CHEAT SHEET – 1

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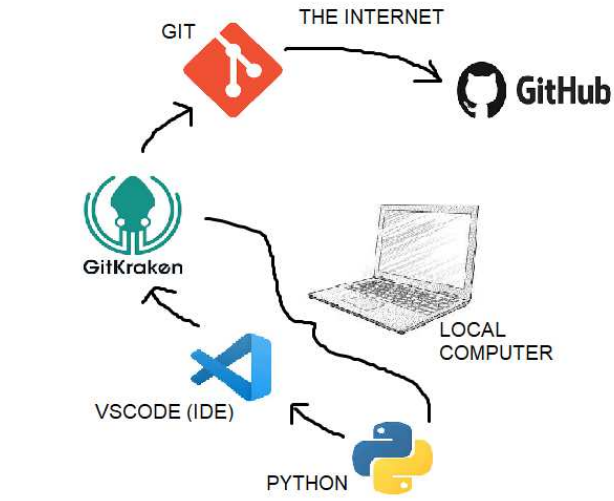
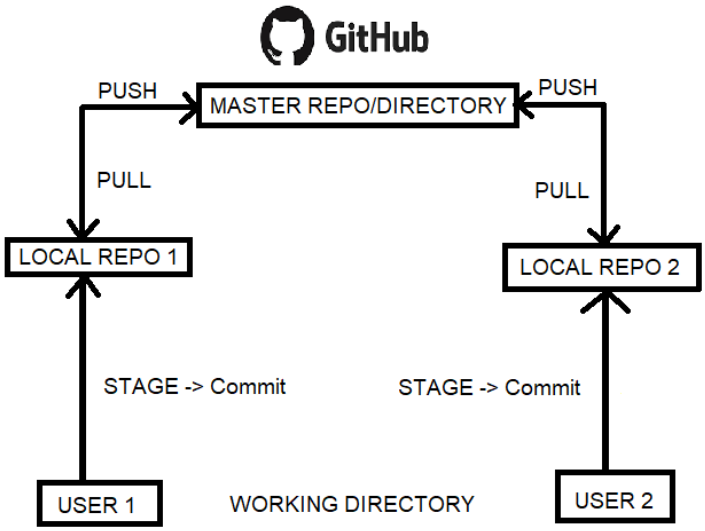
1. **GIT**: Free and open source software for distributed version control - tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development. (site: https://git-scm.com) – for education package - education.github.com.
2. **GITKRAKEN**: Software that makes Git commands and processes easy, fast, and intuitive, it has a visually appealing experience that requires fewer interactions, allows for more fluid workflows, and provides total functionality.
3. **MINICONDA or ANACONDA:** Conda is an open source environment and package manager. Miniconda is a free installer for Conda, Python, and a few other useful packages. Anaconda is also a package manager that has a much larger number of packages that you can install.
4. **VISUALSTUDIOCODE**: a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle. Visual Studio Code can be classed as an integrated development environment (IDE), meaning that developers can write and test code at the same time.

PS: VSCode is for writing the code, GITKRAKEN is for managing and add/stage/commit/push/pull to GITHub, while VSCODE is for making actual changes to the code file

More about GIT:

1. Github allows teams to work with ease of collaboration.
2. **Git WorkFlow**: **Clone** repositories from main directory to local disk and create working directory > make changes made in working directory (local disk) > **Stage** and **Commit** (via gitkraken) > **push** to main directory on github > **pull** (for pulling in changes made by other users on the main directory)
3. **Local repository** has 3 trees – a) **working directory** for actual files for user to work upon b) **index** for adding or staging these changes c) **head** for holding the last commit





More about Python:

1. **Base** is default python environment, and we need to **change base** in VSCODE for ease of working in multiple environments for multiple unique projects - *conda create -n (env name)*
2. **Important Python Packages**
    a. **Numpy: NumPy** offers comprehensive mathematical functions, random number generators, linear algebra routines, Fourier transforms, and more.
    b. **Matplotlib:** Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy.
3. **Jupyter**: This is not a package but another open source IDE. The **Jupyter** Notebook is a web-based interactive computing platform. The notebook combines live code, equations, narrative text, visualizations, etc. Install jupyter in VSCode to utilise the interactive features of jupyter notebooks in VSCode itself
    a. Ipython kernel: The IPython kernel is the Python execution backend for Jupyter. One needs to install it as well in VSCode if using Jupyter extension.