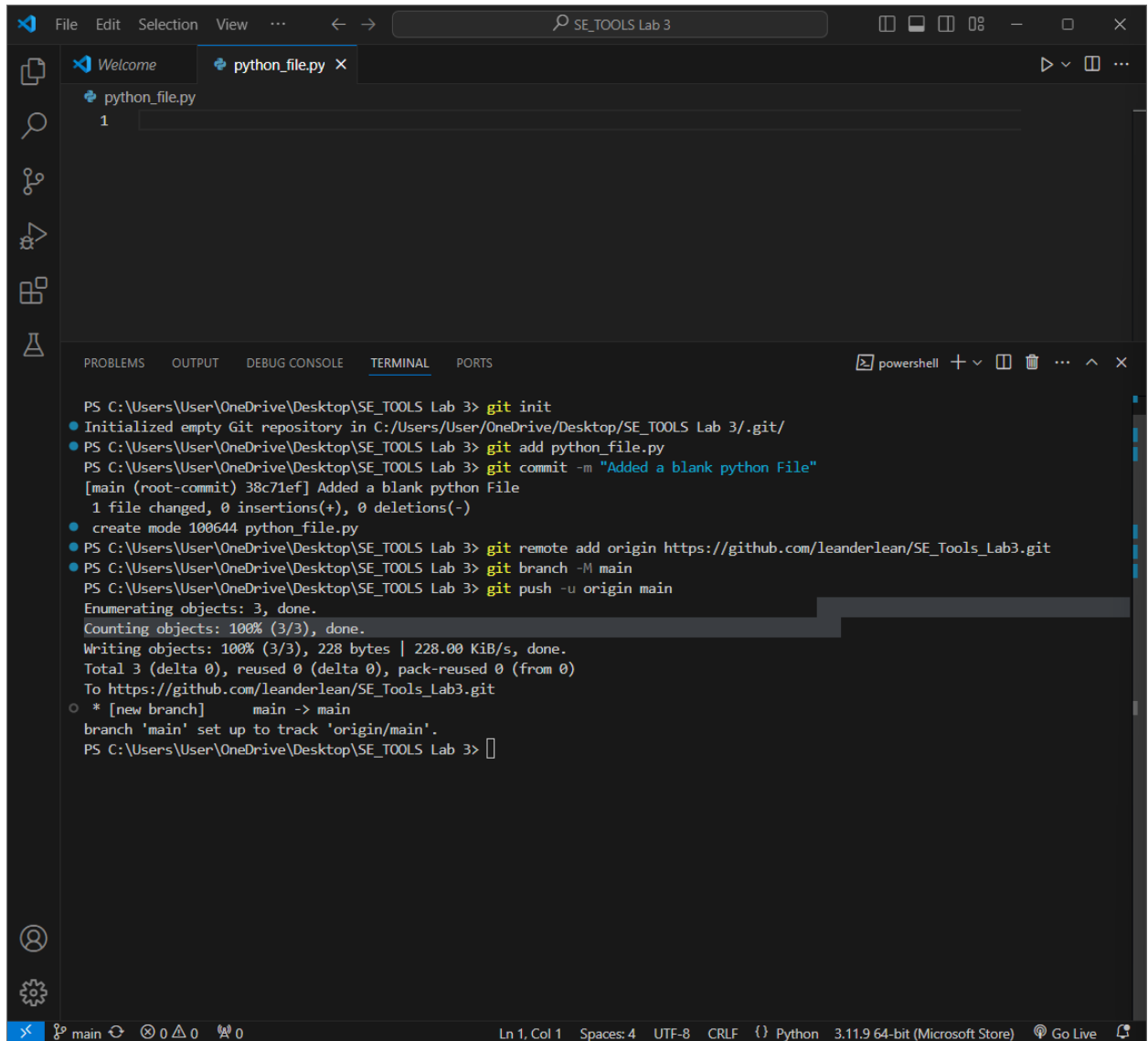


SE Tools and Practices

Laboratory 3

Leander R. Galido BSSE-2

1. I Created a repository in github and added a blank python file.



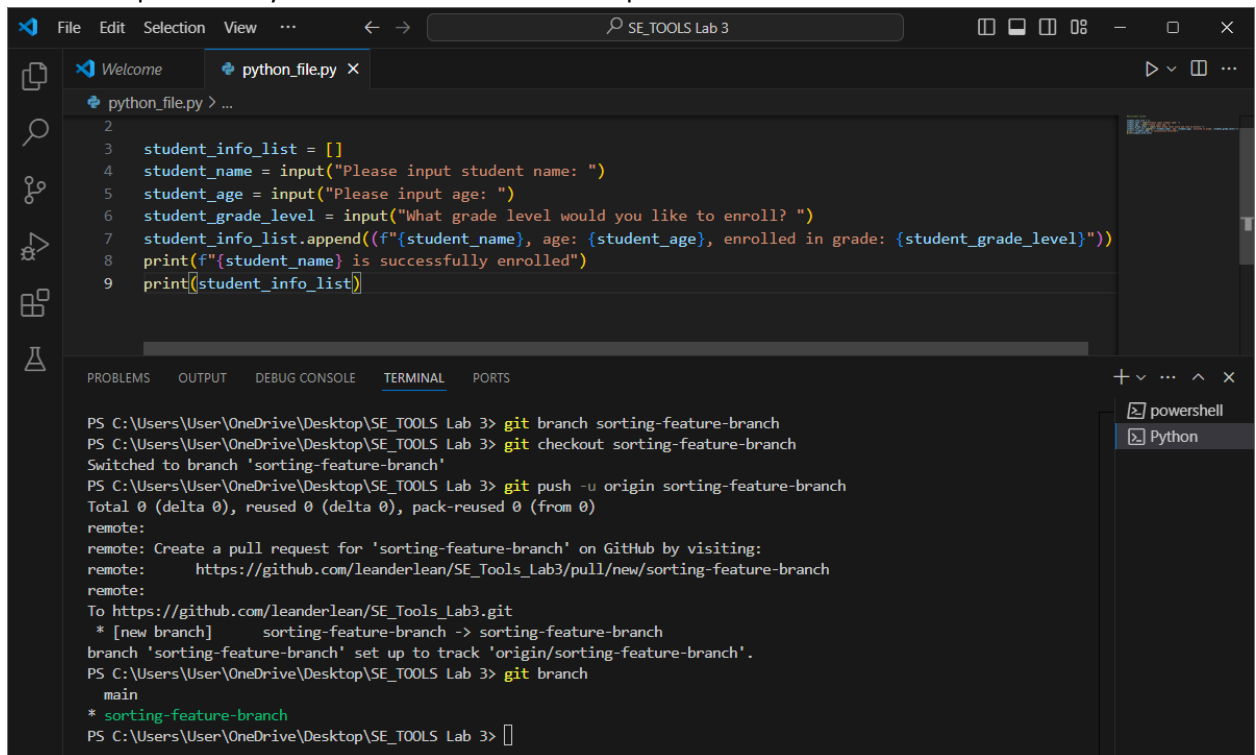
The screenshot shows the Visual Studio Code interface. The top menu bar includes File, Edit, Selection, View, and a search bar. The left sidebar contains icons for Explorer, Search, Source Control, Run and Debug, and Extensions. The main editor area has a tab for 'python_file.py' which is currently blank. Below the editor is a panel with tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The TERMINAL tab is active, showing a PowerShell session with the following commands and output:

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git init
Initialized empty Git repository in C:/Users/User/OneDrive/Desktop/SE_TOOLS Lab 3/.git/
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git add python_file.py
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git commit -m "Added a blank python File"
[main (root-commit) 38c71ef] Added a blank python File
 1 file changed, 0 insertions(+), 0 deletions(-)
   create mode 100644 python_file.py
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git remote add origin https://github.com/leanderlean/SE_Tools_Lab3.git
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch -M main
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin main
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 228 bytes | 228.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/leanderlean/SE_Tools_Lab3.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3>
```

The status bar at the bottom indicates the current file is 'main', the cursor is at 'Ln 1, Col 1', and the file encoding is 'UTF-8 CRLF'. The Python version is '3.11.9 64-bit (Microsoft Store)'.

PART I

1. I added a new branch named "sorting-feature-branch". This feature will sort the names of the students alphabetically. I also modified the file to implement the feature.

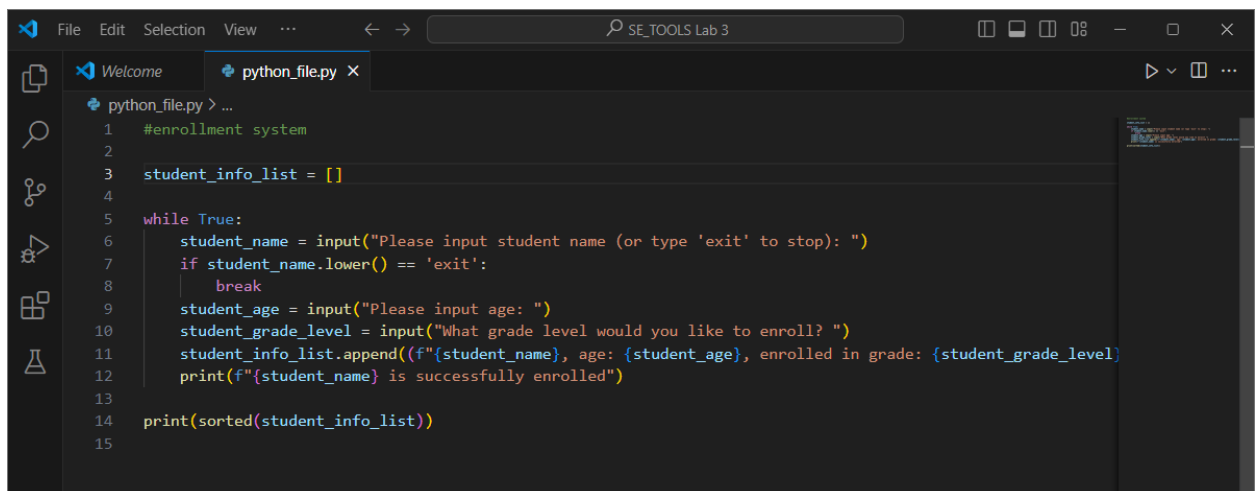


The screenshot shows the Visual Studio Code editor with a file named `python_file.py` open. The code in the file is as follows:

```
2
3 student_info_list = []
4 student_name = input("Please input student name: ")
5 student_age = input("Please input age: ")
6 student_grade_level = input("What grade level would you like to enroll? ")
7 student_info_list.append((f"{student_name}, age: {student_age}, enrolled in grade: {student_grade_level}")
8 print(f"{student_name} is successfully enrolled")
9 print(student_info_list)
```

The terminal window at the bottom shows the following commands and output:

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch sorting-feature-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout sorting-feature-branch
Switched to branch 'sorting-feature-branch'
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin sorting-feature-branch
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'sorting-feature-branch' on GitHub by visiting:
remote:   https://github.com/leanderlean/SE_Tools_Lab3/pull/new/sorting-feature-branch
remote:
To https://github.com/leanderlean/SE_Tools_Lab3.git
 * [new branch]      sorting-feature-branch -> sorting-feature-branch
branch 'sorting-feature-branch' set up to track 'origin/sorting-feature-branch'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch
main
* sorting-feature-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3>
```



The screenshot shows the Visual Studio Code editor with the same `python_file.py` file, but the code has been modified to include a `while` loop and sorting functionality:

```
1 #enrollment system
2
3 student_info_list = []
4
5 while True:
6     student_name = input("Please input student name (or type 'exit' to stop): ")
7     if student_name.lower() == 'exit':
8         break
9     student_age = input("Please input age: ")
10    student_grade_level = input("What grade level would you like to enroll? ")
11    student_info_list.append((f"{student_name}, age: {student_age}, enrolled in grade: {student_grade_level}")
12    print(f"{student_name} is successfully enrolled")
13
14    print(sorted(student_info_list))
15
```

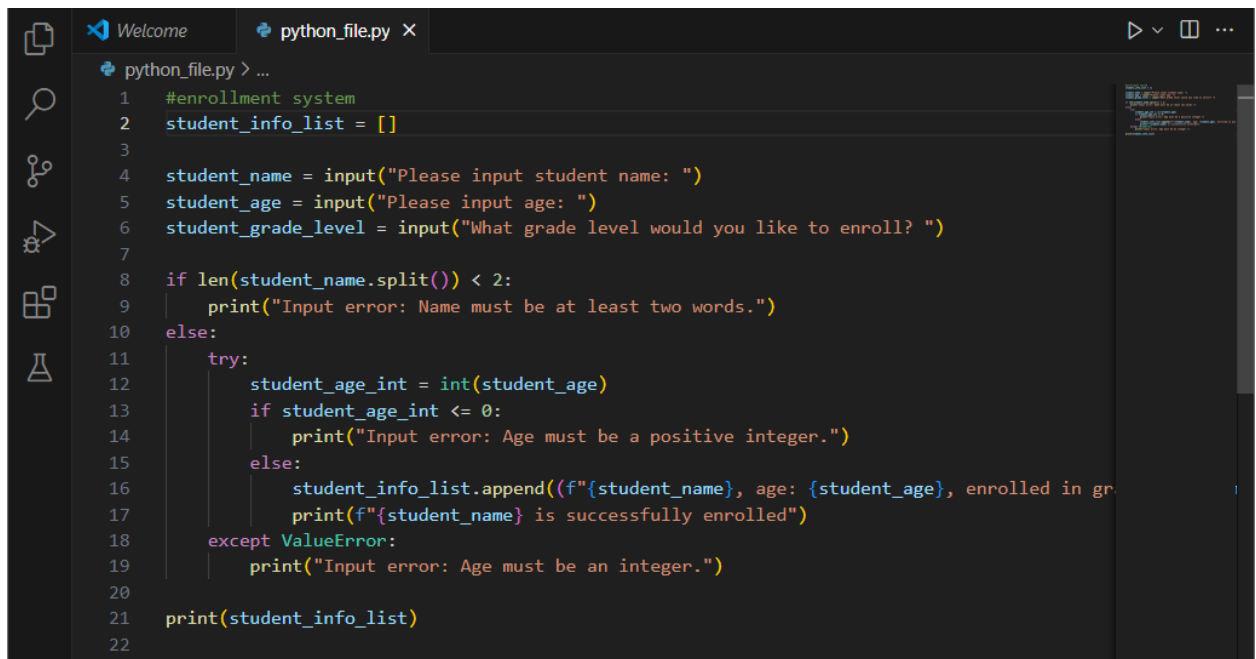
```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch
* main
* sorting-feature-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git add python_file.py
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git commit -m "Added features that sorts the name alphabetically"
[sorting-feature-branch 28c6dc4] Added features that sorts the name alphabetically
1 file changed, 11 insertions(+), 6 deletions(-)
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u sorting-feature-branch
fatal: 'sorting-feature-branch' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin sorting-feature-branch
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 434 bytes | 434.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/leanderlean/SE_Tools_Lab3.git
efca949..28c6dc4 sorting-feature-branch -> sorting-feature-branch
branch 'sorting-feature-branch' set up to track 'origin/sorting-feature-branch'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

2. I added a new feature branch named "valid-input-branch". This branch will validate all the inputs that the user encoded. I also updated the main file and added the feature that validates the input. It only accepts if the students' names have 2 words and the age is an integer.

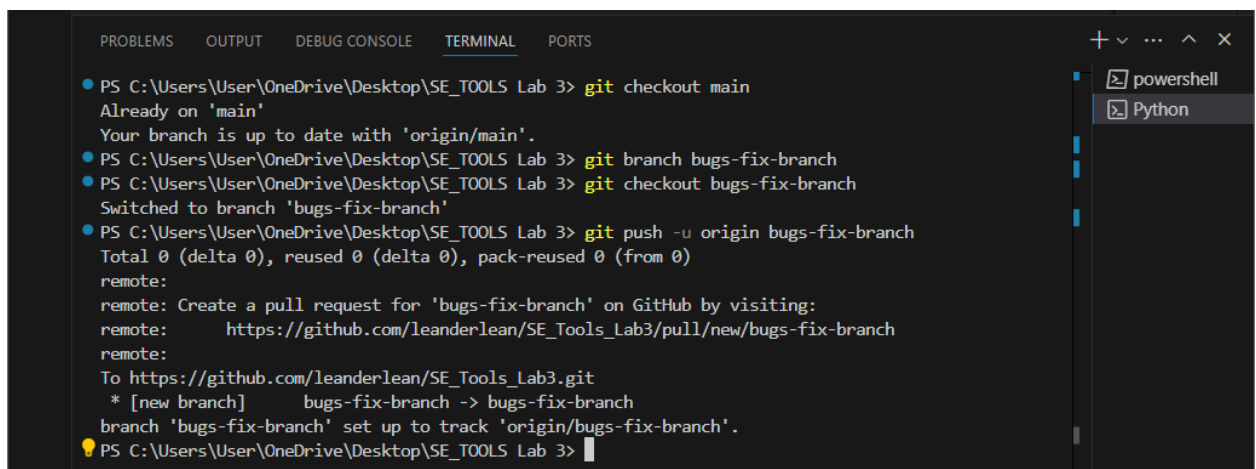
```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch
* main
* sorting-feature-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch valid-input-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout valid-input-branch
Switched to branch 'valid-input-branch'
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin valid-input-branch
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'valid-input-branch' on GitHub by visiting:
remote:   https://github.com/leanderlean/SE_Tools_Lab3/pull/new/valid-input-branch
remote:
To https://github.com/leanderlean/SE_Tools_Lab3.git
* [new branch]      valid-input-branch -> valid-input-branch
branch 'valid-input-branch' set up to track 'origin/valid-input-branch'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git status
On branch valid-input-branch
Your branch is up to date with 'origin/valid-input-branch'.

nothing to commit, working tree clean
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

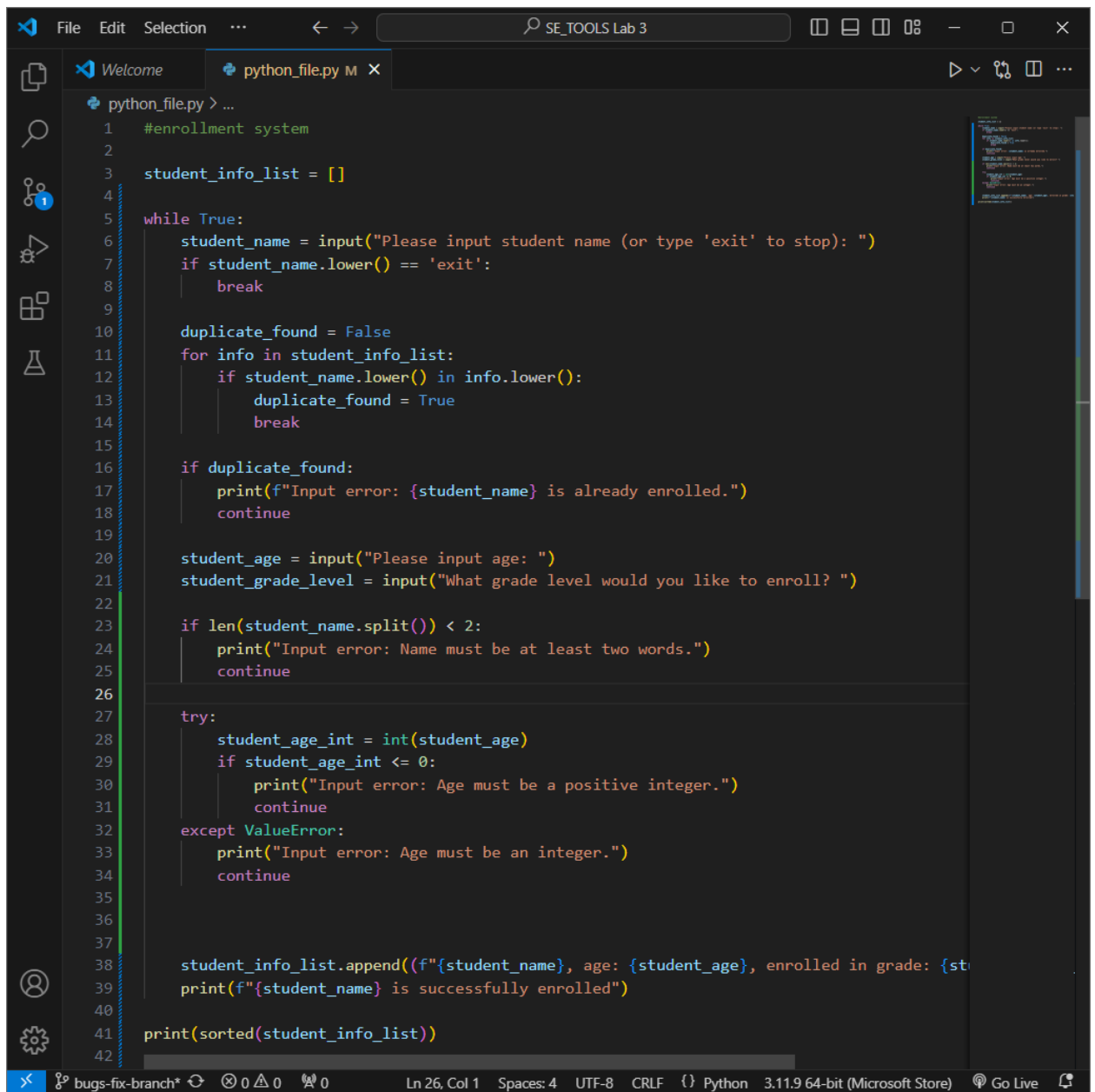


```
python_file.py > ...
1  #enrollment system
2  student_info_list = []
3
4  student_name = input("Please input student name: ")
5  student_age = input("Please input age: ")
6  student_grade_level = input("What grade level would you like to enroll? ")
7
8  if len(student_name.split()) < 2:
9      print("Input error: Name must be at least two words.")
10 else:
11     try:
12         student_age_int = int(student_age)
13         if student_age_int <= 0:
14             print("Input error: Age must be a positive integer.")
15         else:
16             student_info_list.append(("{student_name}, age: {student_age}, enrolled in gr
17             print(f"{student_name} is successfully enrolled")
18     except ValueError:
19         print("Input error: Age must be an integer.")
20
21 print(student_info_list)
22
```

3. I added a branch named "bugs-fix-branch". This branch will fix all the bugs in my simple enrollment system. I combined the two feature branches and then I added the function that if there is the same name in the list 1 name will only be recorded, and it will print a message that



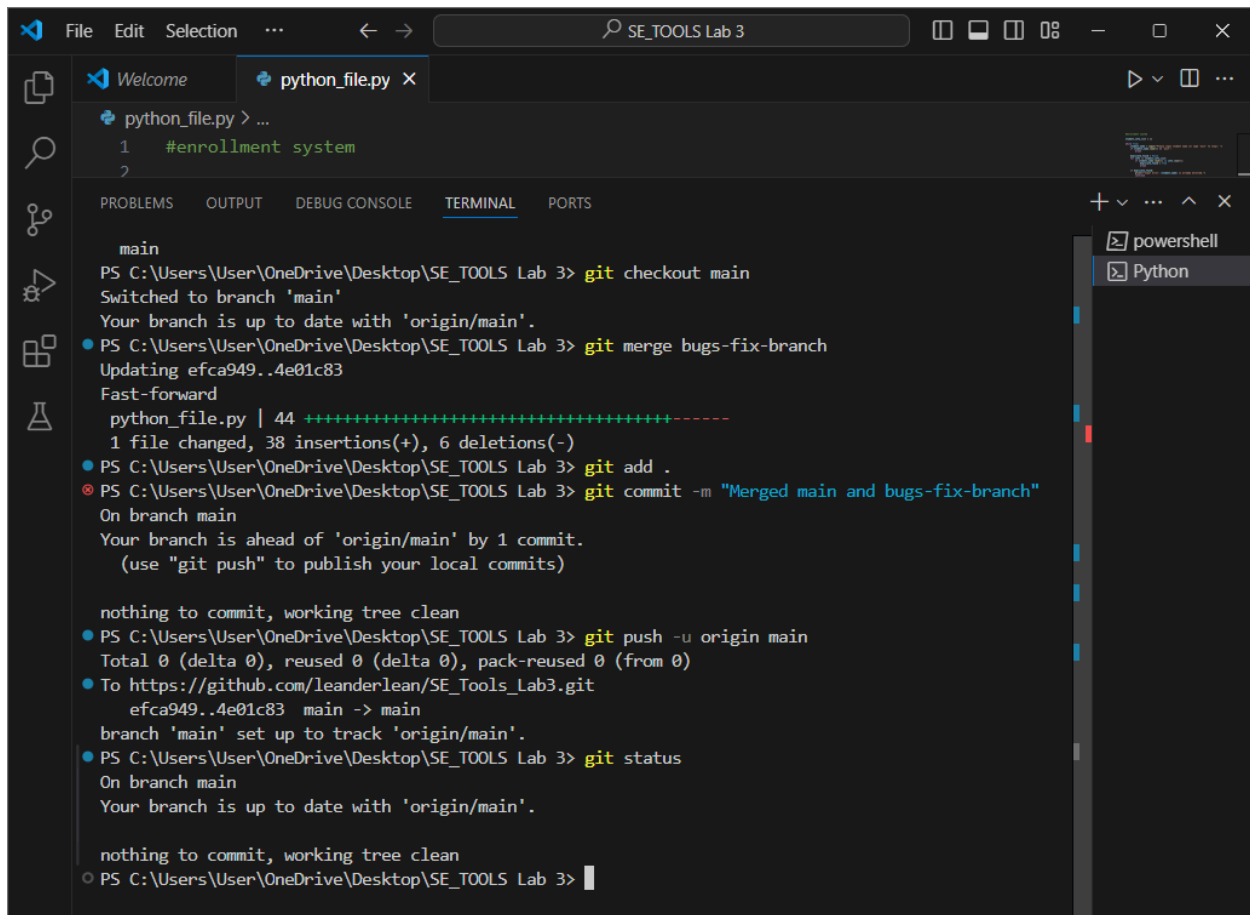
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout main
Already on 'main'
Your branch is up to date with 'origin/main'.
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch bugs-fix-branch
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout bugs-fix-branch
Switched to branch 'bugs-fix-branch'
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin bugs-fix-branch
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'bugs-fix-branch' on GitHub by visiting:
remote:   https://github.com/leanderlean/SE_Tools_Lab3/pull/new/bugs-fix-branch
remote:
To https://github.com/leanderlean/SE_Tools_Lab3.git
 * [new branch]      bugs-fix-branch -> bugs-fix-branch
branch 'bugs-fix-branch' set up to track 'origin/bugs-fix-branch'.
💡 PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3>
```



```
1  #enrollment system
2
3  student_info_list = []
4
5  while True:
6      student_name = input("Please input student name (or type 'exit' to stop): ")
7      if student_name.lower() == 'exit':
8          break
9
10     duplicate_found = False
11     for info in student_info_list:
12         if student_name.lower() in info.lower():
13             duplicate_found = True
14             break
15
16     if duplicate_found:
17         print(f"Input error: {student_name} is already enrolled.")
18         continue
19
20     student_age = input("Please input age: ")
21     student_grade_level = input("What grade level would you like to enroll? ")
22
23     if len(student_name.split()) < 2:
24         print("Input error: Name must be at least two words.")
25         continue
26
27     try:
28         student_age_int = int(student_age)
29         if student_age_int <= 0:
30             print("Input error: Age must be a positive integer.")
31             continue
32     except ValueError:
33         print("Input error: Age must be an integer.")
34         continue
35
36
37     student_info_list.append((f"{student_name}, age: {student_age}, enrolled in grade: {student_grade_level}"))
38     print(f"{student_name} is successfully enrolled")
39
40
41 print(sorted(student_info_list))
42
```

Ln 26, Col 1 Spaces: 4 UTF-8 CRLF {} Python 3.11.9 64-bit (Microsoft Store) Go Live

1. I merged the main branch and the branch 3 which I labeled as "bugs-fix-branch".



The screenshot shows the Visual Studio Code interface with a terminal window open. The terminal displays the following commands and output:

```
main
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git merge bugs-fix-branch
Updating efca949..4e01c83
Fast-forward
 python_file.py | 44 ++++++-----
 1 file changed, 38 insertions(+), 6 deletions(-)
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git add .
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git commit -m "Merged main and bugs-fix-branch"
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin main
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
• To https://github.com/leanderlean/SE_Tools_Lab3.git
  efca949..4e01c83  main -> main
  branch 'main' set up to track 'origin/main'.
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
• PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3>
```

The editor shows a file named `python_file.py` with the following content:

```
python_file.py > ...
1  #enrollment system
2
```

The terminal window is titled "SE_TOOLS Lab 3" and has tabs for "powershell" and "Python".

2. I merged the main and branch 1 labeled as "sorting-feature-branch" and branch 2 labeled as "valid-input-branch". I merged it separately.

Merging main and branch 1

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch
  bugs-fix-branch
  fixing-bugs-branch
* main
  sorting-feature-branch
  valid-input-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git merge sorting-feature-branch
Auto-merging python_file.py
CONFLICT (content): Merge conflict in python_file.py
Automatic merge failed; fix conflicts and then commit the result.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git commit -m "fix all the conflicts"
On branch main
Your branch is ahead of 'origin/main' by 2 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:   python_file.py

no changes added to commit (use "git add" and/or "git commit -a")
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin main
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 333 bytes | 333.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/leanderlean/SE_Tools_Lab3.git
   4e01c83..b6f4dba  main -> main
branch 'main' set up to track 'origin/main'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3>
```

Merging main and branch 2

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git merge valid-input-branch
Auto-merging python_file.py
CONFLICT (content): Merge conflict in python_file.py
Automatic merge failed; fix conflicts and then commit the result.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git add .
⊗ PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git commit -m "Fix all the conflicts and merged main and branch 2"
On branch main
Your branch is ahead of 'origin/main' by 4 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
● PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin main
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 16 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 727 bytes | 727.00 KiB/s, done.
Total 5 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/leanderlean/SE_Tools_Lab3.git
  76a708a..8bf414b  main -> main
branch 'main' set up to track 'origin/main'.
○ PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> █
```

I ensured here that all features and fixes are present in the main without conflicts

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout main
● >>
Already on 'main'
Your branch is up to date with 'origin/main'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git log --oneline
● >>
8bf414b (HEAD -> main, origin/main) Merge branch 'valid-input-branch'
95c5599 fixed all the conflicts
ec913b6 Fixed all the conflicts
76a708a fix all the conflicts
b6f4dba Merge branch 'sorting-feature-branch'
4e01c83 (origin/bugs-fix-branch, bugs-fix-branch) Fixed all the duplication
d4e19c5 (origin/valid-input-branch, valid-input-branch) Added a input validator
28c6dc4 (origin/sorting-feature-branch, sorting-feature-branch) Added features that sorts the name alphabetically
efca949 (fixing-bugs-branch) Added some contents
38c71ef Added a blank python File
○ PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> █
```


PART II.

1. I created a tag named v2.0

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git branch
bugs-fix-branch
fixing-bugs-branch
* main
sorting-feature-branch
valid-input-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git tag v2.0
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin v2.0
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/leanderlean/SE_Tools_Lab3.git
 * [new tag]          v2.0 -> v2.0
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

2. I created a lightweight tag pre-release

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git checkout bugs-fix-branch
Switched to branch 'bugs-fix-branch'
Your branch is up to date with 'origin/bugs-fix-branch'.
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git tag pre-release
>>
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push -u origin pre-release
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/leanderlean/SE_Tools_Lab3.git
 * [new tag]          pre-release -> pre-release
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

3. I pushed all the tags to the remote repository.

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push --tags
Everything up-to-date
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

PART 2

1. Here are the tags

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git tag
pre-release
v2.0
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

2. Deleted "pre-release tag"

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git tag -d pre-release
>>
Deleted tag 'pre-release' (was 4e01c83)
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push --delete origin pre-release
>>
To https://github.com/leanderlean/SE_Tools_Lab3.git
- [deleted]          pre-release
○ PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

3. Created a tag named "rollback"

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git log --oneline
>>
4e01c83 (HEAD -> bugs-fix-branch, origin/bugs-fix-branch) Fixed all the duplication
efca949 (fixing-bugs-branch) Added some contents
38c71ef Added a blank python File
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git tag rollback 4e01c83
>>
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push origin rollback
>>
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/leanderlean/SE_Tools_Lab3.git
* [new tag]          rollback -> rollback
○ PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> 
```

SUBMISSION:

```
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push --all origin
>>
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 1015 bytes | 1015.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/leanderlean/SE_Tools_Lab3.git
4e01c83..842c63e bugs-fix-branch -> bugs-fix-branch
PS C:\Users\User\OneDrive\Desktop\SE_TOOLS Lab 3> git push --tags
>>
Everything up-to-date
```