1. Erstellen Sie sich ein Repository in Github oder GitLab.

Mein Git-Repo für dieses Modul und den folgenden Aufgaben:

https://github.com/RobertOder/SWT_ESA9.git

PS:

Ich habe bereits ein wenig Erfahrung mit Git im Modul "Objektorientierte Skriptsprachen" sammeln können. Ich habe hierfür ein Git-Repo erstellt, welches ich für das Abschlussprojekt zusammen mit einem Kommilitonen genutzt habe. Für den Fall, dass ich ein paar Befehle vergessen habe, hier ein Link zu meinem damaligen Projekt:

https://github.com/RobertOder/OOS_Git_Repos.git

- 2. Pushen Sie ein eigenes Projekt von Ihnen hoch (z.B. das CCD-Projekt) oder erstellen Sie ein neues Projekt!
- 3. Wenden Sie alle in den Unterlagen genannten relevanten Methoden beweisbar an: (das Github Repo ist Beweis) push, pull, add, commit, diff, status, rm/mv, etc.
- 4. Experimentieren Sie mit Zeitreisen!
- 5. Erstellen sie zwei unterschiedliche aber ähnliche Branches, wechseln sie hin und her und mergen sie diese Branches dann wieder!

Alle vier Aufgaben befinden sich auf den nachfolgenden Seiten.

- init
- add
- branch
- status
- commit
- push to origin

```
Robby@Lenovo-Robby MINGW64 ~
$ cd SWT_ESA9/
 obby@Lenovo-Robby MINGW64 ~/SWT_ESA9
$ echo "# SWT_ESA9" >> README.md
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9
$ git init
Initialized empty Git repository in C:/Users/Robby/SWT_ESA9/.git/
 obby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (master)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git touches it
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (master)
$ git add .gitignore
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (master)
$ git status
On branch master
No commits yet
Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
       new file: .gitignore
        new file: README.md
 tobby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (master)
$ git commit -m "Mein erster Kommentar und Commit"
[master (root-commit) 62c918f] Mein erster Kommentar und Commit
2 files changed, 138 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 README.md
 cobby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (master)
$ git branch -M main
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git remote add origin https://github.com/RobertOder/SWT_ESA9.git
 cobby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git push -u origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 16 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 1.35 KiB | 1.35 MiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/RobertOder/SWT_ESA9.git
* [new branch] main -> main
branch 'main' set up to track 'origin/main'.
 obby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
```

- create new branch
- add global config

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git branch -a
* main
    remotes/origin/main

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git branch "v0.1"

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git switch v0.1

Switched to branch 'v0.1'

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git branch -a
    main
* v0.1
    remotes/origin/main

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ |
```

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git config --global user.name "Robert Oder"

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git config --global user.email "robert.oder@gmx.de"

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ |
```

- add into new branch
- commit
- push to origin

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git add .
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git status
On branch v0.1
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file: src/recorder/ResolutionAdjustment.java
        new file: src/recorder2/OpenCVBackendExample.java
        new file: src/recorder3/JavaCVRecorder.java
        new file: src/recorder3/JavaCVRecorderWithAudio.java
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git commit -m "Projekt commited"
[v0.1 ad8adc5] Projekt commited
 4 files changed, 639 insertions(+)
 create mode 100644 src/recorder/ResolutionAdjustment.java
 create mode 100644 src/recorder2/OpenCVBackendExample.java
 create mode 100644 src/recorder3/JavaCVRecorder.java
 create mode 100644 src/recorder3/JavaCVRecorderWithAudio.java
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git status
On branch v0.1
nothing to commit, working tree clean
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git push
fatal: The current branch v0.1 has no upstream branch.
To push the current branch and set the remote as upstream, use
    git push --set-upstream origin v0.1
To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git push --set-upstream origin v0.1
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 16 threads
Compressing objects: 100% (10/10), done.
Writing objects: 100% (10/10), 6.78 KiB | 6.78 MiB/s, done.
Total 10 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), done.
 remote:
remote: Create a pull request for 'v0.1' on GitHub by visiting:
             https://github.com/RobertOder/SWT_ESA9/pull/new/v0.1
 remote:
remote:
To https://github.com/RobertOder/SWT_ESA9.git
* [new branch]
                    v0.1 -> v0.1
branch 'v0.1' set up to track 'origin/v0.1'.
```

- switch to main branch
- add into main branch
- commit

```
tobby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (v0.1)
$ git switch main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
 tobby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git add .
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git commit -m "Projektdateien hinzugefuegt"
[main 9681714] Projektdateien hinzugefuegt
 4 files changed, 639 insertions(+)
 create mode 100644 src/recorder/ResolutionAdjustment.java
 create mode 100644 src/recorder2/OpenCVBackendExample.java
 create mode 100644 src/recorder3/JavaCVRecorder.java
 create mode 100644 src/recorder3/JavaCVRecorderWithAudio.java
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)
Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
(use "git restore <file>..." to discard changes in working directory)
                   src/recorder/ResolutionAdjustment.java
src/recorder2/OpenCVBackendExample.java
src/recorder3/JavaCVRecorderWithAudio.java
        deleted:
deleted:
no changes added to commit (use "git add" and/or "git commit -a")
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git add .
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git commit -m "Nicht mehr benoetigte Dateien entfernt"
[main ffc6683] Nicht mehr benoetigte Dateien entfernt
 3 files changed, 404 deletions(-)
 delete mode 100644 src/recorder/ResolutionAdjustment.java
 delete mode 100644 src/recorder2/OpenCVBackendExample.java
 delete mode 100644 src/recorder3/JavaCVRecorderWithAudio.java
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
  (use "git push" to publish your local commits)
nothing to commit, working tree clean
 cobby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
```

- merge branches
- solve a conflict

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)

$ git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)

$ git merge -m "Merge mit Version 0.1" v0.1

Auto-merging src/recorder3/JavaCVRecorder.java
CONFLICT (add/add): Merge conflict in src/recorder3/JavaCVRecorder.java
Automatic merge failed; fix conflicts and then commit the result.

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main|MERGING)

$ |
```

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git merge -m "Merge mit Version 0.1" ∨0.1
Auto-merging src/recorder3/JavaCVRecorder.java
CONFLICT (add/add): Merge conflict in src/recorder3/JavaCVRecorder.java
Automatic merge failed; fix conflicts and then commit the result.
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main|MERGING)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
 (use "git push" to publish your local commits)
You have unmerged paths.
  (fix conflicts and run "git commit")
  (use "git merge --abort" to abort the merge)
Changes to be committed:
        new file: src/recorder/ResolutionAdjustment.java
        new file: src/recorder2/OpenCVBackendExample.java
        new file: src/recorder3/JavaCVRecorderWithAudio.java
Unmerged paths:
  (use "git add <file>..." to mark resolution)
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main|MERGING)
$ git add .
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main|MERGING)
$ git commit -m "Vorschlag von ∨0.1 in main branch uebernommen"
[main b4f6df1] Vorschlag von v0.1 in main branch uebernommen
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 5 commits.
 (use "git push" to publish your local commits)
nothing to commit, working tree clean
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git merge -m "Merge mit Version 0.1" ∨0.1
Already up to date.
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
```

• log of branch merge

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)

$ git log --oneline --graph --decorate

* b4f6df1 (HEAD -> main) Vorschlag von v0.1 in main branch uebernommen

| * 2df190d (v0.1) Mommentare hinzugefuegt

| * ad8adc5 (origin/v0.1) Projekt commited

* | ffc6683 Nicht mehr benoetigte Dateien entfernt

* | 9681714 Projektdateien hinzugefuegt

|/

* 62c918f (origin/main) Mein erster Kommentar und Commit

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)

$ |
```

Matrikel-Nr.: 887789

• rm / mv

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9/src (main)
$ 1s
recorder/ recorder2/ recorder3/
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9/src (main)
$ git rm -r recorder
rm 'src/recorder/ResolutionAdjustment.java'
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9/src (main)
$ git rm -r recorder2
rm 'src/recorder2/OpenCVBackendExample.java'
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9/src (main)
$ git mv recorder3/ recorder
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9/src (main)
$ cd recorder/
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9/src/recorder (main)
$ 1s
JavaCVRecorder.java JavaCVRecorderWithAudio.java
```

- clone repo into new folder
- pull changes from README.md

```
Robby@Lenovo-Robby MINGW64 ~

$ cd SWT_ESA9_II/

Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_II

$ git clone https://github.com/RobertOder/SWT_ESA9.git
Cloning into 'SWT_ESA9'...
remote: Enumerating objects: 29, done.
remote: Counting objects: 100% (29/29), done.
remote: Compressing objects: 100% (17/17), done.
remote: Total 29 (delta 10), reused 26 (delta 7), pack-reused 0
Receiving objects: 100% (29/29), 9.29 KiB | 9.29 MiB/s, done.
Resolving deltas: 100% (10/10), done.
```

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_II/SWT_ESA9 (main)
$ git pull
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 5 (delta 0), reused 5 (delta 0), pack-reused 0
Unpacking objects: 100% (5/5), 460 bytes | 57.00 KiB/s, done.
From https://github.com/RobertOder/SWT_ESA9
   c91b61f..14536ca main
                               -> origin/main
Updating c91b61f..14536ca
Fast-forward
 README.md
              12++
 doc/ODER.pdf | 0
2 files changed, 2 insertions(+)
 create mode 100644 doc/ODER.pdf
 Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_II/SWT_ESA9 (main)
```

diff between two versions

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
 git log --oneline --graph --decorate
 14536ca (HEAD -> main, origin/main) Noch ein commit und push fuer den pull-test
 c91b61f Projekt bereinigt
   b4f6df1 Vorschlag von v0.1 in main branch uebernommen
  * 2df190d (v0.1) Mommentare hinzugefuegt
  * ad8adc5 (origin/v0.1) Projekt committed
   ffc6683 Nicht mehr benoetigte Dateien entfernt
   9681714 Projektdateien hinzugefuegt
 62c918f Mein erster Kommentar und Commit
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git diff ad8adc5 2df190d
diff --git a/src/recorder3/JavaCVRecorder.java b/src/recorder3/JavaCVRecorder.java
index c3f680c..59b256e 100644
--- a/src/recorder3/JavaCVRecorder.java
+++ b/src/recorder3/JavaCVRecorder.java
@@ -20,6 +20,11 @@ import java.nio.ByteBuffer;
import java.nio.ByteOrder;
 import java.nio.ShortBuffer;
 * Ein Klassenkommentar
 * @author Robert Oder
 * @version 0.1
public class JavaCVRecorder {
       // Initialisierung der threaduebergreifende Variablen
@@ -27.6 +32.10 @@ public class JavaCVRecorder {
       private static long startTime = 0;
    private static long videoTime = 0;
     * Da nicht viele Funktionen benoetigt werden, wurde alles in die main Methode geschrieben
     * @param args
    public static void main(String[] args) {
       // Log-Ausgabe fuer den Codec aktivieren
        FFmpegLogCallback.set();
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
```

Zeitreisen zwischen Anfang und Ende

```
obby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git log --oneline --graph --decorate
  14536ca (HEAD -> main, origin/main) Noch ein commit und push fuer den pull-test
  c91b61f Projekt bereinigt
   b4f6df1 Vorschlag von v0.1 in main branch uebernommen
  * 2df190d (v0.1) Mommentare hinzugefuegt
  * ad8adc5 (origin/v0.1) Projekt committed
   ffc6683 Nicht mehr benoetigte Dateien entfernt
   9681714 Projektdateien hinzugefuegt
  62c918f Mein erster Kommentar und Commit
obby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ git checkout 62c918f
Note: switching to '62c918f'.
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 62c918f Mein erster Kommentar und Commit
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 ((62c918f...))
$ ls -liah
total 29K
17451448556175592 drwxr-xr-x 1 Robby 197121
                                           O Jun 16 15:13 ./
11821949022051854 drwxr-xr-x 1 Robby 197121 0 Jun 16 15:13 .git/
13229323905859601 -rw-r--r-- 1 Robby 197121 2.4K Jun 16 11:21 .gitignore
19984723346726234 -rw-r--r-- 1 Robby 197121 12 Jun 16 15:13 README.md
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 ((62c918f...))
$ git checkout main
Previous HEAD position was 62c918f Mein erster Kommentar und Commit
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
$ ls -liah
total 29K
17451448556175592 drwxr-xr-x 1 Robby 197121
                                           O Jun 16 15:13 ./
13792273859036573 drwxr-xr-x 1 Robby 197121
                                           O Jun 16 15:12 ../
13229323905859601 -rw-r--r-- 1 Robby 197121 2.4K Jun 16 11:21 .gitignore
20266198323436890 -rw-r--r-- 1 Robby 197121 70 Jun 16 15:13 README.md
4222124651531711 drwxr-xr-x 1 Robby 197121
                                           O Jun 16 15:13 doc/
3659174698110410 drwxr-xr-x 1 Robby 197121
                                           0 Jun 16 15:13 src/
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9 (main)
```

6. Erstellen Sie in GitHub einen Pull-Request bezugnehmend auf https://github.com/edlich/education! Bitte referenzieren Sie auf den Pull-Request mit Link oder der Pull-Request Nummer! Kryptische GitHub Namen kann ich kaum zuordnen. Die Aufgabenteile vor dem Pull-Request bitte nicht in den Pull-Request einbauen, sondern

extra abgeben!

https://github.com/edlich/education/pull/514

```
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_III/education (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.
Untracked files:
  (use "git add <file>..." to include in what will be committed)
nothing added to commit but untracked files present (use "git add" to track)
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_III/education (master)
$ git add .
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_III/education (master)
$ git commit -m "Ein Pfannkuchen- bzw. Eierkuchen-Rezept darf nicht fehlen"
[master 6ea8e83] Ein Pfannkuchen- bzw. Eierkuchen-Rezept darf nicht fehlen
1 file changed, 10 insertions(+)
 create mode 100644 Cake-Folder/Pfannkuchen.txt
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_III/education (master)
$ git push
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 16 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 492 bytes | 492.00 KiB/s, done.
Total 4 (delta 2), reused O (delta 0), pack-reused O (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/RobertOder/education.git
   75598f4..6ea8e83 master -> master
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_III/education (master)
$ git pull
Already up to date.
Robby@Lenovo-Robby MINGW64 ~/SWT_ESA9_III/education (master)
```





