< itc >

Ex2 - Back to the future

Please read the instructions carefully before completing this exercise.

After initializing your first repository, adding and committing files, it's time to learn how Git tracks changes and how you can navigate through the history of your changes.

Please submit your answer as a PDF file. For each question, include in your answer the question number, the command(s) you used to solve the question, and the output of the command(s) (text or screenshot).

Part 1: Tracking and Resetting Changes

Questions:

1. Using `git --version`, report the version number of Git that you are using to solve this exercise.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git --
version
git version 2.25.1
```

2. Using your repository from the previous exercise, open the `hello_world.txt` file for editing using the CLI and erase a single word in the middle of the file. Save and close the file. Do not stage or commit your change.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ vim he
llo_world.txt
```

3. Inspect the status of your git repository. Document the command you used and its output, and explain what you see.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git st
atus
On branch master
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:   hello_world.txt

no changes added to commit (use "git add" and/or "git commit -a")
```

File hello_word.txt was edited and not yet staged.

4. Use a Git command to inspect the difference between the last committed version and the current modified (unstaged) version. Execute this command and document its output.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git di
ff
diff --git a/hello_world.txt b/hello_world.txt
index b621db2..d5f0bf3 100644
--- a/hello_world.txt
+++ b/hello_world.txt
@@ -1,8 +1,7 @@
 Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
 Aenean commodo ligula eget dolor.
 Aenean massa.
-Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.
+Cum sociis natoque et magnis dis parturient montes, nascetur ridiculus mus.
 Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem.
 Nulla consequat massa quis enim.
-Donec pede justo, fringilla vel, aliquet nec, vulputate eget, arcu.
-
+Donec pede justo, fringilla vel, aliquet nec, vulputate eget,
```

5. Use a Git command to reset your unstaged changes and go back to the version from the last commit. Hint: Use the `--hard` flag.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git lo
g
commit 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff (HEAD -> master)
Author: Gadi Ezer <gadi.g.ezer@gmail.com>
Date:   Thu Mar 9 15:39:59 2023 +0200

    1st commit
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git re
set --hard 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff
HEAD is now at 55cad8c 1st commit
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git lo
g
commit 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff (HEAD -> master)
Author: Gadi Ezer <gadi.g.ezer@gmail.com>
Date:   Thu Mar 9 15:39:59 2023 +0200

    1st commit
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git di
ff
```

6. Inspect the repository's status and the contents of `hello_world.txt` and make sure that you have really gone back to the last commit. Part 2: Time Travelling

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git st
atus
On branch master
nothing to commit, working tree clean
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ vim he
llo_world.txt
```

Questions:

7. Edit `hello_world.txt` again and add a word at some arbitrary place inside the file. Add the file to stage the changes and then commit the last changes.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ vim he
llo_world.txt
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git ad
d hello_world.txt
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git co
mmit -m "2nd commit"
[master 3a53375] 2nd commit
 1 file changed, 1 insertion(+), 1 deletion(-)
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git st
atus
On branch master
nothing to commit, working tree clean
```

8. Inspect the log of commits. Can you see the last two commits there?

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git lo
g
commit 3a533755f48edbcbb97f9c5f1c972f581f1f9cc9 (HEAD -> master)
Author: Gadi Ezer <gadi.g.ezer@gmail.com>
Date:   Thu Mar 9 16:46:19 2023 +0200

    2nd commit

commit 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff
Author: Gadi Ezer <gadi.g.ezer@gmail.com>
Date:   Thu Mar 9 15:39:59 2023 +0200

    1st commit
```

9. Now use `git checkout` to roll back to your first commit. You should use the ID of the commit shown in the log.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git ch
eckout 55cad
Note: switching to '55cad'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:

  git switch -c <new-branch-name>

Or undo this operation with:

  git switch -

Turn off this advice by setting config variable advice.detachedHead to false

HEAD is now at 55cad8c 1st commit
```

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git lo
g --reflog --graph
* commit 3a533755f48edbcbb97f9c5f1c972f581f1f9cc9 (master)
| Author: Gadi Ezer <gadi.g.ezer@gmail.com>
| Date:   Thu Mar 9 16:46:19 2023 +0200
|
|     2nd commit
|
* commit 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff (HEAD)
  Author: Gadi Ezer <gadi.g.ezer@gmail.com>
  Date:   Thu Mar 9 15:39:59 2023 +0200

      1st commit
```

10. HEAD in Git is a reference to the currently checked out commit. Your current position is called a detached HEAD. Use the status command to confirm that you're in a detached HEAD position.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git st
atus
HEAD detached at 55cad8c
nothing to commit, working tree clean
```

11. Open the file you edited (`hello_world.txt`) and make sure you see the original text there. How cool is that?

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ vim he
llo_world.txt
```

12. Now that you're in the first commit, use a Git command to display the difference between your current position and the last commit you made. Document the command and its output.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git di
ff 55cad 3a533
diff --git a/hello_world.txt b/hello_world.txt
index b621db2..f6db7d6 100644
--- a/hello_world.txt
+++ b/hello_world.txt
@@ -1,7 +1,7 @@
 Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
 Aenean commodo ligula eget dolor.
 Aenean massa.
-Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.
+Cum sociis natoque aaazzzaaazzzaaazzz penatibus et magnis dis parturient montes, nascetur ridiculus mus.
 Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem.
 Nulla consequat massa quis enim.
 Donec pede justo, fringilla vel, aliquet nec, vulputate eget, arcu.
```

13. Use `git checkout` to "navigate" forward to your last commit.

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git ch
eckout 3a533
Previous HEAD position was 55cad8c 1st commit
HEAD is now at 3a53375 2nd commit
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git lo
g --reflog --graph
* commit 3a533755f48edbcbb97f9c5f1c972f581f1f9cc9 (HEAD, master)
| Author: Gadi Ezer <gadi.g.ezer@gmail.com>
| Date:   Thu Mar 9 16:46:19 2023 +0200
|
|     2nd commit
|
* commit 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff
  Author: Gadi Ezer <gadi.g.ezer@gmail.com>
  Date:   Thu Mar 9 15:39:59 2023 +0200

      1st commit
```

14. Now that HEAD is referencing the last commit, use the status command to make sure that your HEAD reference is back in place (that is, it is not detached anymore).

```
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git ch
eckout master
Switched to branch 'master'
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git st
atus
On branch master
nothing to commit, working tree clean
gadi@DESKTOP-IEPN1TQ:/mnt/d/Academy/Studying/Bootcamp/ITC Feb 23/Assignments/Git_Fundamentals/Solutions/Ex1 - Gitting Started$ git lo
g
commit 3a533755f48edbcbb97f9c5f1c972f581f1f9cc9 (HEAD -> master)
Author: Gadi Ezer <gadi.g.ezer@gmail.com>
Date:   Thu Mar 9 16:46:19 2023 +0200

    2nd commit

commit 55cad8c4fd148d087dc6a5f8a11ed5be2b5a76ff
Author: Gadi Ezer <gadi.g.ezer@gmail.com>
Date:   Thu Mar 9 15:39:59 2023 +0200

    1st commit
```

Good luck!