Swedbank

GIT basics

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Agenda

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2. Extra content
   2.1 Branching
   2.2 Undoing
3. Bonus practice

1. Git essentials

What is git?

- Distributed version control
- Users keep entire code and history on their location machines
  - Users can make any changes without internet access
  - (Except pushing and pulling changes from a remote server)

Create Repositories

git init [project-name]

– Creates a new local repository with the specified name

git clone [url]

– Downloads a project and its entire version history

Make changes

git status

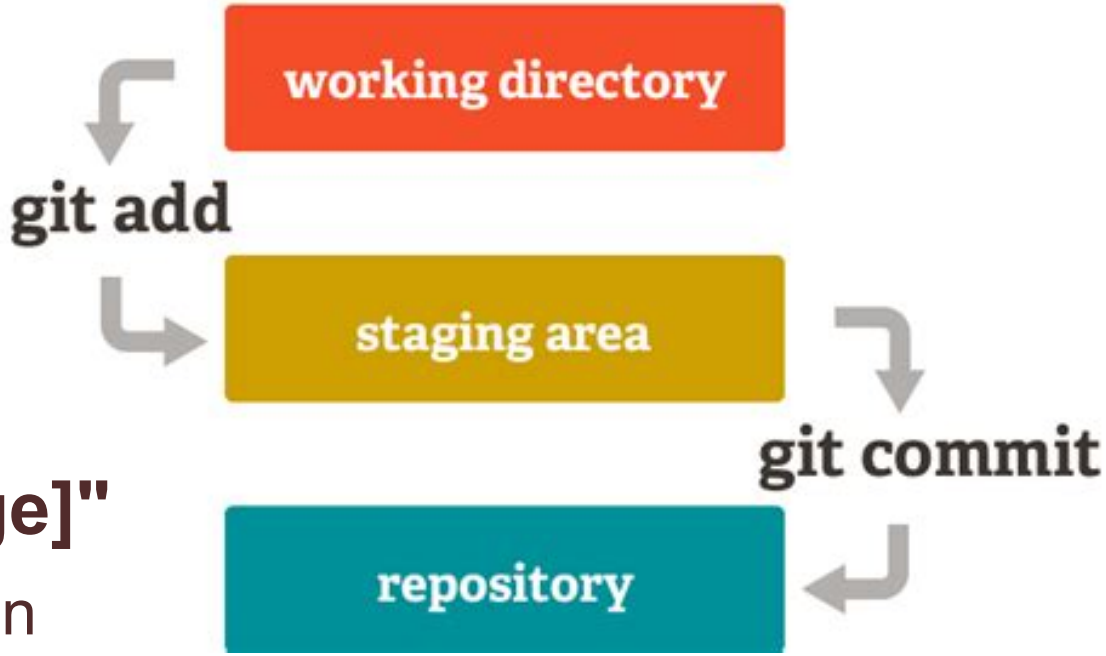
– Lists all new or modified files to be committed

git add [file]

– Snapshots the file in preparation for versioning

git commit -m "[descriptive message]"

– Records the file snapshots permanently in version history



Practice

Install git

- **Linux**

  sudo apt-get install git

  sudo yum install git

- **Mac**

  http://git-scm.com/download/mac

- **Windows**

  http://git-scm.com/download/win

Task #1

- Initialize a new git project
- Create a new file “readme.txt”
- Commit changes to local repo

1.1. Remote

Group Changes

git remote add [remote-name] [url]

– Add a new remote git repository as a shortname

git remote -v

– Lists all remote git repositories

Synchronize Changes

git push [alias] [branch]

– Uploads all local branch commits to remote repo branch

git push -u [alias] [branch]

– Sets upstream and uploads all local branch commits to remote repo branch (used only first time pushing a new branch)

git pull

– Fetches and merges any commits from the tracking remote branch

Synchronize Changes

git fetch

– Fetch branches and/or tags (collectively, "refs") from one or more other repositories, along with the objects necessary to complete their histories

git pull

– Fetches and merges any commits from the tracking remote branch

Practice

Create GitHub account

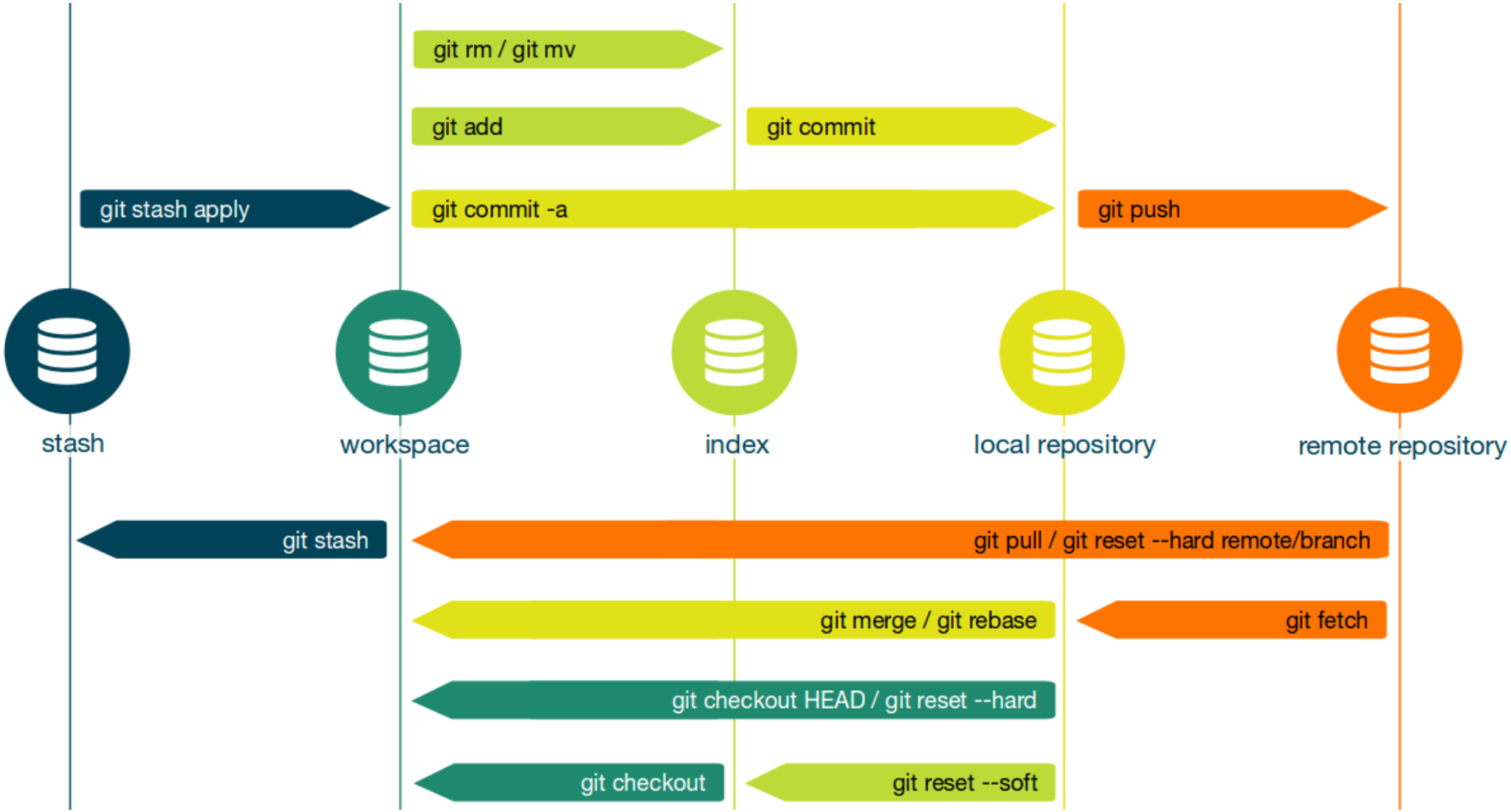
- www.github.com

Task #2

- Create a new repository in GitHub
- Setup remote in your local git project
- Push changes to GitHub

2. Extra content

Git workflow



Configure Tooling

git config --global user.name "[name]"

– Sets the name you want attached to your commit transactions

git config --global user.email "[email address]"

– Sets the email you want attached to your commit transactions

git config --add --system core.editor notepad

– sets notepad as a default editor (directed to windows users)

.gitignore

- .gitignore – file, that tells git which files (or patterns) it should ignore. It's usually used to avoid committing transient files from your working directory that aren't useful to other collaborators, such as compilation products, temporary files IDEs create, etc.

Semantic Commit Messages

- feat: (new feature for the user, not a new feature for build script)
- fix: (bug fix for the user, not a fix to a build script)
- docs: (changes to the documentation)
- style: (formatting, missing semi colons, etc; no production code change)
- refactor: (refactoring production code, eg. renaming a variable)
- test: (adding missing tests, refactoring tests; no production code change)
- chore: (updating grunt tasks etc; no production code change)

Practice

Task #3

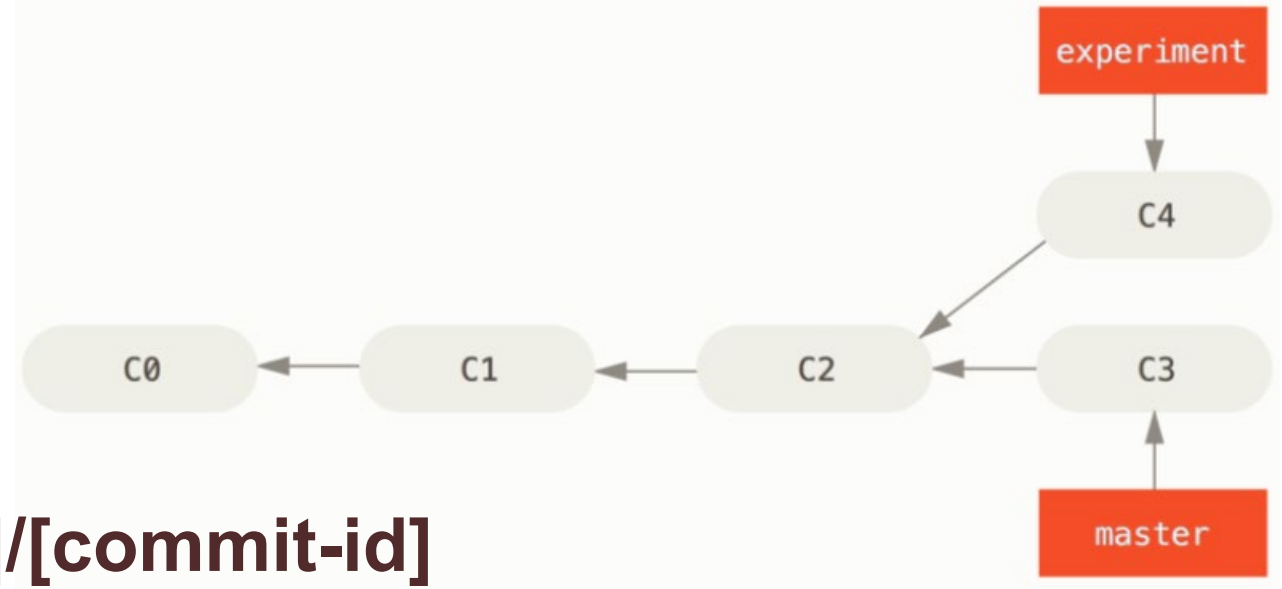
- Create a new directory “unwanted”
- Create a new directory “important”
- Create new files in each directories “file.txt”
- Ignore “unwanted” dir
- Commit changes to local repo

2.1. Branching

Group Changes

git branch [branch-name]

– Creates a new branch



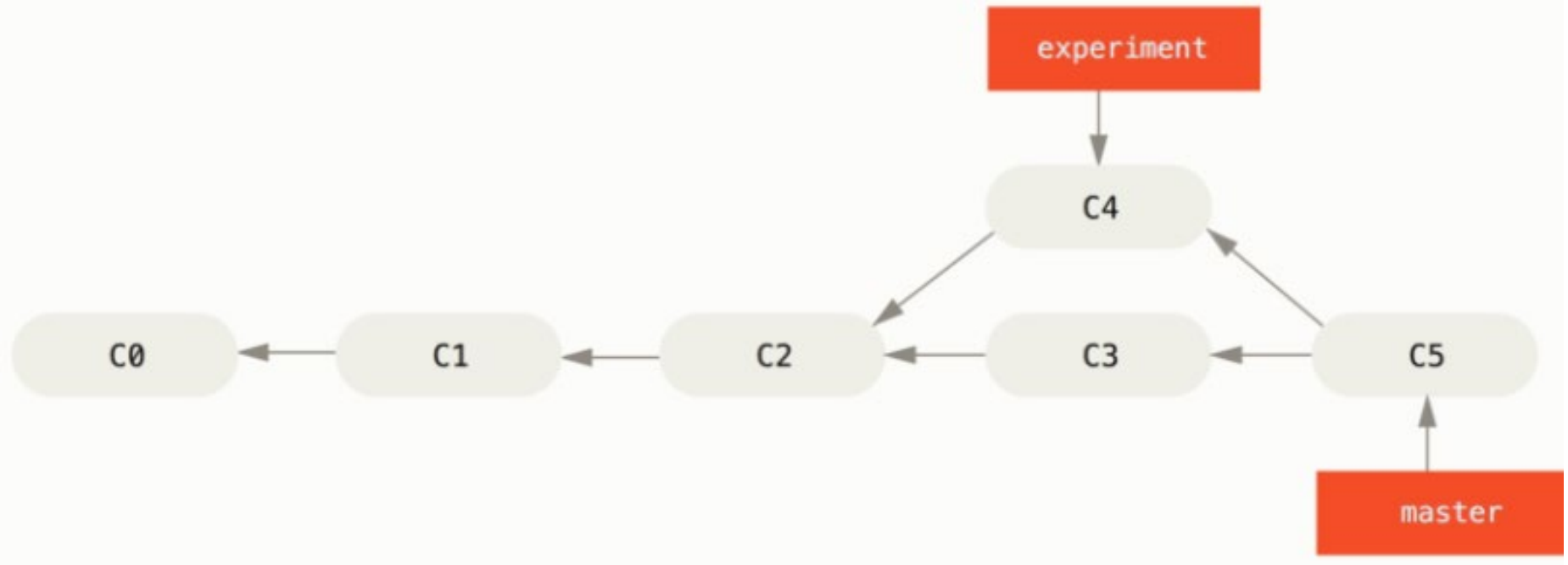
git checkout [branch-name]/[commit-id]

– Switches to the specified branch/commit and updates the working directory

Group Changes

git merge [branch]

– Combines the specified branch's history into the current branch



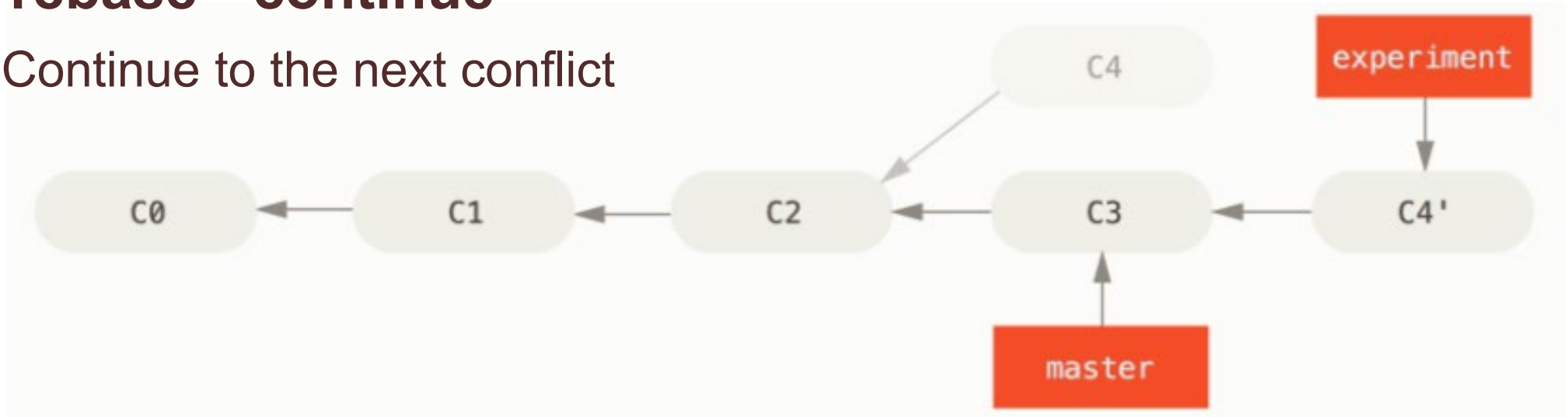
Group Changes

git rebase [branch]

– Rebases specified branch's history into the current branch

git rebase --continue

– Continue to the next conflict



Synchronize Changes

git merge [alias]/[branch]

- –merges a remote branch into your current branch to bring it up to date

Practice

Task #4

- Create a new branch “feature”
- Make some changes in that branch
- Merge master with branch

Task #5

- Create a new branch “conflicts” from master
- Create conflicting commits in master and new branch
- Merge master with branch (resolve conflict)

Task #5 bonus

- Create another conflicting commit in master and “conflicts” branch
- Rebase master with branch

2.2. Undoing

Redo commits

git reset [commit]

– Undoes all commits after [commit], preserving changes locally

git reset --hard [commit]

– Clears staging area, rewrites working tree from specified [commit]

3. Bonus practice

Task #6 (using Intellij IDE)

- Create a new “Hello world!” project in Intellij
- Run it!
- Init git repo
- Ignore compiled files including the directories they’re in
- Commit changes

Task #7 (using Intellij IDE)

- Create a new branch “feature”
- Make some changes in that branch
- Merge master with branch

Task #8 (using Intellij IDE)

- Create a new branch “conflicts” from master
- Create conflicting commits in master and new branch
- Rebase master with branch (resolve conflict)

Task #9 (using Intellij IDE)

- Share project on GitHub
- Create some changes on a new branch
- Create a pull request
- Merge PR (in the browser)

Task #10

- Clone your colleagues GitHub repo
- Make your colleague a collaborator in your project
- Create a new branch from “master” in git bash – “collaborate”
- Change something
- Push it to remote “collaborate” branch
- Create a pull request
- Review and merge the pull request in your GitHub project