

## Branches

- [Refer Here](#) for git branches documentation from atlassian
- In Git we have a default branch and the name of it is master.

```
PS C:\temp\repos\payroll> git add .
PS C:\temp\repos\payroll> git commit -m "Added folder structure"
[master (root-commit) 287a1ff] Added folder structure
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 Readme.md
PS C:\temp\repos\payroll> git branch
* master
PS C:\temp\repos\payroll> |
```

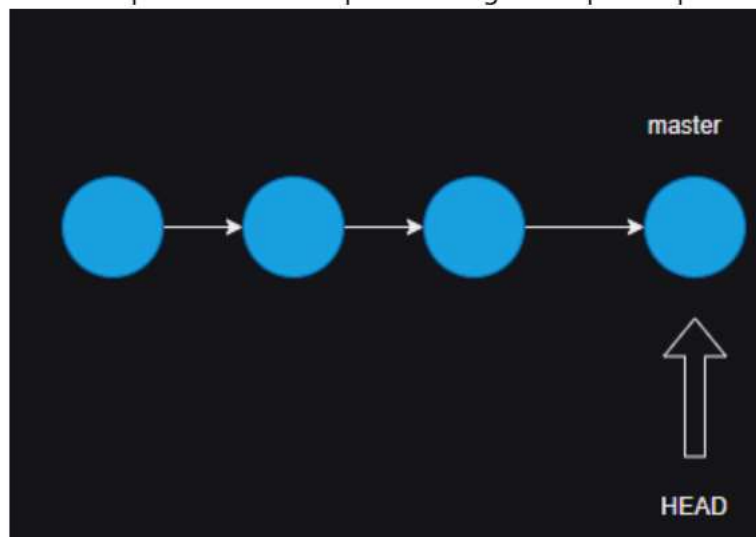
- Branch always points to latest commit on it

Lets create some customer based branching

- Lets create 4 commits on master branch

```
PS C:\temp\repos\payroll> git log --oneline
3810f6b (HEAD -> master) added docs
7fac4c4 Added test
d2df472 Added main app
287a1ff Added folder structure
PS C:\temp\repos\payroll> git branch
* master
PS C:\temp\repos\payroll>
```

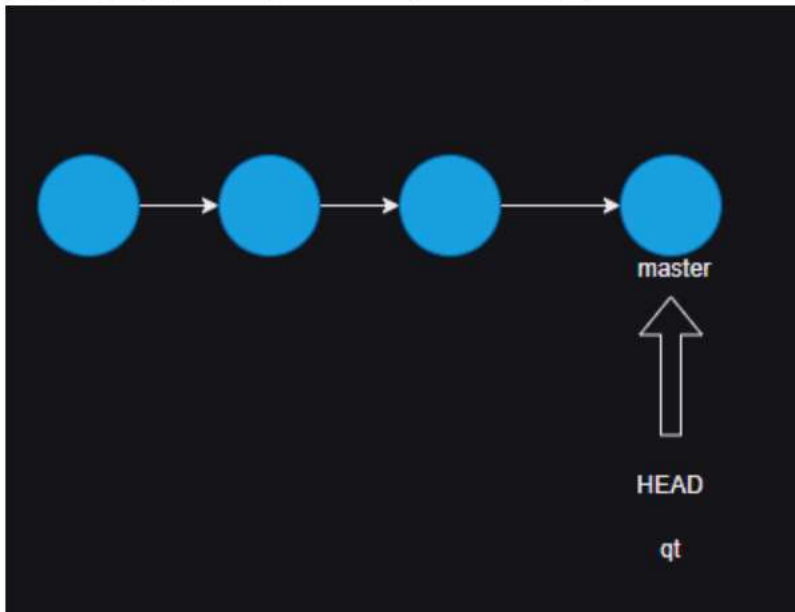
- Now lets assume we got two customers
  - qt
  - It
- We are expected to make special changes for qt and special changes for It





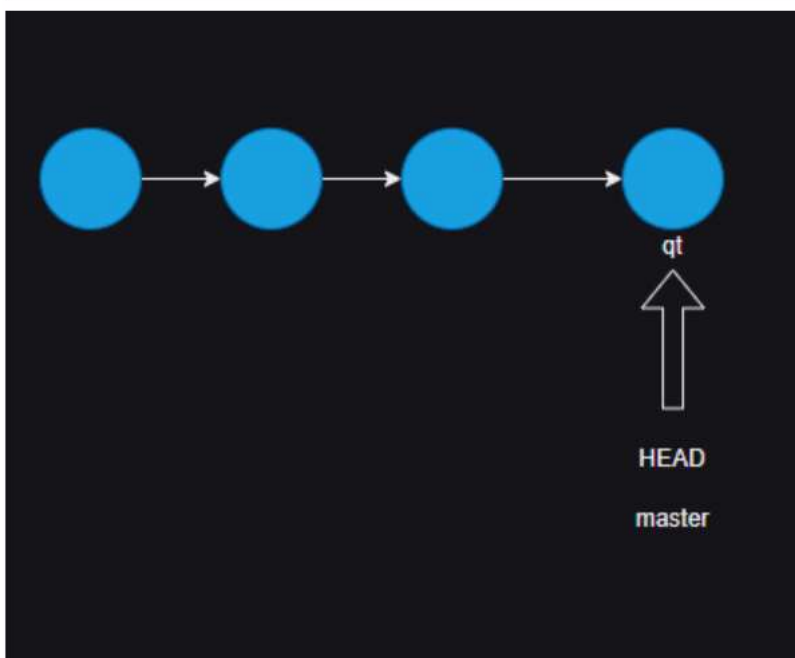
- Lets create a branch called as qt

```
PS C:\temp\repos\payroll> git branch qt
PS C:\temp\repos\payroll> git log --oneline
3810f6b (HEAD -> master, qt) added docs
7fac4c4 Added test
d2df472 Added main app
287a1ff Added folder structure
```

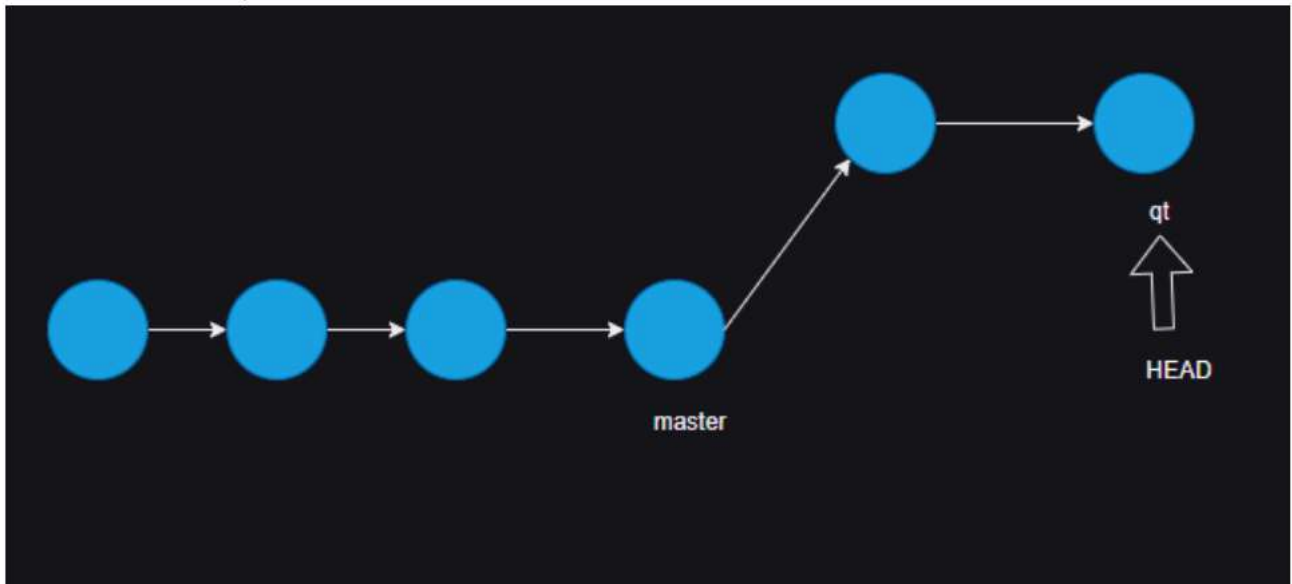


- Now lets checkout to qt

```
PS C:\temp\repos\payroll> git checkout qt
Switched to branch 'qt'
PS C:\temp\repos\payroll> git branch
  master
* qt
PS C:\temp\repos\payroll>
```



- Now lets make couple of commits

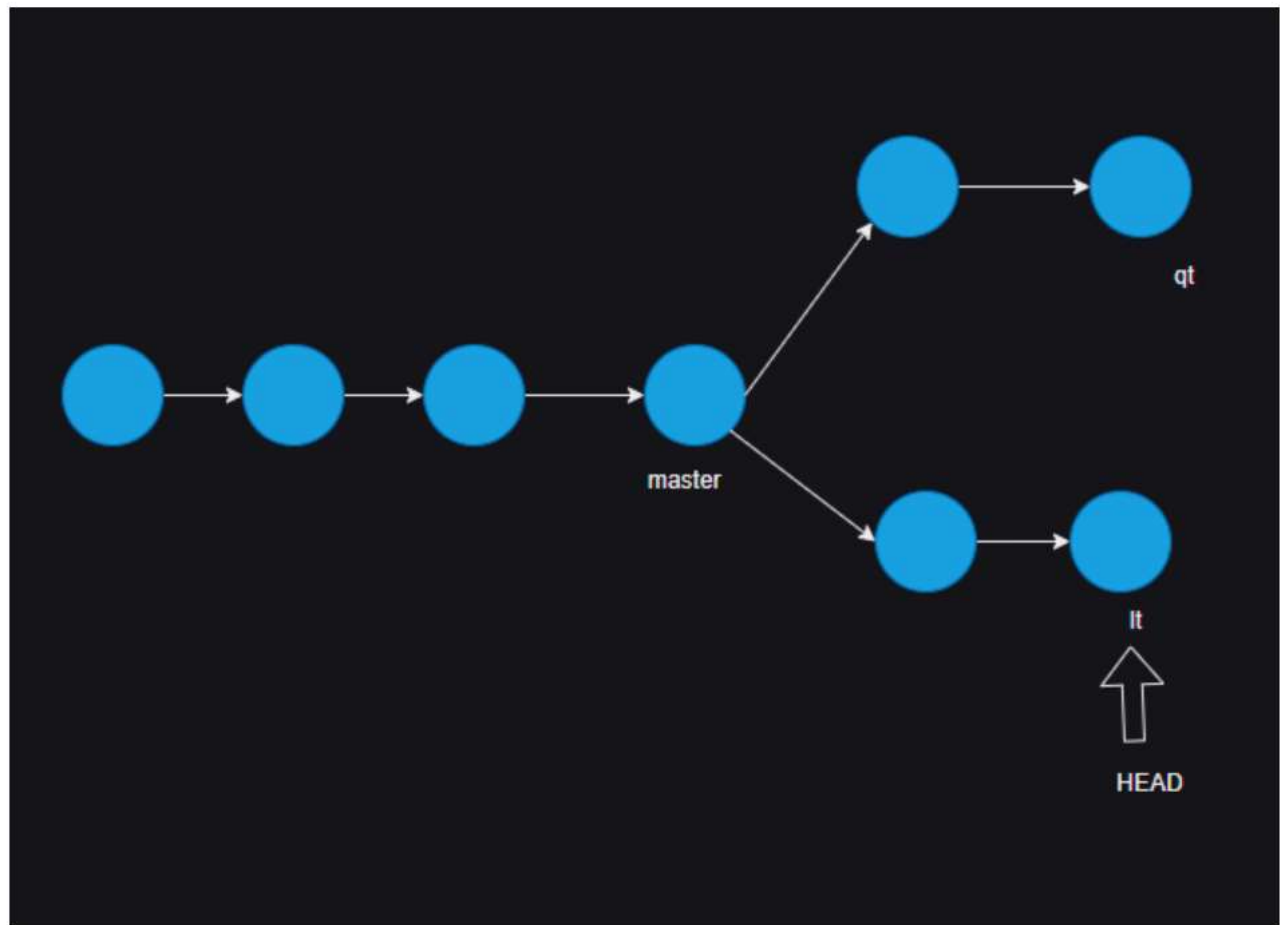


```
PS C:\temp\repos\payroll> git log --oneline
2787fcb (HEAD -> qt) Added test
9857ce5 Added changes
3810f6b (master) added docs
7fac4c4 Added test
d2df472 Added main app
287a1ff Added folder structure
PS C:\temp\repos\payroll>
```

- Now lets checkout to master and create a new branch called as lt and create couple of commits

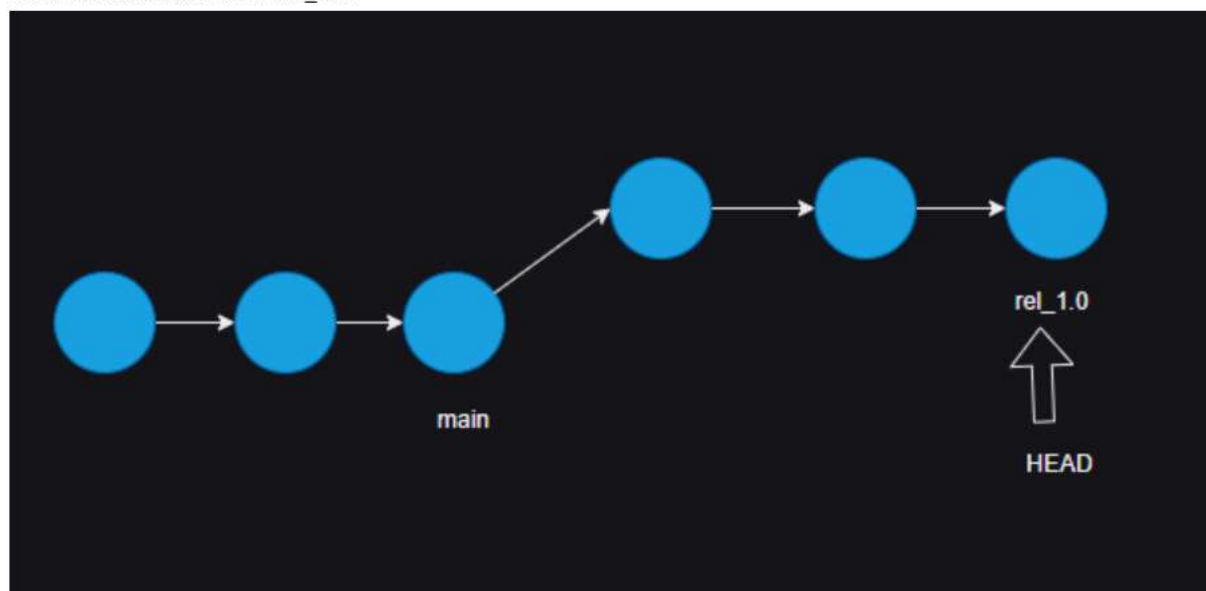
```
PS C:\temp\repos\payroll> git branch
* lt
  master
  qt
PS C:\temp\repos\payroll> git log --oneline
2d90db5 (HEAD -> lt) added test
99a52cc added lt
3810f6b (master) added docs
7fac4c4 Added test
d2df472 Added main app
287a1ff Added folder structure
PS C:\temp\repos\payroll>
```





Lets create release based branching

- Lets create main and rel\_1.0



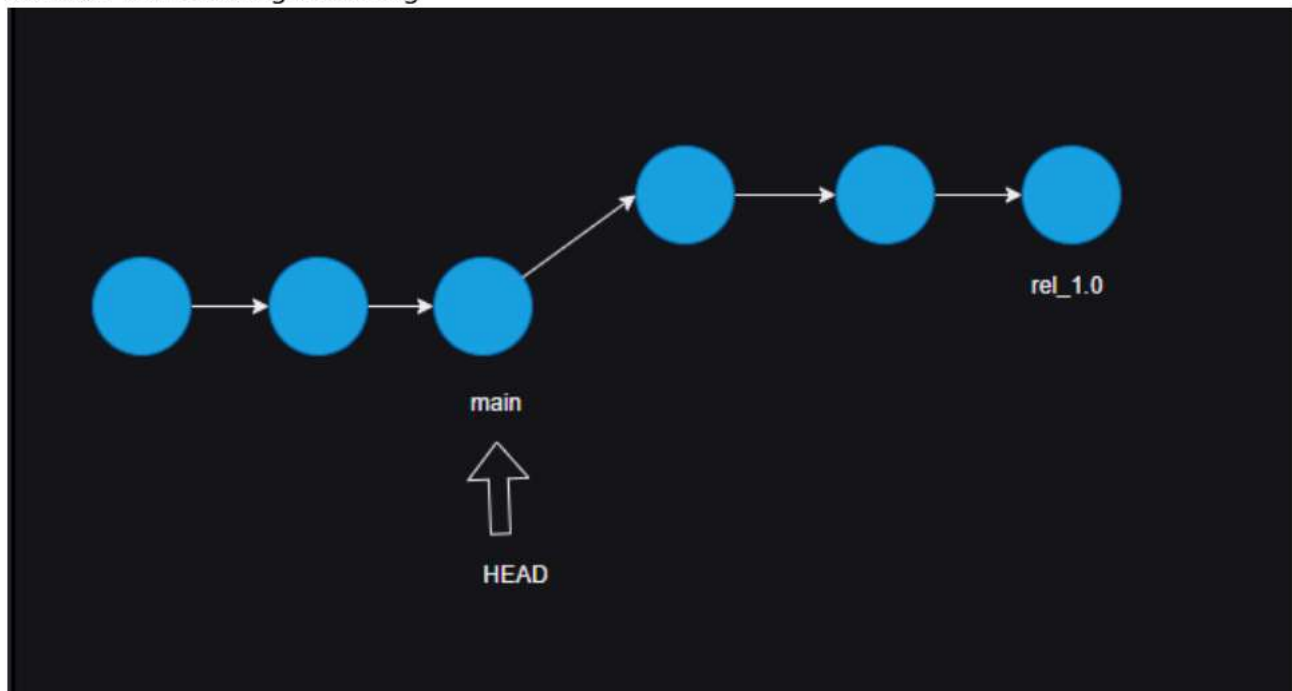
```
PS C:\temp\repos\rel_demo> git branch
main
* rel_1.0
PS C:\temp\repos\rel_demo> git log --oneline
d6e2873 (HEAD -> rel_1.0) Added 3
e6fc25d added 2
471ad07 Added change 1
2c81ea3 (main) Added 3
fe38d3d added 2
7ea2c2c Added changes
PS C:\temp\repos\rel_demo>
```

## Merging branches

- In many cases we would like to merge the changes from one branch to another

### Scenario - 1: Fast forward merge

- Consider the following branching

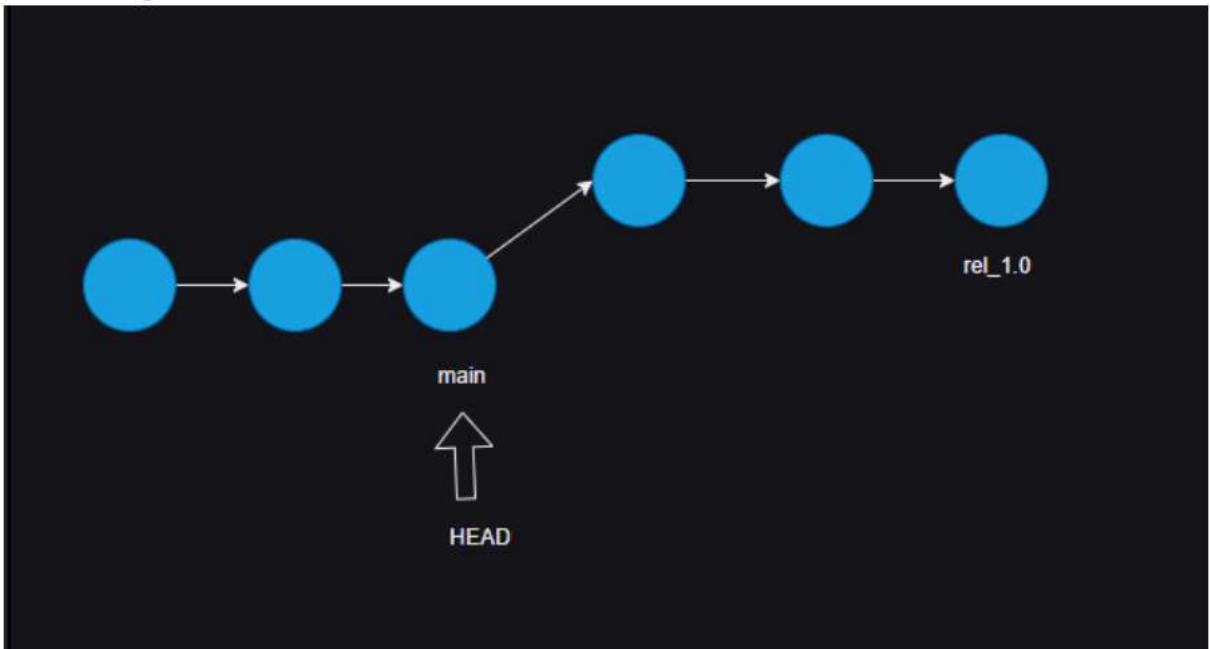


- Now we want to merge changes from rel\_1.0 to main
- destination/target = main
- move your head to target `git checkout main`
- Fastforward is a situation where the following happens

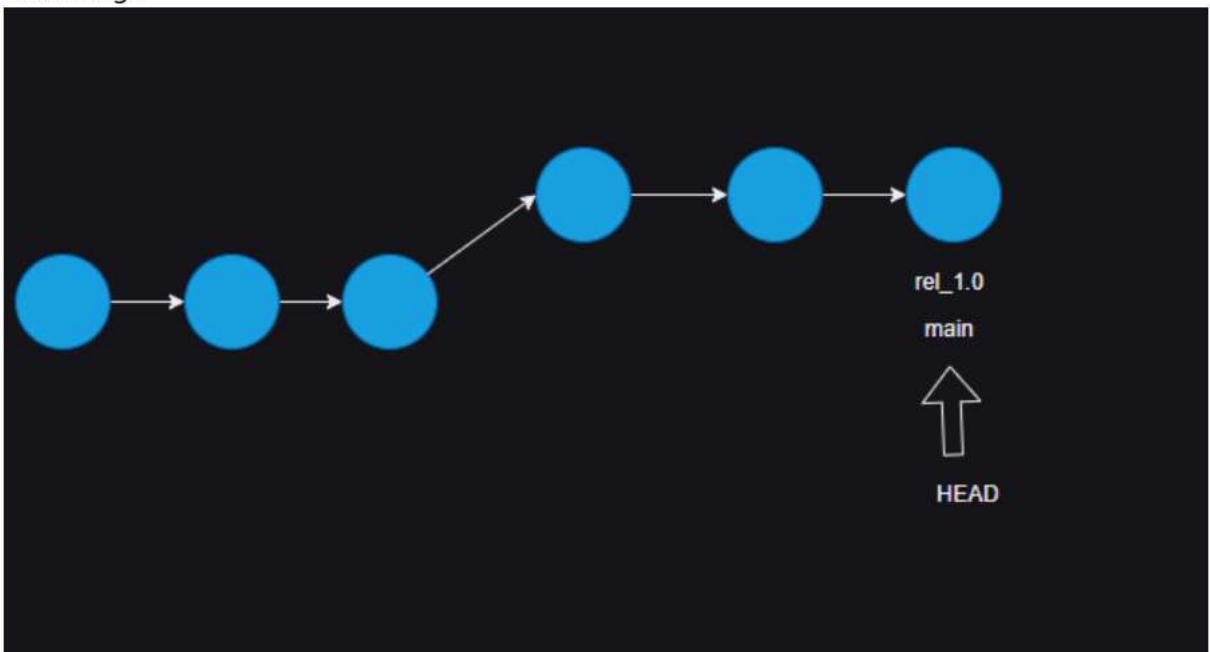




- Before merge



- Post merge



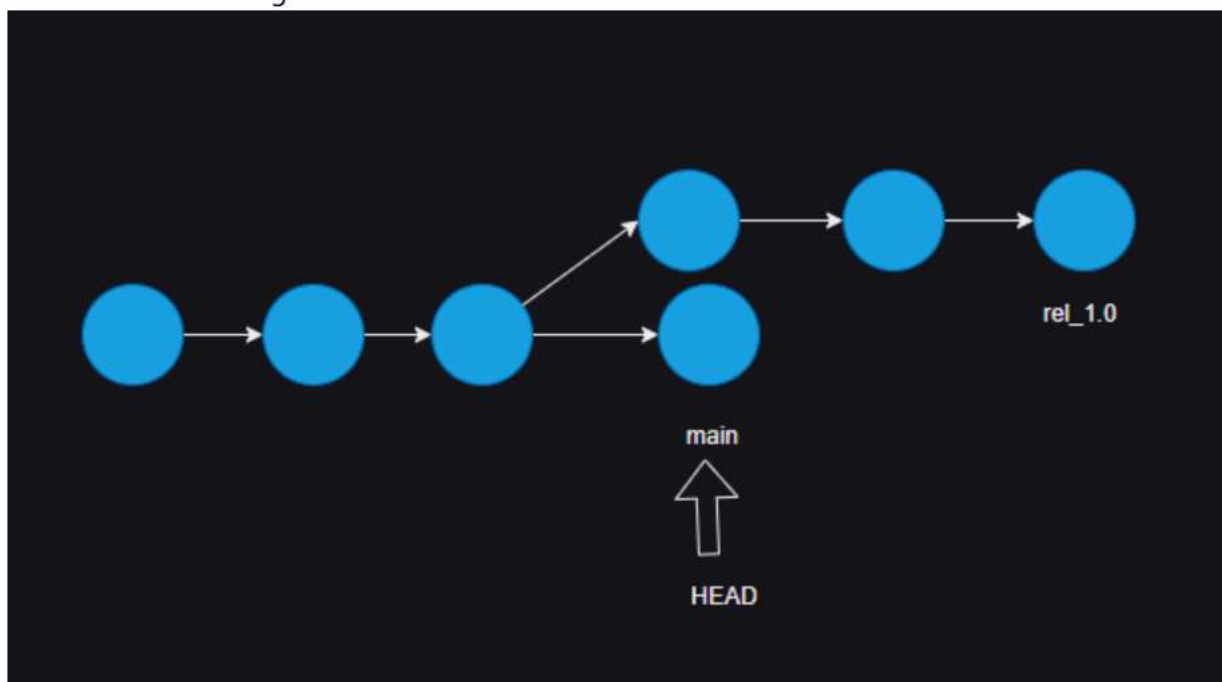
```

PS C:\temp\repos\rel_demo> git branch
main
* rel_1.0
PS C:\temp\repos\rel_demo> git checkout main
Switched to branch 'main'
PS C:\temp\repos\rel_demo> git merge rel_1.0
Updating 2c81ea3..d6e2873
Fast-forward
 main.py | 34 ++++++++++++++++++++++++++++++++++++++
 1 file changed, 34 insertions(+)
PS C:\temp\repos\rel_demo> git log --oneline
d6e2873 (HEAD -> main, rel_1.0) Added 3
e6fc25d added 2
471ad07 Added change 1
2c81ea3 Added 3
fe38d3d added 2
7ea2c2c Added changes
PS C:\temp\repos\rel_demo>

```

## Scenario - 2: Three way merge

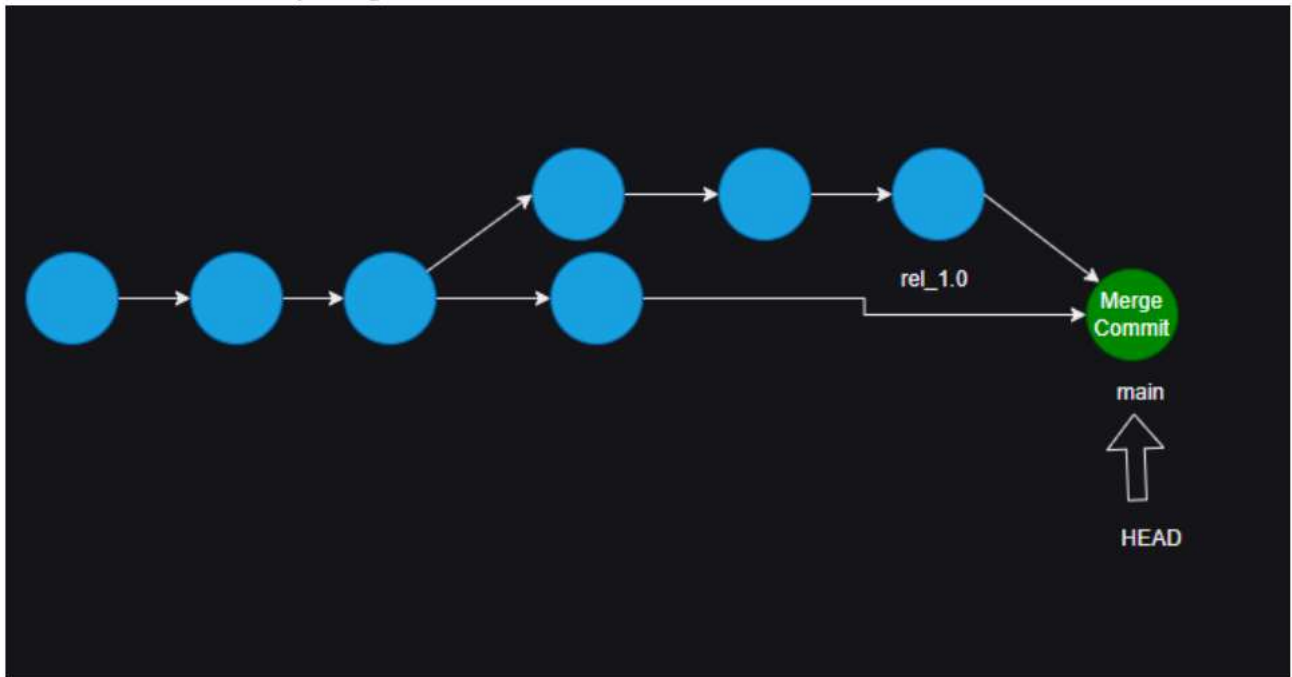
- Consider the following situation



- Now we want to merge changes from rel\_1.0 to main



- This leads to a three way merge



```

PS C:\temp\repos\rel_demo> git branch
* main
  rel_1.0
PS C:\temp\repos\rel_demo> git merge rel_1.0
Merge made by the 'ort' strategy.
  main.py | 34 ++++++
  1 file changed, 34 insertions(+)
PS C:\temp\repos\rel_demo> git log --oneline --all --graph
* 677d2a4 (HEAD -> main) Merge branch 'rel_1.0'
| \
| * d6e2873 (rel_1.0) Added 3
| * e6fc25d added 2
| * 471ad07 Added change 1
| * | e54a174 added factor
| /
* 2c81ea3 Added 3
* fe38d3d added 2
* 7ea2c2c Added changes
PS C:\temp\repos\rel_demo>

```

- [Refer Here](#) for merging documentation.



