

Branching:

Branching in general is like taking a snapshot of our project at a specific point so we can work further on new ideas or features further without affecting the main version (main or master branch). It's like having different versions of your project running at the same time, where each branch can have its own changed features and improvements. Once we are satisfied with the changes in a branch, then we can merge it back into the main version to include those changes. In short, Branches help us to work on different tasks separately and keep your main project stable and organized.

- 1- First start by checking the current branch.

```
PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS COMMENTS
PS C:\Users\DELL\Downloads\Installation_git> git branch --list
* master
PS C:\Users\DELL\Downloads\Installation_git> 
```

- 2- We can start by creating another branch named as **feature**

```
PS C:\Users\DELL\Downloads\Installation_git> git branch feature
PS C:\Users\DELL\Downloads\Installation_git> git branch --list
feature
* master
PS C:\Users\DELL\Downloads\Installation_git> 
```

- 3- Checking the list of branches

```
PS C:\Users\DELL\Downloads\Installation_git> git branch feature
PS C:\Users\DELL\Downloads\Installation_git> git branch --list
feature
* master
PS C:\Users\DELL\Downloads\Installation_git> 
```

- 4- Add a new file which will be present in both master and feature branch

```
PS C:\Users\DELL\Downloads\Installation_git> git add .
PS C:\Users\DELL\Downloads\Installation_git> git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   feature.py
PS C:\Users\DELL\Downloads\Installation_git> 
```

5- Check for file we created

```
PS C:\Users\DELL\Downloads\Installation_git> git checkout feature
Switched to branch 'feature'
A       feature.py
PS C:\Users\DELL\Downloads\Installation_git>
```

6- Deleting newly created branch feature

```
PS C:\Users\DELL\Downloads\Installation_git> git checkout master
Switched to branch 'master'
A       feature.py
PS C:\Users\DELL\Downloads\Installation_git> git branch -d feature
Deleted branch feature (was 4f71266).
PS C:\Users\DELL\Downloads\Installation_git>
```

7- After deletion again check for the list of branches existing

```
PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS COMMENTS
PS C:\Users\DELL\Downloads\Installation_git> git branch -a
* master
PS C:\Users\DELL\Downloads\Installation_git>
```

Merging:

Merging in GitHub refers to the process of combining changes we did from one branch into another branch. When you merge branches, Git will integrate the changes made in the source branch (typically a feature branch here in our case feature-1) into the target branch (main branch like master/main). This allows us to combine different lines of development and add new features, bug fixes, or updates into our main codebase.

```
PS C:\Users\DELL\Downloads\Installation_git> git checkout master
Switched to branch 'master'
A       feature.py
PS C:\Users\DELL\Downloads\Installation_git> git merge feature-1
Already up to date.
PS C:\Users\DELL\Downloads\Installation_git> git merge master
Already up to date.
PS C:\Users\DELL\Downloads\Installation_git> git checkout master
PS C:\Users\DELL\Downloads\Installation_git> git add .
PS C:\Users\DELL\Downloads\Installation_git> git merge feature-1
Already up to date.
PS C:\Users\DELL\Downloads\Installation_git> git checkout master
>> git merge feature-1
>>
Already on 'master'
A       feature-1.py
A       feature.py
Already up to date.
PS C:\Users\DELL\Downloads\Installation_git> git branch -v
>>
    feature-1 4f71266 My first commit
* master      4f71266 My first commit
PS C:\Users\DELL\Downloads\Installation_git> git branch feature_b
PS C:\Users\DELL\Downloads\Installation_git> git checkout master
Already on 'master'
A       feature-1.py
A       feature.py
PS C:\Users\DELL\Downloads\Installation_git> git merge feature_b
Already up to date.
```