

GIT Startup

Niranjan S. Ghaisas

Dept. of Mechanical and Aerospace Engineering

IIT Hyderabad

What is GIT

- Version control software
- Helps keep code clean and organized
- “Remote backup” of your code
- Needs some initial effort to use it correctly
- Some easy-to-use hosting platforms: github and bitbucket

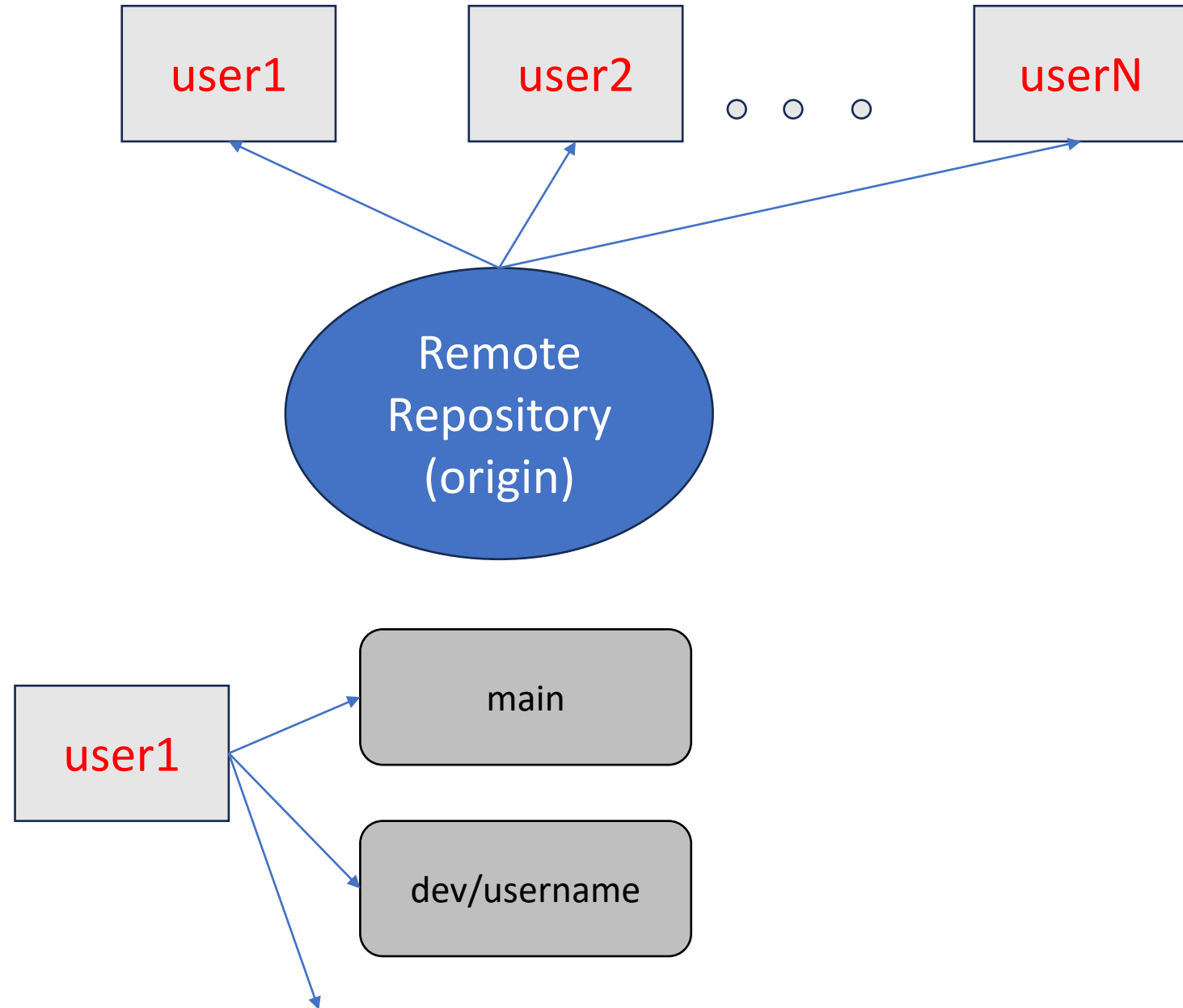
Avoid names like this

The screenshot shows the Xshell terminal interface. The title bar indicates the connection to 192.168.167.62 (nghaisas). The menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. The toolbar contains icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. The tab bar shows three active sessions: 2. 192.168.167.62 (nghaisas), 3. 192.168.167.62 (nghaisas) (1), and 4. 192.168.167.62 (nghaisas). The terminal window displays the command prompt [nghaisas@sahyadri code]\$ and the output of the 'ls' command, which lists files and directories in a grid-like format.

```
[nghaisas@sahyadri code]$ ls
fresh_start_june18  mycode_final2.c      mycode_latest.c      mycode_newest.c      NewFolder1
mycode.c           mycode_final.c       mycode_new1.c         new.c                 starting_over
mycode_final1.c    mycode_final_latest.c mycode_new.c          NewFolder
[nghaisas@sahyadri code]$
```

Git Cheat Sheet

- git clone
- git checkout
- git branch
- git add
- git commit
- git push
- git fetch
- git merge



Git Cheat Sheet

- git clone
- git checkout
- git branch
- git add
- git commit
- git push
- git fetch
- git merge
- Get code from a remote repo (only once)
- Switch from one branch to another
- Create new branch
- Add new file to your code
- “save” file(s) to local repo
- “save” changes on remote repo
- get latest version of remote repo
- merge two branches into one

Clone

- git clone
- Get code from a remote repo (only once)
- Create an account on github
- Search for your repository of interest
- For now: howtocfd23
- If it is not public, request access
- Go to “Code -> Local -> HTTPS” and copy str
- git clone {str}

Checkout and Branch

- git checkout
- git branch
- Managing branches, e.g.
 - Switch from one branch to another
 - Create new branch
- Suggested workflow:
 - Create new branch
 - Do your work in this branch
 - Save to remote repo
 - Merge with main (pull request)
- For this workshop:
 - Create new branch; work on it; save to remote
 - No merging with main

Checkout and Branch

- git checkout
- git branch
- Create a new branch
 - git branch <new-branch>
 - git checkout <new-branch>
 - OR
 - git checkout -b <new-branch>
- Suggested branch nomenclature:
 - dev/username
 - feature/username
 - bugfix/username
 - ...

Add and Commit

- git add
- git commit
- Do Work
 - Make changes to existing code files
 - Add a source code file
 - Delete a source code file
- Adds new/changed file to your local repo
 - git add <filename>
 - git add -A
- “save” new/changed file(s) to local repo
 - git commit -m “<Descriptive message>”

Push

- git push
- “save” changes on remote repo
- Once you have committed your changes to local repository, these can be transferred to the remote repository
 - `git push <remote> <branch-name>`
- For example:
 - `git push origin dev/nsghaisas`
- Note:
 - bad idea to push to ‘main’; use ‘Pull Requests’ for someone to review your code

Fetch and Merge

- git fetch
- git merge
- Multiple users working on different aspects of a code. You want to use what someone else has committed and pushed; the remote repo has been updated.
 - git fetch
- Remote branch of your local branch has been updated. Merge two branches into one.
- E.g., merge <branch-2> into <branch-1>
 - git checkout <branch-1>
 - git merge <branch-2>

Resources to Get Started

- <https://docs.github.com/en/get-started/quickstart/hello-world>
- <https://www.atlassian.com/git/tutorials/setting-up-a-repository>
- Several other videos and websites