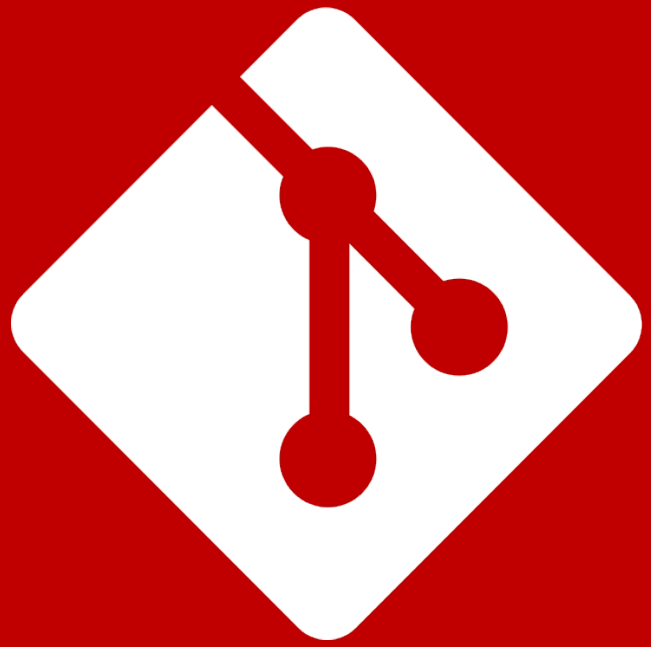

git

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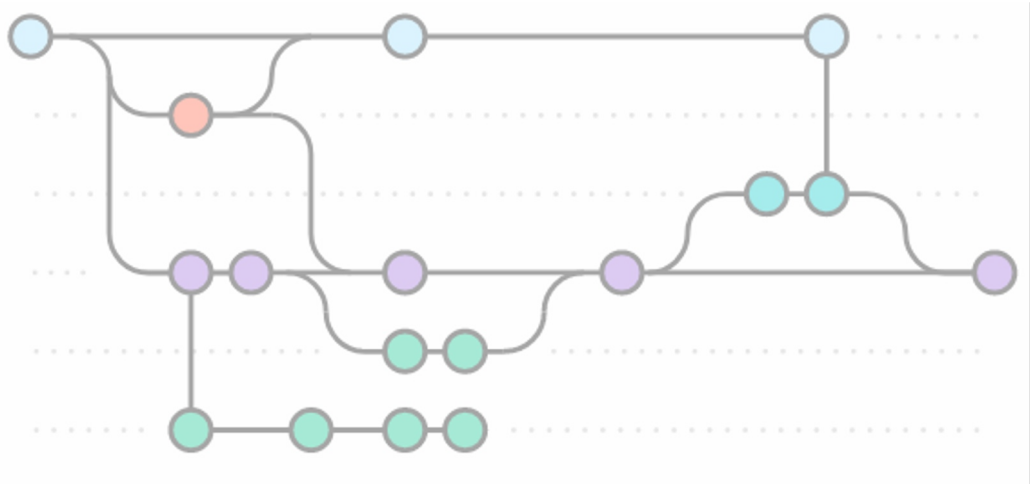
What is git?

Git is a distributed version-control technology for tracking changes in source code during software development projects.

What is GitHub?

A company that provides a front-end interface and hosting services for files using Git technology.



Are git and GitHub the same thing?

No. Git is a technology and GitHub is a provider of services based on git technology. There are numerous companies that compete with GitHub, like BitBucket, MS TFS, GitLab, Helix Core, etc.

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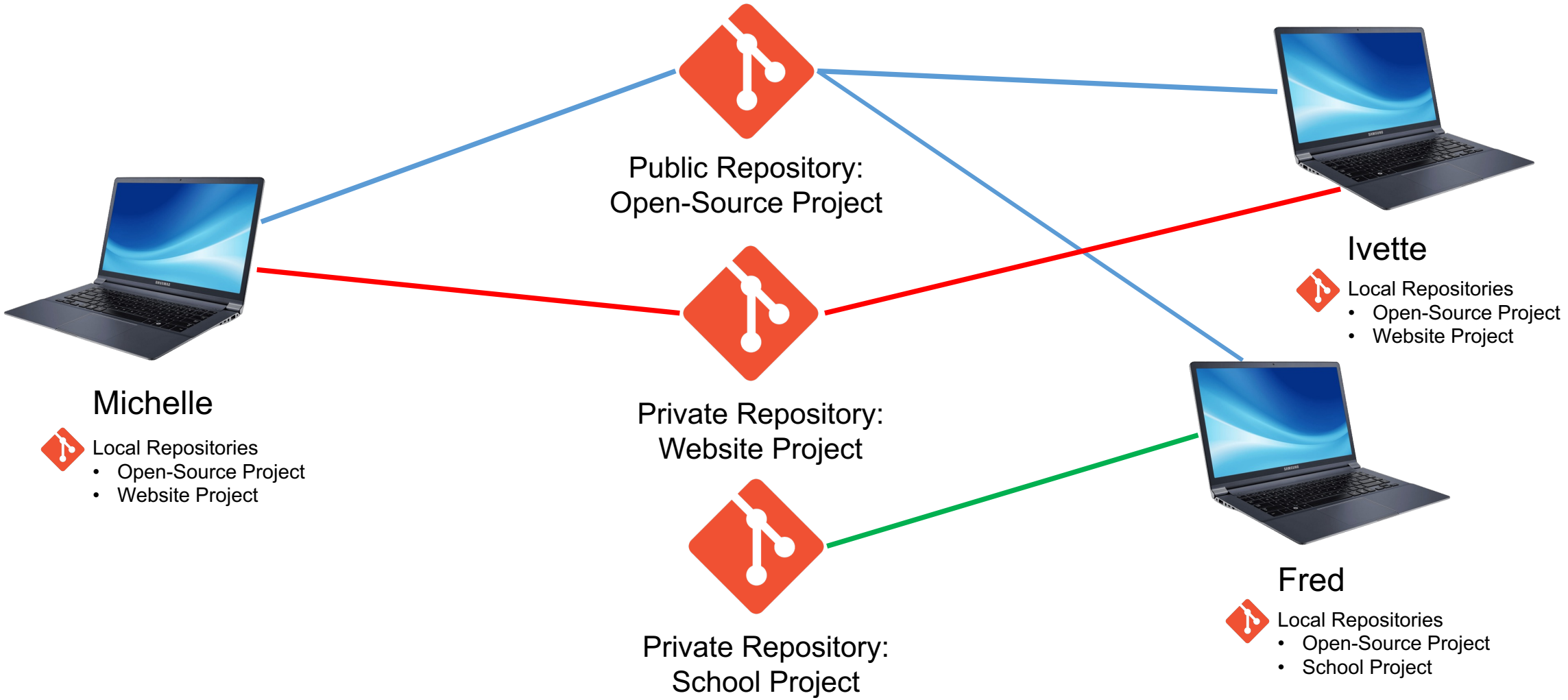
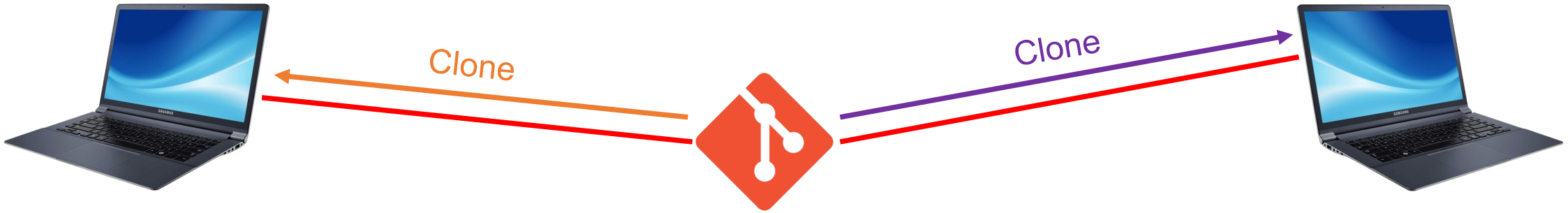
git Technology: Repositories

- Repository: A location where you store files related to a project.
  - Local Repository: A copy of the project (all folders & files) on your local hard drive.
  - Remote Repository: A copy of the project (all folders & files) on a remote computer, server or cloud.
  - Collaborator Repository: A copy of the project (all folders & files) on another person's computer with whom you are working on the project within a pair-programming or team programming scenario.

git Technology: Repositories



git Technology: Clone



Michelle

Local Repository
- Website Project

Main.py

Private Repository:
Website Project

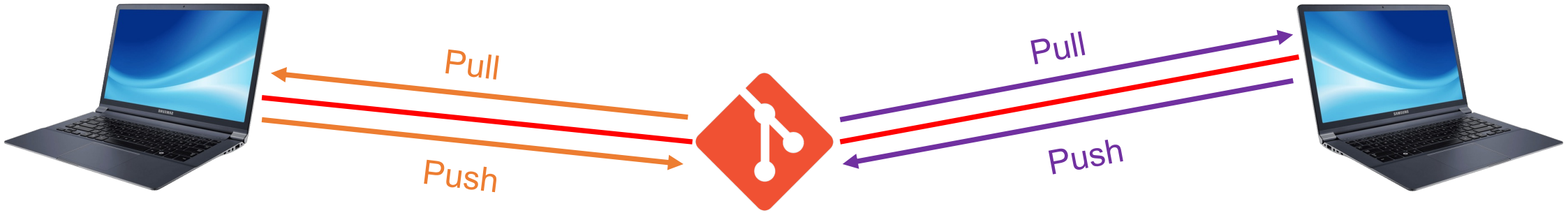
Main.py

Ivette

Local Repository
- Website Project

Main.py

git Technology: Push & Pull



Michelle

Local Repository
- Website Project

Main.py
AAA

Private Repository:
Website Project

Main.py
AAA
BBB

Merge

Ivette

Local Repository
- Website Project

Main.py
BBB

git Technology: Merge Conflict

Pull

Push

Pull

Push

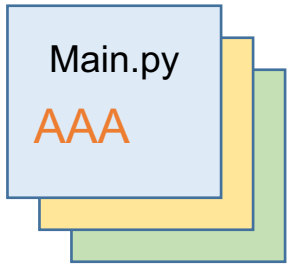
Michelle

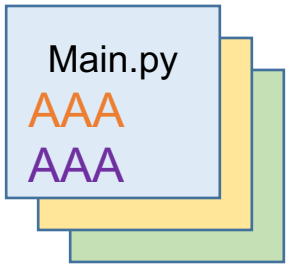
Local Repository
- Website Project

Private Repository:
Website Project

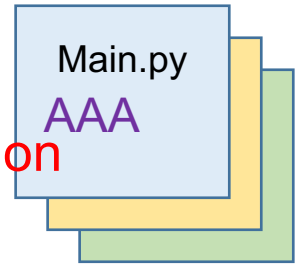
Ivette

Local Repository
- Website Project





Notification



Resolution

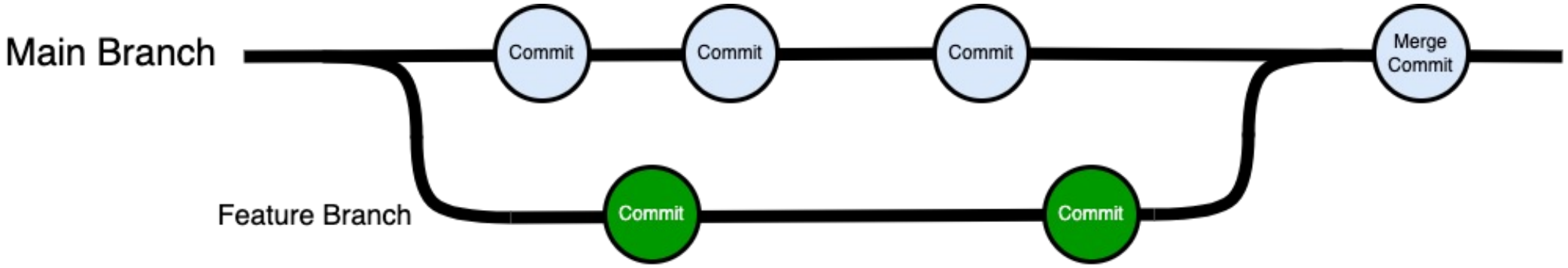
Merge Conflict

git Technology: Commit

- Commit - Similar to the common concept of “save”
- Saving in the traditional sense over-writes older versions of a file
- Committing is more advanced in that it stores all versions of the files in repositories

git Technology: Branching

- Repositories start with a Main Branch
- Programmers create branches for their work (often called *feature branches*)
- When they finish work on their branch, they merge their work into the Main Branch (if no merge conflicts occur)



git Technology: Fetch

- Fetch updates or refreshes your local repository
- It downloads all commits, files and details from a remote repository
- It is different from clone in that fetch does not merge code into your local repository from the remote repository
- It is recommended to fetch on a regular basis to ensure your local repository is kept current

git Technology: Interfaces to Git

- GitHub Web Platform - https://github.com/

- Editors & Integrated Development Environments (IDEs) w/Git Integration
  - Visual Studio Code (VSC) – https://code.visualstudio.com/
  - PyCharm – https://www.jetbrains.com/pycharm/
  - … and most modern editors and IDEs have Git integration

- GUIs - https://git-scm.com/downloads/guis (list of GUIs for Git)
  - GitHub Desktop - https://desktop.github.com/
  - … many other GUIs exist for interfacing w/Git

- Git Bash (command line) - https://git-scm.com/downloads
  - Git Bash is a component of the Git technology installation

Setup

Git: Go to … https://git-scm.com/downloads

… download and install it for your OS.

GitHub: Go to … https://github.com

… then click ***Sign Up*** to create an account

GitHub Tip: When applying for jobs, some employers ask for you to provide them with a link to a GitHub repository as a portfolio sample of your work for them to review, so it is best to give your GitHub account a professional name.

git: Where to go from here?

- Spend some time in the GitHub Web interface (check out the Explore feature)
- Practice creating repositories, uploading files, using clone and inviting collaborators
- Collaborate with others and practice pair or team code sharing.