DISTRIBUTED APPLICATIONS SESSION 1

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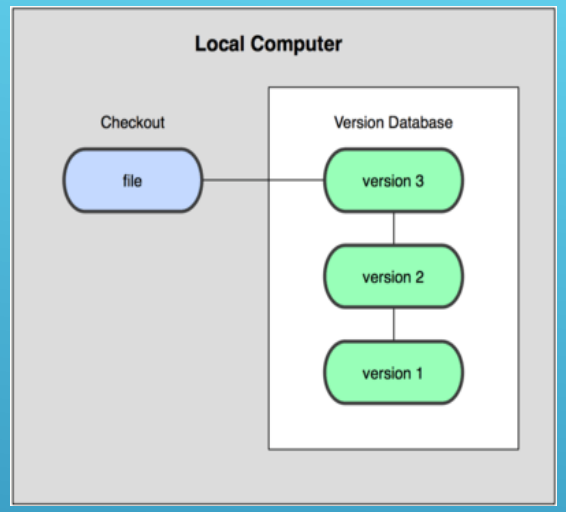
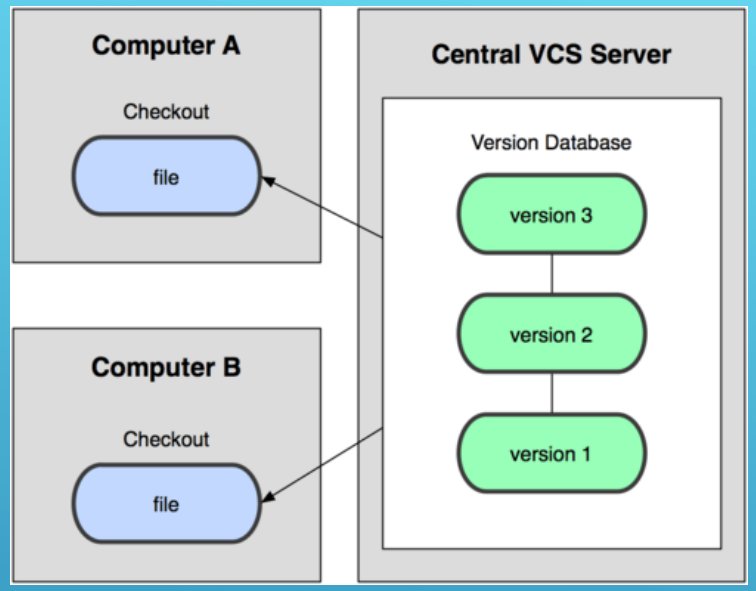
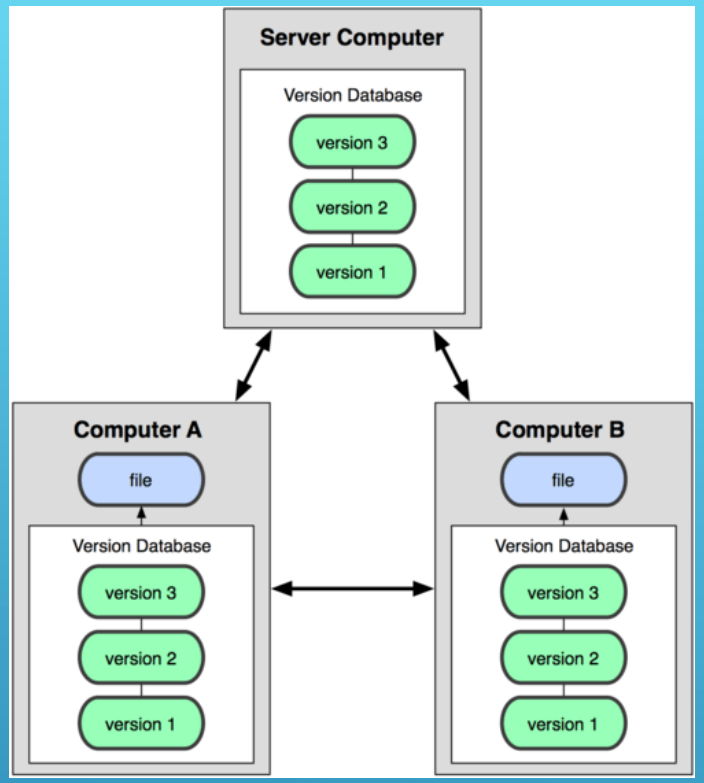
INTRODUCTION TO VERSION CONTROL SYSTEMS

- A version control system stores the state of files in its own database and allows to retrieve it to any previous state.
- Three types of version control systems
  - Local: The database and files are stored locally.
  - Central: The database is stored in a central server and the files are stored locally.
  - Distributed: The files are stored locally and the database locally and on the server.







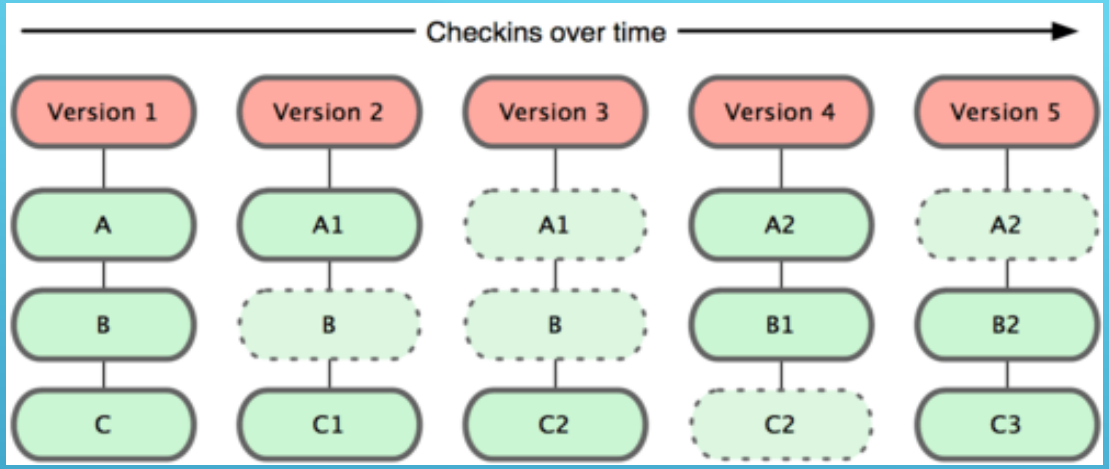
INTRODUCTION TO VERSION CONTROL SYSTEMS - CONT

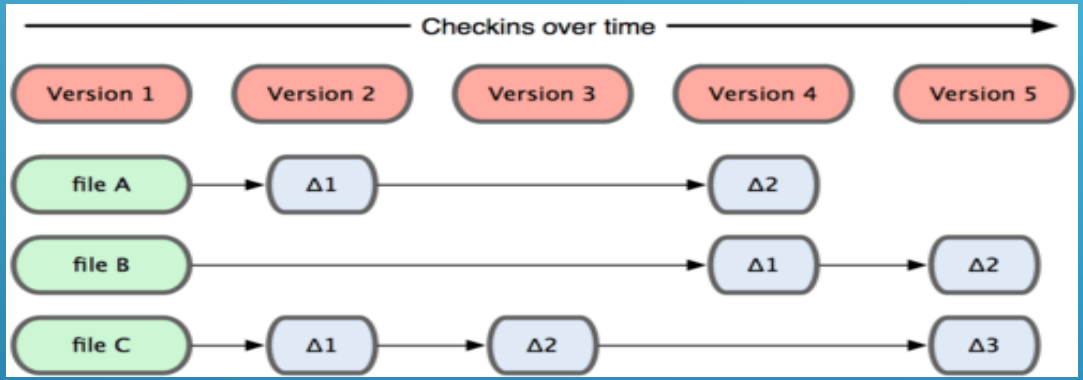
- Ease the cooperation between developers, without a VCS it is hard to share code between a big number of developers on any project, but with a VCS work can be coordinated easily and files can be merged.
- Files backup: with a distributed VCS we automatically get the benefit of replicating the project to multiple developer machines and the central server.
- Retrieve previous versions of the project.
- Understand changes: Every time you make a change and save it to the database you create a commit message that explains the change.

BENEFITS OF VERSION CONTROL SYSTEMS

- Developing Git started in 2005 by the Linux kernel community and especially by Linux creator Linus Torvalds.
- Git is considered able to work with very large projects like the Linux kernel.
- It stored files as snapshots rather than deltas from previous versions.
- Nearly all Git operations are local and does not require an internet connection.

INTRODUCTION TO GIT





INTRODUCTION TO GIT - CONT

- A Git project is divided into three parts:
- Git directory or Git database, it contains data about files and their change history.
- Git working directory it contains user files.
- Staging area It is a file that specified what will be saved in the next commit.

INTRODUCTION TO GIT - CONT

- A file in Git can be in one of three states:
- Commited: It has been saved to the database.
- Staged: It is in the staging area and ready to be saved in the next commit.
- Modified: It has been changed and not staged yet.
- Git can be installed from here
- https://gitforwindows.org/
- Before you can start using git you need to identify your self to it using these commands
- git config –global user.email “<Your email address>”
- git config –global user.name “<Your name>”

INTRODUCTION TO GIT - CONT

- Git init: is used to create a new repository.
- Git status it displays the state of files.
- Git add <file name> add a new file to staging area.
- Git commit –m <message> is used to save the files to git database.
- Git log is used to display the project's history.

BASIC GIT OPERATIONS 1

- Github can be considered as a Git server with web interface, it is used to store git repositories and share them with others.
- To use github you must create an account on github website.
- To push and pull code to/from github it is preferred to have a ssh key pair setup.
- https://help.github.com/articles/adding-a-new-ssh-key-to-your-github-account/

INTRODUCTION TO GITHUB

- Git clone <url> to download a project from github.
- The <url> can be retrieved from the project's github page.
- Git push origin master is used to push changes to github.
- Git pull origin master is used to pull new changes from github.

BASIC GIT OPERATIONS 2

- Create your own account on github.
- Create a new repository with any name you select.
- Download the repository to your workstation.
- Add a file named README.md which includes your name.
- Add the file to git database.
- Push the changes to github.

HOMEWORK

- https://mohsensy.github.io/developer-tools/2017/08/25/introduction-to-git-and-version-control.html
- https://mohsensy.github.io/developer-tools/2017/09/01/git-startup-guide-part-1.html
- https://mohsensy.github.io/developer-tools/2019/02/21/git-startup-guide-part-2.html
- https://git-scm.com/book/en/v2
- https://guides.github.com/introduction/git-handbook/

USEFUL LINKS

THE END