MAE 5032 High Performance Computing: Methods and Applications

Lab 7: Version control by git

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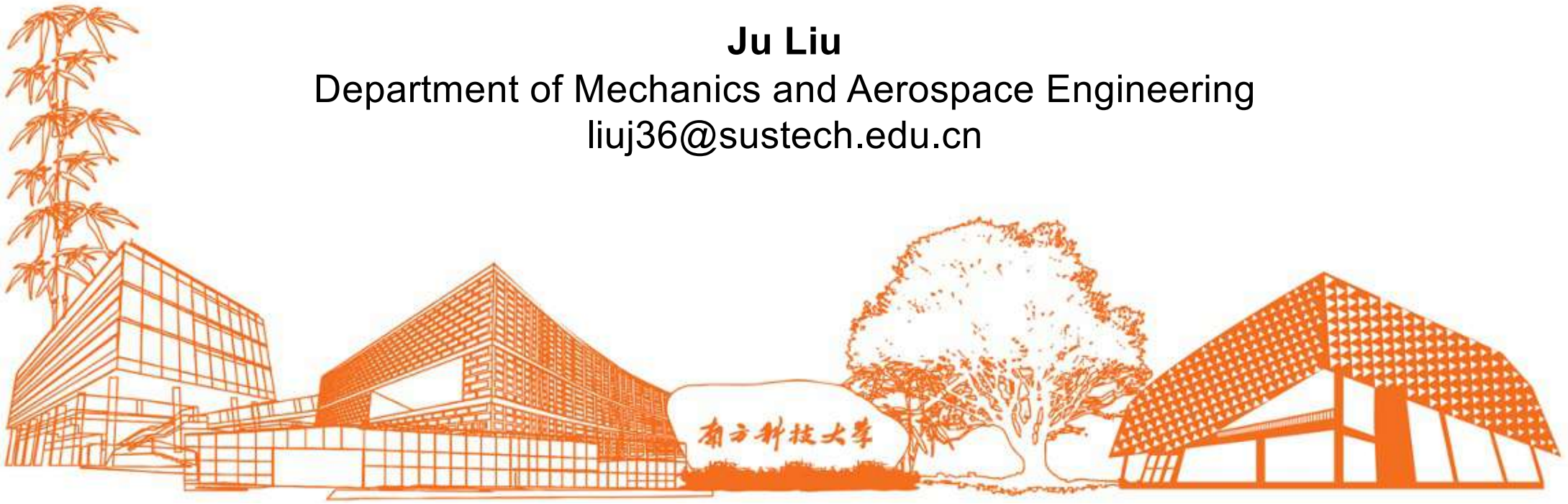


Objective

- review basic usage of git command
- handle merge conflict
- learn github basics

Task 1

- Do the following to setup and commit to your local repo.

```
mkdir git-demo
cd git-demo
git init --initial-branch=main
echo "line 1" > demo.txt
git add .
git commit -m "initial commit"
```

Task 1

- Create a branch and make edits.
- You may use git switch –c to replace git checkout -b

```
git checkout –b branch-a
echo “line 2 from branch A” >> demo.txt
git commit –am “add line 2 in branch A”

git checkout main
git checkout –b branch-b
echo “line 2 from branch B” >> demo.txt
git commit –am “add line 2 in branch B”

git branch
```

Task 1

- Take branch-a as the merge-receiving branch and do the merge

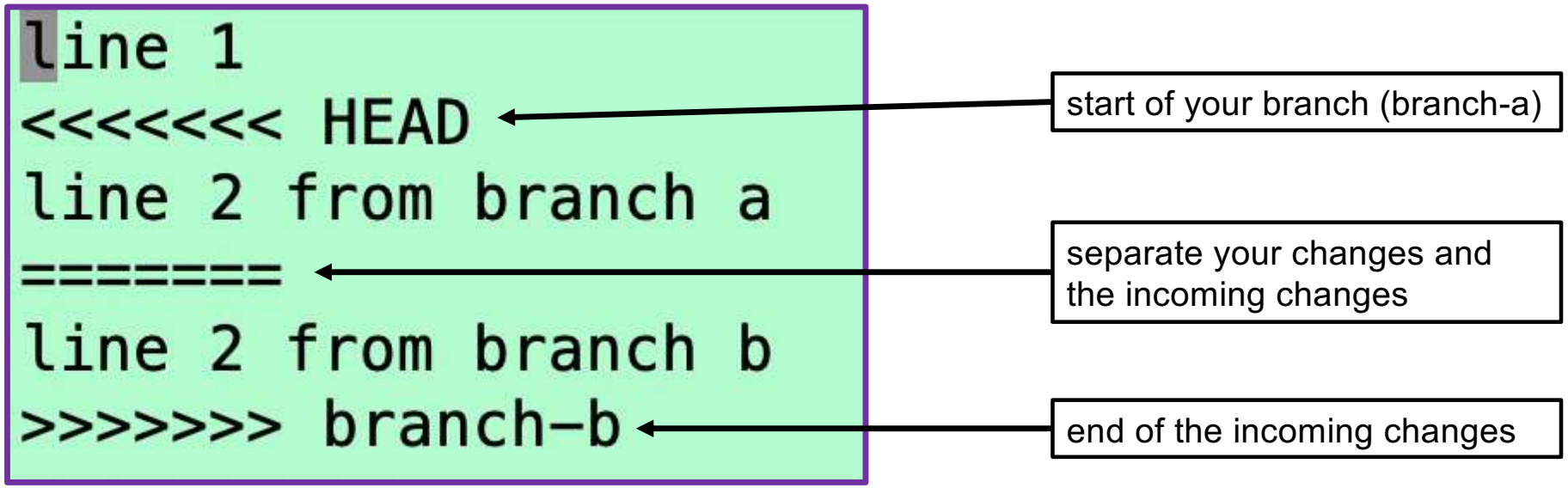
```
git checkout branch-a
git merge branch-b
```

- You may see conflict message as follows,

```
Auto-merging demo.txt
CONFLICT (content): Merge conflict in demo.txt
Automatic merge failed; fix conflicts and then commit the result.
```

Task 1

- Open the demo.txt file and handle the the conflict.



Task 1

- After the edits, we resolve the conflict by taking the version from branch b.

```
line 1
line 2 from branch b
```

- Then we finish the process by make a commit

```
git add demo.txt
git commit –m “Merge branch-b into branch-a, resolve conflict”
```

Task 1

- use `git log` to view the log history.

- use `git checkout <commit>` to go back to previous commit. View the status of the folder and the demo.txt file. Make sure it maches with your expectations.

Task 2: github

- For the first-time users, you need to setup a ssh key pairs and add public key to Github.

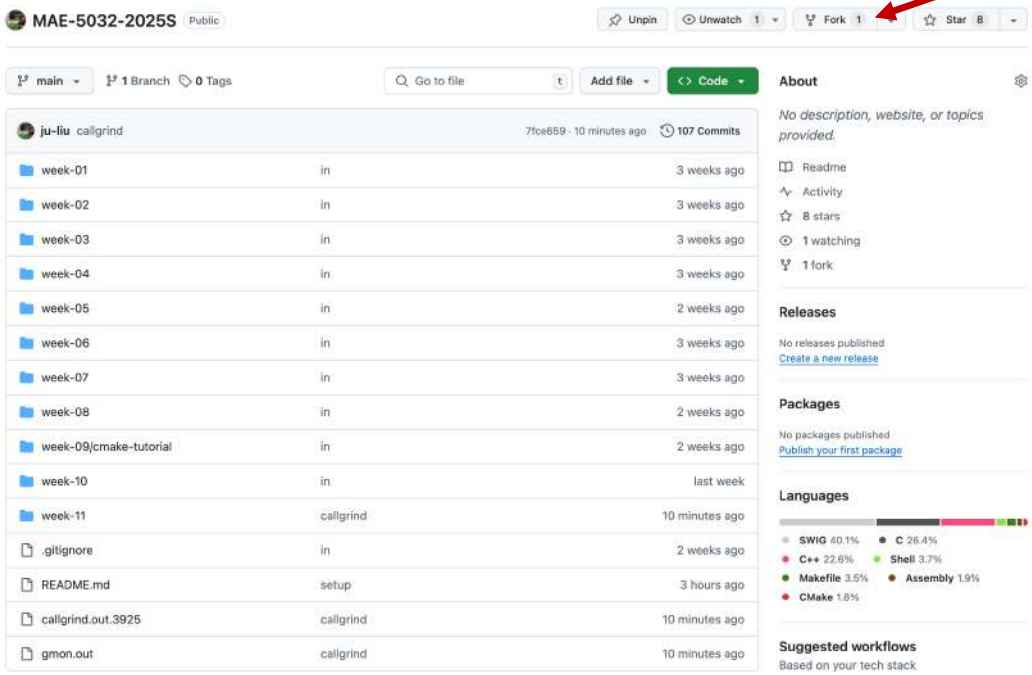
```
ls ~/.ssh
# if none, generate one
ssh-keygen -t ed25519 -C you@example.com
cat ~/.ssh/id_ed25519.pub
```

- Copy the key. Then go to GitHub -> Settings -> SSH and GPG keys -> New SSH key

Task 2: github

- You cannot directly modify the course repo github.com/ju-liu/MAE-5032-2025S, as I haven't granted you the premission.

- You can make your own copy of the repo by fork on github.



Task 2: github

- You cannot directly modify the course repo github.com/ju-liu/MAE-5032-2025S, as I haven't granted you the permission.
- After forking, you have a project MAE-5032-2025S under your own account.
- Clone the repo to your local computer.
- Go to week-12/sign-up.txt, edit the text file by adding your name, ID, and email into it.
- Use add, commit, push to update the changes to the github repo.

Task 2: github

- View your changes on the github page, make sure your changes are successfully pushed to the remote server.

- (optional) there is a pull request button on github. It is used for merging from the forked repo to the original repo. Try with it.