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Comparing and Contrasting Graphical User Interface (GUI) and Command Line Interface (CLI)

Computers can be navigated and directed using the Graphical User Interface (GUI), the Command Line Interface (CLI), or both. Both of these interfaces allow users to see what is stored on the computer, see how it’s organized, make changes, and generally direct the computer. Computers use one of several different operating systems, which are collectively referred to as Unix. The file system on a computer is designed to mimic the concept of a real-world desk, with a visible desktop, folders with lots of stuff in them, and files containing specific information within these folders, all within the desk. In this example, the desk represents one particular user, so in reality one computer can contain many desks, however they are used one at a time.

The GUI is a visual representation of the file storage system, and is the user interface most people are familiar with. It uses icons that look like the desk elements they represent, such as folders, and visibly navigates between specific screens which show specific information based on where the user is within the computer. For example “opening” a folder will change the screen to display what is located inside. These features, as well as the generally tidy and familiar aesthetic of the GUI make it fairly intuitive, which is usually its main strength. However, because the GUI requires literally moving between screens one at a time to get from one digital location to another, as well as using graphical menus and clicks to make change, it can be cumbersome and slow. This is its main drawback.

The CLI, in contrast, is completely devoid of graphical representations of structure, file types, locations, or pathways. Instead, all information is represented by text, and all navigation and modification is done by entering specific text commands. This takes place in the command line interface, which is a small interactive textbox which receives commands, and in response outputs information, navigates the computer, and makes changes. In contrast to the GUI, this is less intuitive, requiring previous knowledge of what the specific commands are, and a bit harder to keep track of, since there is no graphical representation of what is happening. However, it is also potentially much more streamlined, since it does not require page by page navigation of computer folders and menus. The CLI allows for quick execution of tasks and changes by experienced users.

Overall both interfaces provide ways to interact with computers that fit different use cases.