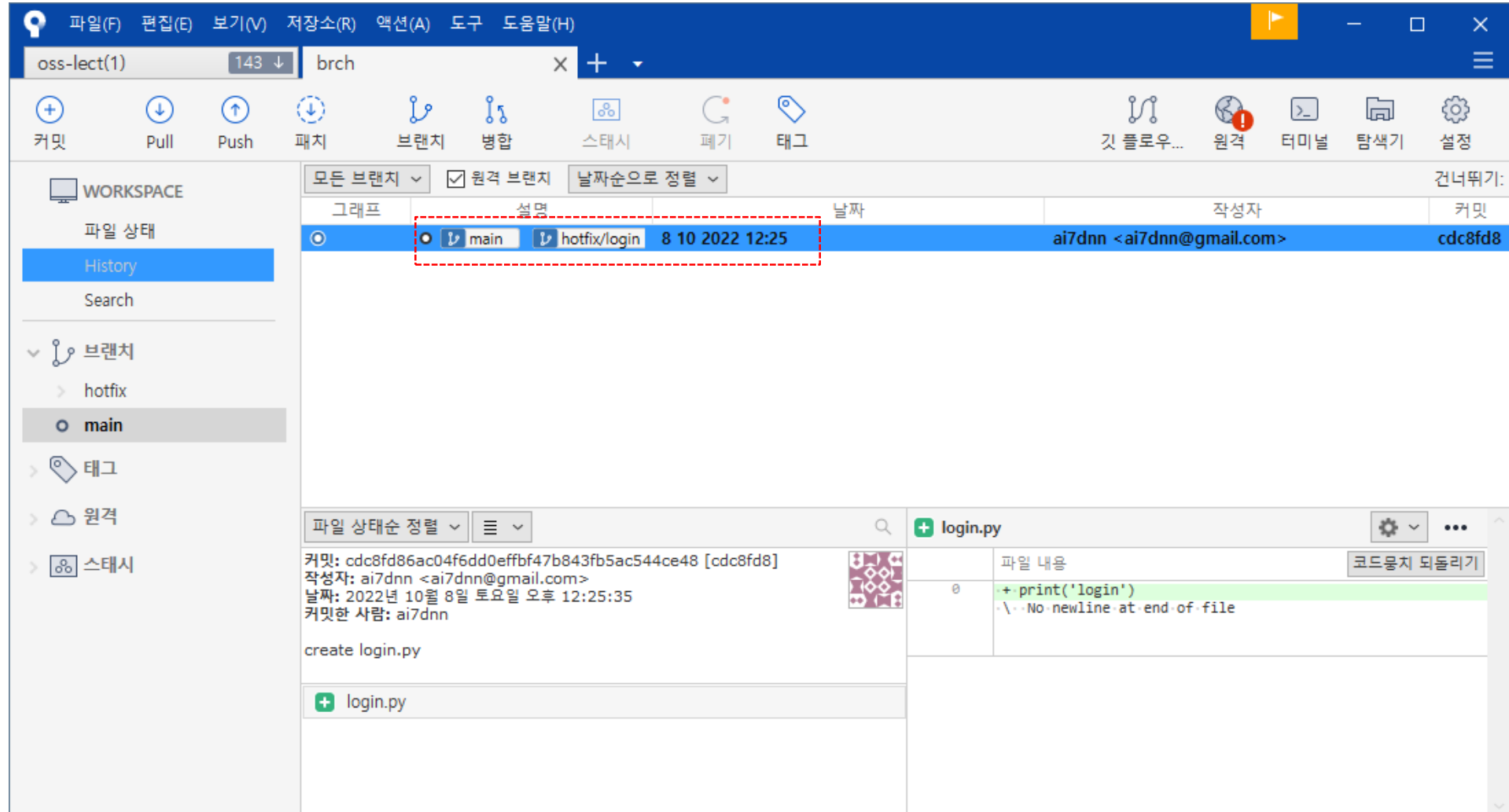
- 이름 hotfix/login



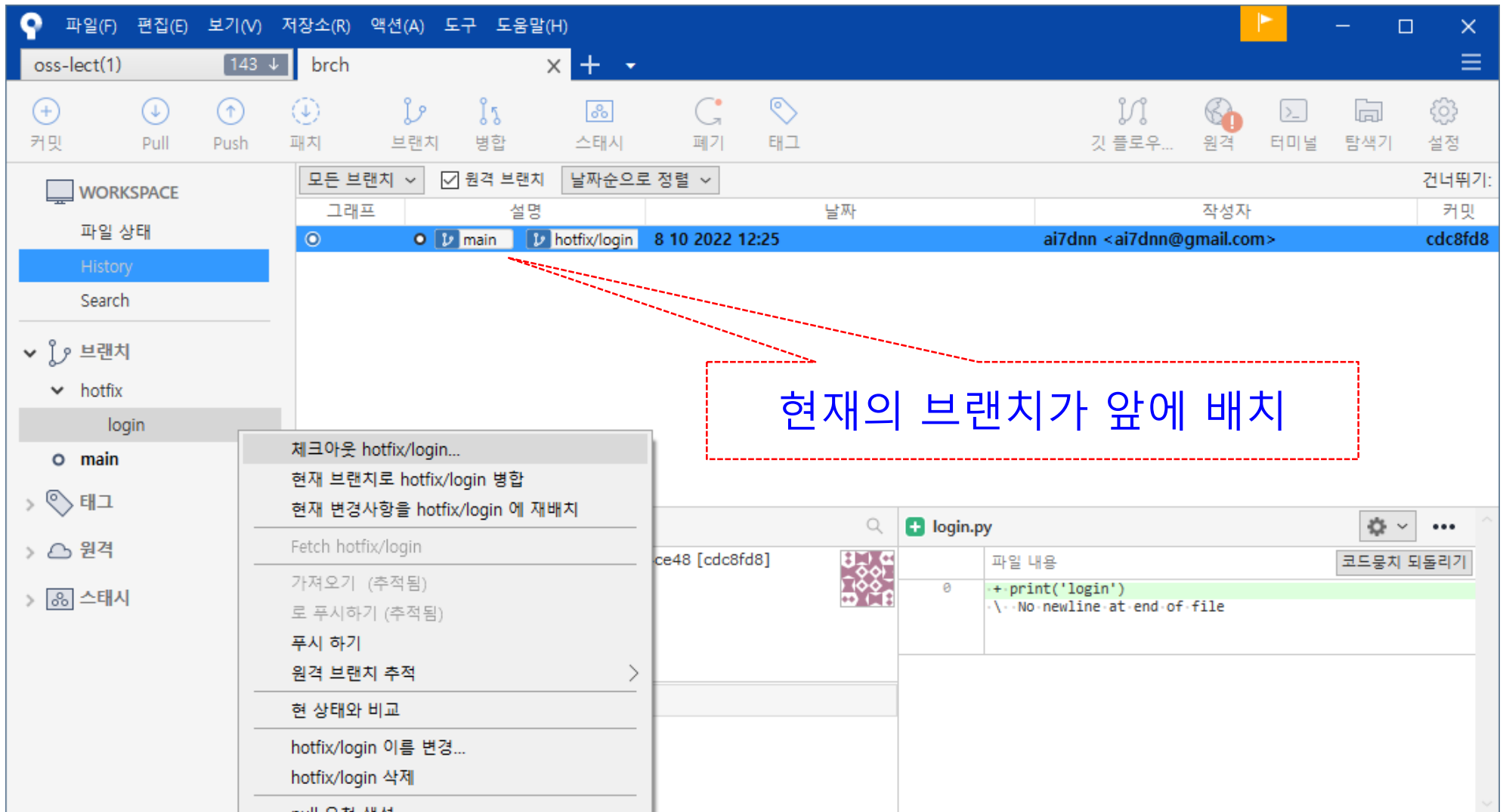
# 1개의 기본 브랜치와 1개의 생성 브랜치

깃과 깃허브 Python language

- 브랜치 main, hotfix/login
  - hotfix/login 표시: 트리 형태로 표시



- 더블클릭 또는 오른쪽 메뉴 Checkout
  - hotfix/login으로 이동





- 추가: `print('hotfix login')`

The screenshot shows a Windows terminal window with a MINGW64 shell. The user is in the directory `/c/OSS/ST/brch` on the `main` branch. They execute the following commands:

```
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ code login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ git add login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ git commit -m 'add login.py'
[main 0b1c1e1] 1 file changed, 1 file created
commit 0b1c1e1
Author: 
Date: 

create login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ code login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (hotfix/login)
$
```

Overlaid on the terminal is a Visual Studio Code editor window titled `login.py - Vis...`. The editor shows the content of `login.py` at the path `C: > OSS > ST > brch > login.py`. The file contains two lines of Python code:

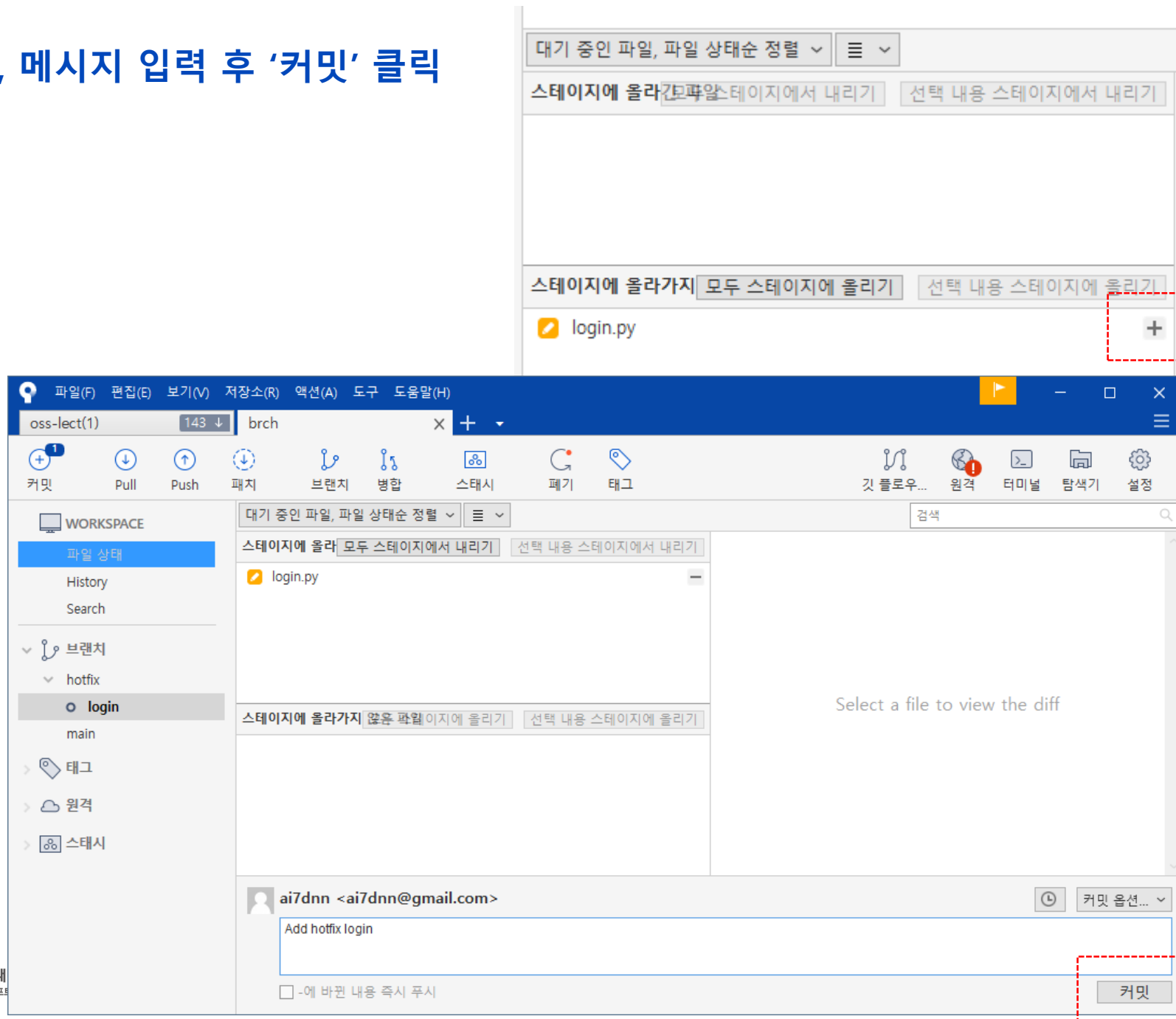
```
1 print('login')
2 print('hotfix login')
```

The status bar at the bottom of the editor indicates the file is part of a hotfix: `hotfix/login*`, with 0 changes and 0 deletions. It also shows settings: `Spaces: 4`, `UTF-8`, `CRLF`, and the language is `Python`.

# Add 후 Commit

깃과 깃허브 Python language

- + 클릭, 메시지 입력 후 '커밋' 클릭



# Hotfix/login 에서 커밋 이후

깃과 깃허브 Python language

The screenshot shows the PyCharm IDE interface. The top toolbar includes buttons for commit, pull, push, patch, branch, merge, stash, revert, and tag. The left sidebar shows the 'History' tab selected under 'Workspace'. The main window displays the commit history for the 'login' branch. A red dashed box highlights the commit history table, which shows the commit for 'Add hotfix/login' with the commit hash '88e7692' and the author 'ai7dnn <ai7dnn@gmail.com>'. Below the commit history, the 'login.py' file is open, showing the code changes. A red dashed box highlights the code changes in 'login.py', which include adding a new line for 'print('hotfix login')' and removing a newline at the end of the file.

그래프	설명	날짜	작성자	커밋
hotfix/login	Add hotfix/login	8 10 2022 12:50	ai7dnn <ai7dnn@gmail.com>	88e7692
main	create login.py	8 10 2022 12:25	ai7dnn <ai7dnn@gmail.com>	cdc8fd8

커밋: 88e76924e71daa8aa4c30032c67b28017312bb17 [88e7692]  
상위 항목: cdc8fd86ac  
작성자: ai7dnn <ai7dnn@gmail.com>  
날짜: 2022년 10월 8일 토요일 오후 12:50:33  
커밋한 사람: ai7dnn

Add hotfix login

login.py

```
1 print('login')  
2 print('hotfix login')
```

# 브랜치 main으로 돌아오기

깃과 깃허브 Python language

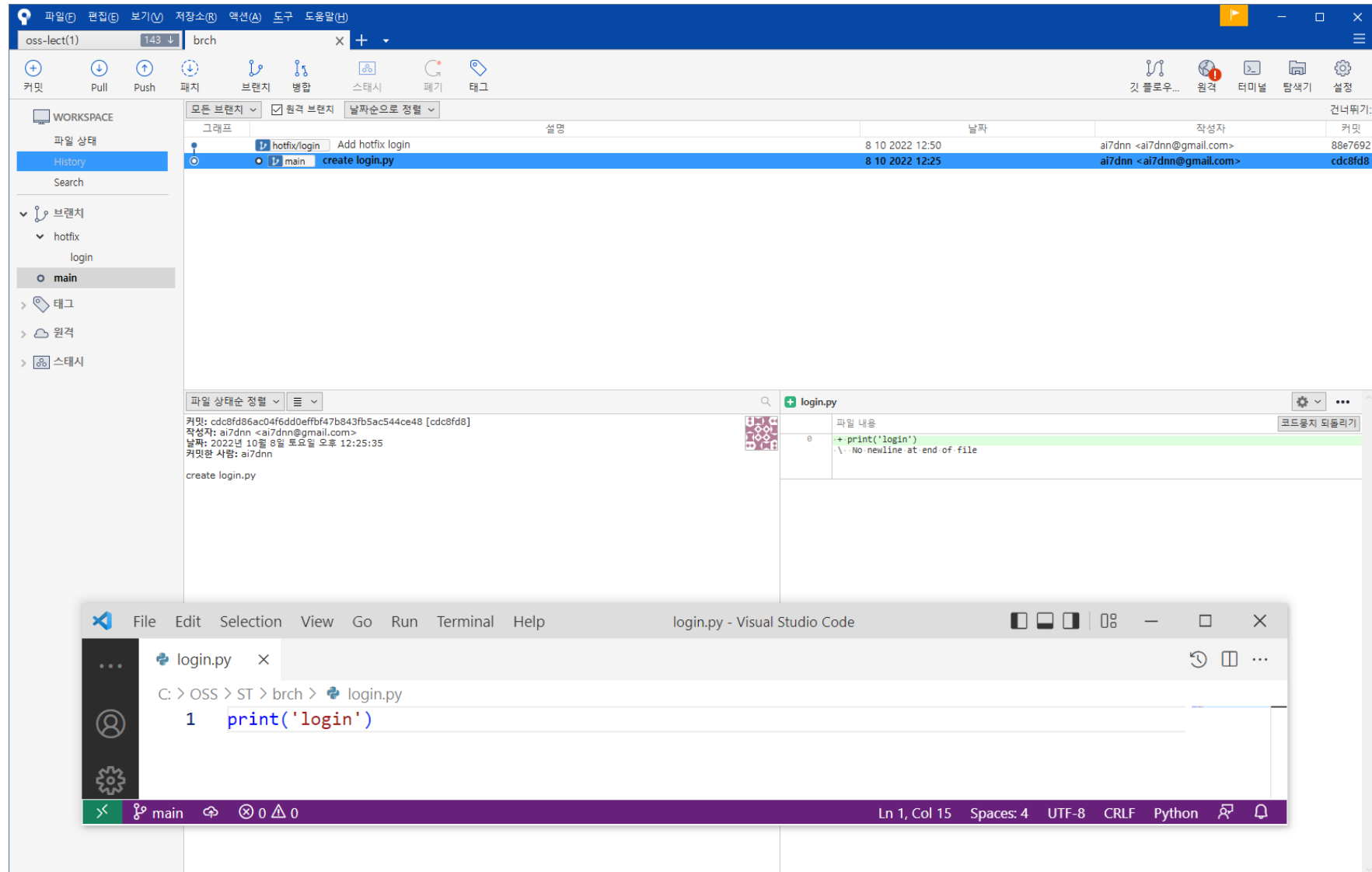
The screenshot shows the Git GUI interface with the following components:

- Top Bar:** Contains menu items (파일(F), 편집(E), 보기(V), 저장소(R), 액션(A), 도구, 도움말(H)) and a toolbar with icons for commit, pull, push, patch, branch, merge, stash, reset, tag, and other Git operations.
- Left Panel:** Includes 'WORKSPACE' (파일 상태, History, Search), '브랜치' (branch), and '태그' (tag) sections. The 'main' branch is highlighted in the '브랜치' section.
- Commit History Table:** Displays a list of commits. The commit 'create login.py' on the 'main' branch is highlighted with a red dashed box. The commit details are: 'create login.py', '8 10 2022 12:25', 'ai7dnn <ai7dnn@gmail.com>', and 'cdc8fd8'.
- Commit Details Panel:** Shows the commit hash 'cdc8fd86ac04f6dd0effbf47b843fb5ac544ce48 [cdc8fd8]', the author 'ai7dnn <ai7dnn@gmail.com>', the date '2022년 10월 8일 토요일 오후 12:25:35', and the committer 'ai7dnn'. It also shows the file 'login.py'.
- File Content Panel:** Displays the content of 'login.py', which is '+ print('login')'. A red dashed box highlights the code content.

# 브랜치마다 파일 내용이 달라짐

깃과 깃허브 Python language

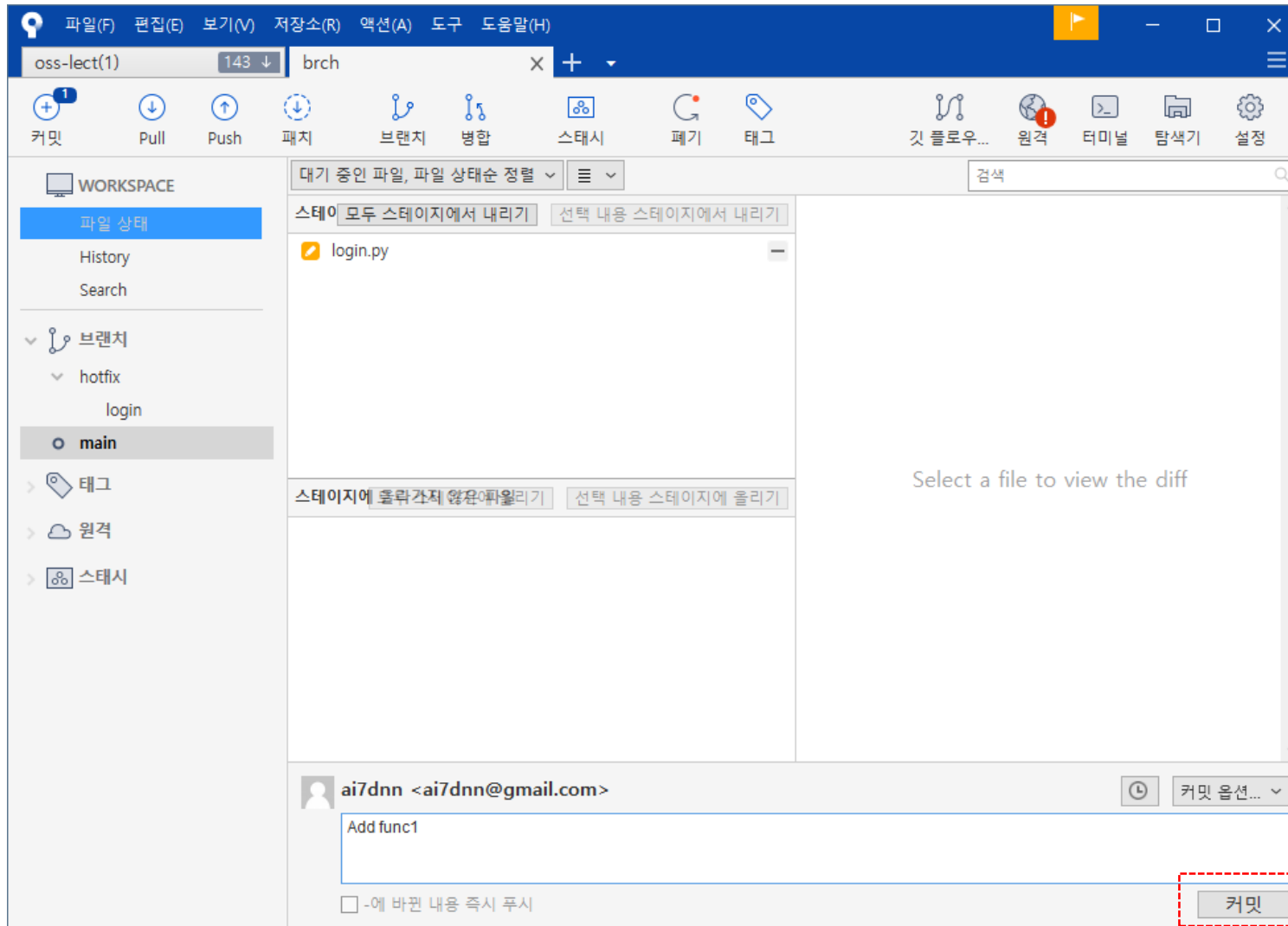
- 파일 hello.py



# 브랜치 main에서 파일 login.py 수정

깃과 깃허브 Python language

- 다음 추가 후 커밋
  - "print('func1')"



The screenshot shows the GitHub Desktop application interface. The top menu bar includes options like '파일(F)', '편집(E)', '보기(V)', '저장소(R)', '액션(A)', '도구', and '도움말(H)'. Below the menu is a toolbar with icons for commit, pull, push, fetch, branch, merge, stash, reset, tag, and other actions. The left sidebar shows the 'WORKSPACE' section with '파일 상태', 'History', and 'Search' options. The 'History' section is expanded, showing a list of commits. The main area displays the commit history table with columns for '그래프', '설명', '날짜', '작성자', and '커밋'. The selected commit is 'd523a70' by 'ai7dnn <ai7dnn@gmail.com>' with the message 'Add func1'. Below the commit history, the '파일 상태' section shows the file 'login.py' with a diff view. The diff view shows the changes made in the commit, including the addition of 'print('login')' and 'print('func1')' statements.

그래프	설명	날짜	작성자	커밋
	ma	8 10 2022 13:02	ai7dnn <ai7dnn@gmail.com>	d523a70
	hotfix	8 10 2022 12:50	ai7dnn <ai7dnn@gmail.com>	88e7692
	create log	8 10 2022 12:25	ai7dnn <ai7dnn@gmail.com>	cdc8fd8

파일 상태: login.py

커밋: d523a70a0905ce28c39896a336a509ed3323b84e [d523a70]  
 상위 항목: cdc8fd86ac  
 작성자: ai7dnn <ai7dnn@gmail.com>  
 날짜: 2022년 10월 8일 토요일 오후 1:02:49  
 커밋한 사람: ai7dnn

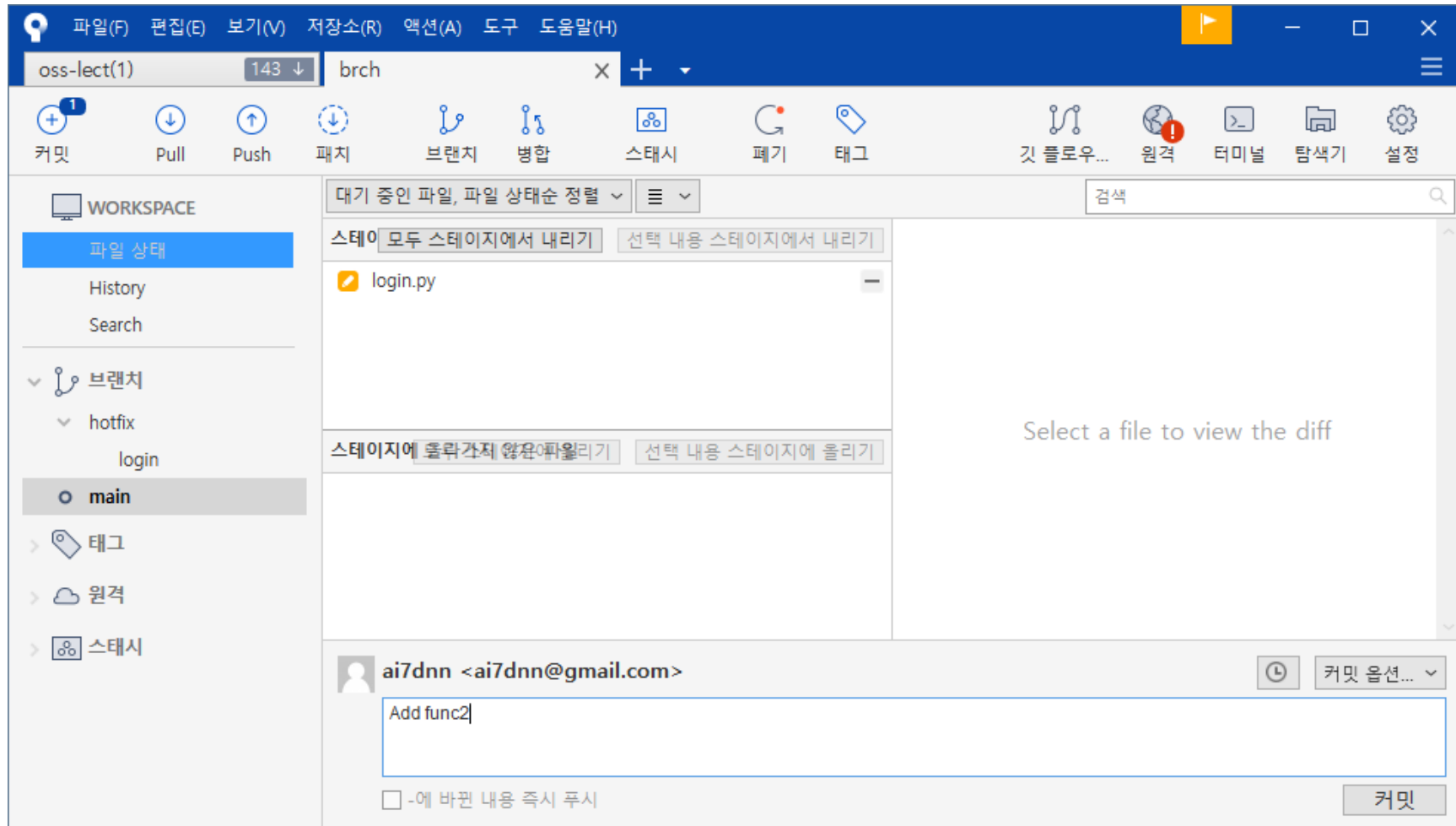
Add func1

login.py

```

1  print('login')
2  print('func1')
  
```

- 다음 추가 후 커밋
  - "print('func2')"





The screenshot shows the GitHub Desktop application interface. The top menu bar includes File (F), Edit (E), View (V), Storage (R), Action (A), Tools, and Help (H). The toolbar contains icons for Commit, Pull, Push, Patch, Branch, Merge, Stash, Discard, Tag, and various settings. The left sidebar shows the Workspace with options for File State, History, and Search. Below this, the Branches section lists 'main' and 'hotfix', with 'main' selected. The main area displays a commit history table with columns for Commit, Description, Date, Author, and Commit ID.

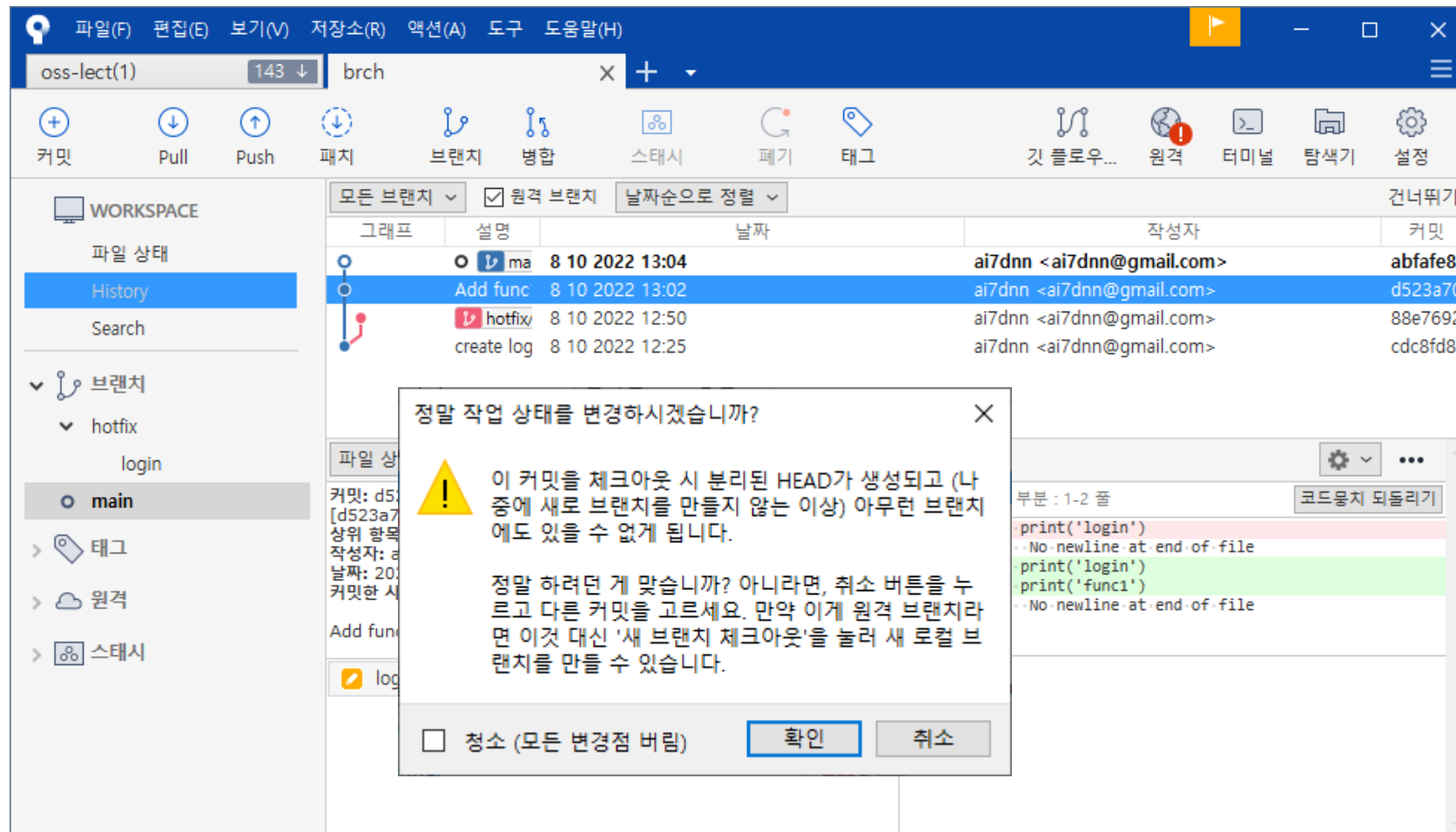
Commit	Description	Date	Author	Commit ID
abfafe8	Add func1	8 10 2022 13:04	ai7dnn <ai7dnn@gmail.com>	abfafe8
d523a70	create log	8 10 2022 13:02	ai7dnn <ai7dnn@gmail.com>	d523a70
88e7692		8 10 2022 12:50	ai7dnn <ai7dnn@gmail.com>	88e7692
cdc8fd8		8 10 2022 12:25	ai7dnn <ai7dnn@gmail.com>	cdc8fd8

Below the commit history, the file state is shown for 'login.py'. The commit ID is abfafe86f59db3ab9ed885d499529d558fc1683e. The commit message is 'Add func2'. The diff view shows the following changes:

```

1 1 ... print('login')
2 2 ... print('func1')
   \..No newline at end of file
3 3 + print('func1')
   + print('func2')
   \..No newline at end of file
  
```

- 특정 커밋에서 더블 클릭, O표 마크 확인
  - 분리된 head(detached head) 표시



# 분리된 head(detached head)

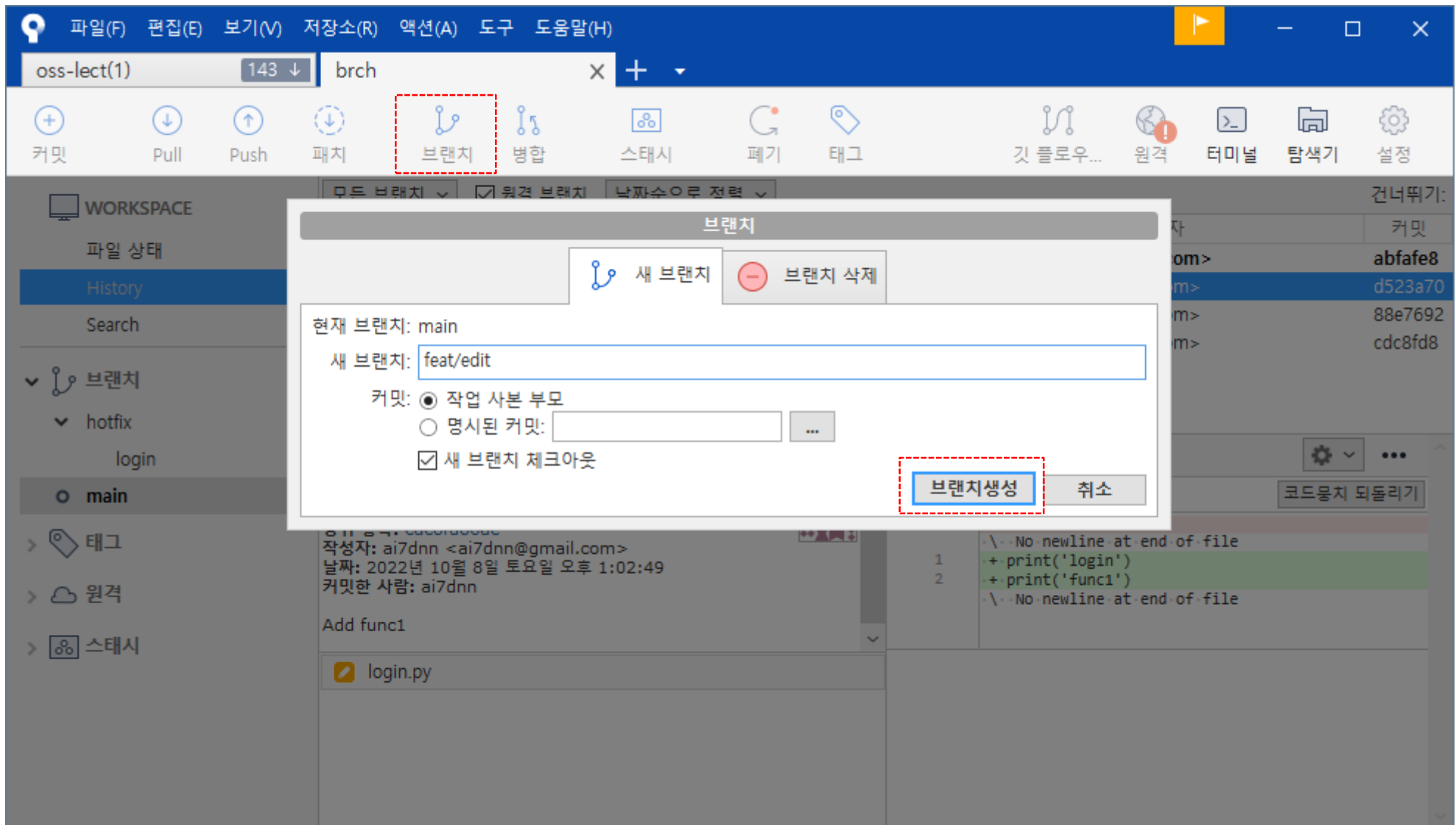
깃과 깃허브 Python language

- ‘브랜치의 최종 커밋 이전을 가리키는 head’를 지칭하는 말

The screenshot shows the Git GUI interface with the following details:

- Toolbar:** Includes icons for commit, pull, push, patch, branch, merge, stash, reset, tag, and other Git operations.
- Workspace:** Shows the current branch as 'main' and the commit history.
- Commit History Table:**

그래프	설명	날짜	작성자	커밋
main	Add func2	8 10 2022 13:04	ai7dnn <ai7dnn@gmail.com>	abfafe8
HEAD	Add func1	8 10 2022 13:02	ai7dnn <ai7dnn@gmail.com>	d523a70
hotfix/login	Add hotfix login	8 10 2022 12:50	ai7dnn <ai7dnn@gmail.com>	88e7692
	create login.py	8 10 2022 12:25	ai7dnn <ai7dnn@gmail.com>	cdc8fd8
- File State:** Shows the current file 'login.py' and its commit history.
- Code Editor:** Displays the code for 'login.py' with line numbers and a diff view.



# 브랜치 생성 결과

깃과 깃허브 Python language

Git GUI Interface Screenshot:

Workspace: oss-lect(1) 143 ↓ brch

Actions: 커밋, Pull, Push, 패치, 브랜치, 병합, 스테시, 폐기, 태그, 깃 플로우..., 원격, 터미널, 탐색기, 설정

History Tab:

그래프	브랜치	설명	날짜	작성자	커밋
main	main	Add func2	8 10 2022 13:04	ai7dnn <ai7dnn@gmail.com>	abfafe8
feat/dict	feat/dict	Add func1	8 10 2022 13:02	ai7dnn <ai7dnn@gmail.com>	d523a70
hotfix/login	hotfix/login	Add hotfix login	8 10 2022 12:50	ai7dnn <ai7dnn@gmail.com>	88e7692
		create login.py	8 10 2022 12:25	ai7dnn <ai7dnn@gmail.com>	cdc8fd8

Commit Details for d523a70:

커밋: d523a70a0905ce28c39896a336a509ed3323b84e [d523a70]  
 상위 항목: cdc8fd86ac  
 작성자: ai7dnn <ai7dnn@gmail.com>  
 날짜: 2022년 10월 8일 토요일 오후 1:02:49  
 커밋한 사람: ai7dnn

File: login.py

```

1 -- print('login')
2 -- No newline at end of file
+ print('login')
+ print('func1')
+ No newline at end of file
  
```

# 파일 edit.py 생성

깃과 깃허브 Python language

The screenshot shows a terminal window and a Visual Studio Code editor. The terminal window, titled 'MINGW64:/c/OSS/ST/brch', shows the following commands and output:

```
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ code hello.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ ls
login.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$ code login.py

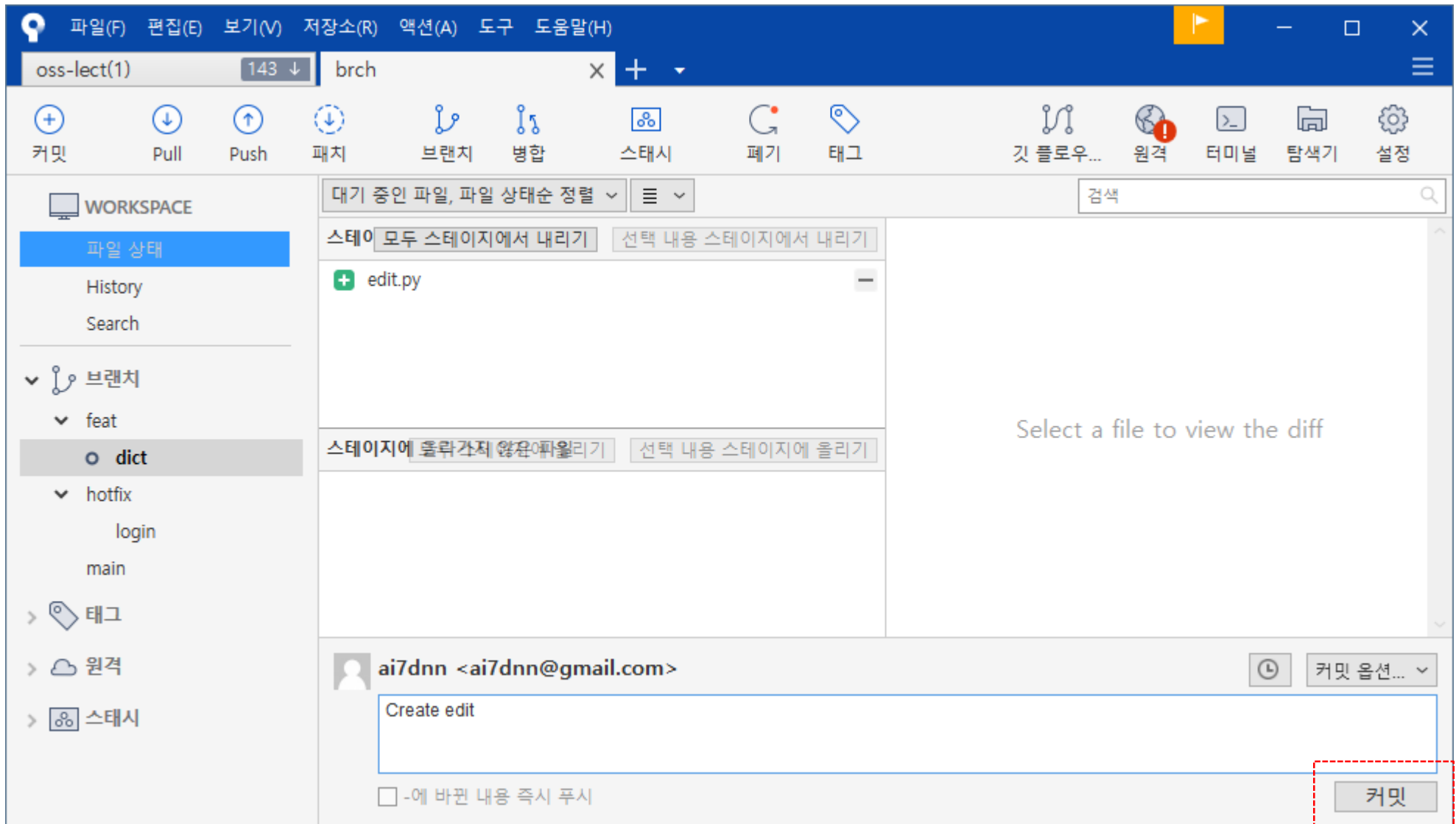
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (main)
$
PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (feat/dict)
$ code edit.py

PC@DESKTOP-482NOAB MINGW64 /c/OSS/ST/brch (feat/dict)
$
```

The line `$ code edit.py` is highlighted with a red dashed box. Below the terminal, the Visual Studio Code editor is open, showing the 'edit.py' file. The editor's title bar is 'edit.py - Visual...'. The file explorer on the left shows 'login.py', 'edit.py', and 'hello.py'. The editor content shows the following code:

```
1 print('edit')
```

The status bar at the bottom indicates the file is in the 'feat/dict\*' branch, at line 1, column 14, with 4 spaces, UTF-8 encoding, CRLF line endings, and Python language.



The screenshot shows the GitHub Desktop application window. The top menu bar includes File (F), Edit (E), View (V), Storage (R), Action (A), Tools, and Help (H). The title bar shows the repository name 'oss-lect(1)' and the branch 'brch'. The toolbar contains icons for Commit, Pull, Push, Patch, Branch, Merge, Stash, Revert, Tag, and other GitHub-related actions.

The main interface is divided into three sections:

- Left Panel (Workspace):** Contains '파일 상태' (File Status), 'History' (selected), and 'Search'. Below this is the '브랜치' (Branch) section, showing a tree structure with 'feat', 'dict' (selected), 'hotfix', and 'login'.
- Commit History:** A table listing recent commits. The selected commit is 'Add func1' with hash 'd523a70'.
- File Diff:** The 'login.py' file is selected, showing a diff between the current commit and the previous one. The diff highlights changes to the 'print' statements.

그래프	설명	날짜	작성자	커밋
feat/dict	Create edit	8 10 2022 13:19	ai7dnn <ai7dnn@gmail.com>	cae3b80
main	Add func2	8 10 2022 13:04	ai7dnn <ai7dnn@gmail.com>	abfafa8
dict	Add func1	8 10 2022 13:02	ai7dnn <ai7dnn@gmail.com>	d523a70
hotfix/login	Add hotfix login	8 10 2022 12:50	ai7dnn <ai7dnn@gmail.com>	88e7692
create login.py		8 10 2022 12:25	ai7dnn <ai7dnn@gmail.com>	cdc8fd8

파일 상태: d523a70a0905ce28c39896a336a509ed3323b84e [d523a70]  
 상위 항목: cdc8fd86ac  
 작성자: ai7dnn <ai7dnn@gmail.com>  
 날짜: 2022년 10월 8일 토요일 오후 1:02:49  
 커밋한 사람: ai7dnn

login.py

```

1 -- print('login')
2 -- No newline at end of file
+ print('login')
+ print('func1')
+ No newline at end of file
  
```