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## Exercises Git Tutorial

### Work locally on your laptop

The following instructions have been tested under Ubuntu. Mac and Windows users can use Ubuntu in the Virtual Machine (setup distributed by Stefan Wyder):

1. Install Git:  
`sudo apt-get install git`

### Exercise 1 remote repository:

1. Create new directory and make it a new Git repository (or use the one you already created in Stefan's exercises)
2. Create a new file "script.sh" with following content:

```
#!/bin/bash

cd /home/student/Documents/bashScripting

#1. Quality check: FastQC
#####
mkdir fastQCResults
/home/student/software/FastQC/fastqc -t 4 -o fastQCResults
/home/student/Documents/bashScripting/data/ERR000064_200_1.fastq
/home/student/software/FastQC/fastqc -t 4 -o fastQCResults
/home/student/Documents/bashScripting/data/ERR000064_200_2.fastq
/home/student/software/FastQC/fastqc -t 4 -o fastQCResults
/home/student/Documents/bashScripting/data/ERR000061_500_1.fastq
/home/student/software/FastQC/fastqc -t 4 -o fastQCResults
/home/student/Documents/bashScripting/data/ERR000061_500_2.fastq
```

3. Commit the file to the local repository
4. Go to <https://github.com/> and sign up for GitHub
5. Log into GitHub and create a new repository
6. Connect the local with the remote repository and send the changes to the remote repository



## Exercise 2 collaborating:

Open a second terminal window to simulate two users collaborating on a project

Terminal 2:

1. Create a new directory (outside of the above one) and cd into that directory
2. Copy the remote repository on your computer
3. Change the script.sh file, as follows:

```
#!/bin/bash
pathFastqc=/home/student/software/FastQC/fastqc
cd /home/student/Documents/bashScripting

#1. Quality check: FastQC
#####
mkdir fastQCRResults
${pathFastqc} -t 4 -o fastQCRResults
/home/student/Documents/bashScripting/data/ERR000064_200_1.fastq
${pathFastqc} -t 4 -o fastQCRResults
/home/student/Documents/bashScripting/data/ERR000064_200_2.fastq
${pathFastqc} -t 4 -o fastQCRResults
/home/student/Documents/bashScripting/data/ERR000061_500_1.fastq
${pathFastqc} -t 4 -o fastQCRResults
/home/student/Documents/bashScripting/data/ERR000061_500_2.fastq
```

4. Commit and push the changes to the remote repository

Terminal 1:

5. Change the script.sh file, as follows:

```
#!/bin/bash
workPath=/home/student/Documents/bashScripting
cd ${workPath}

#1. Quality check: FastQC
#####
mkdir fastQCRResults
/home/student/software/FastQC/fastqc -t 4 -o fastQCRResults
${workPath}/data/ERR000064_200_1.fastq
/home/student/software/FastQC/fastqc -t 4 -o fastQCRResults
${workPath}/data/ERR000064_200_2.fastq
/home/student/software/FastQC/fastqc -t 4 -o fastQCRResults
${workPath}/data/ERR000061_500_1.fastq
/home/student/software/FastQC/fastqc -t 4 -o fastQCRResults
${workPath}/data/ERR000061_500_2.fastq
```



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6. Commit and try to push the changes to the remote repository
  7. Git doesn't allow the push. Thus, first resolve the conflicts and then try to push it again.

Terminal 2:

8. Update local repository and have a look at the file.



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**Solutions:**

You can find the solutions under following link:

[https://www.dropbox.com/s/ocj79azg14jr285/Git\\_solutions.txt?dl=0](https://www.dropbox.com/s/ocj79azg14jr285/Git_solutions.txt?dl=0)

**Sources:**

<http://swcarpentry.github.io/git-novice>