
What is a file path?
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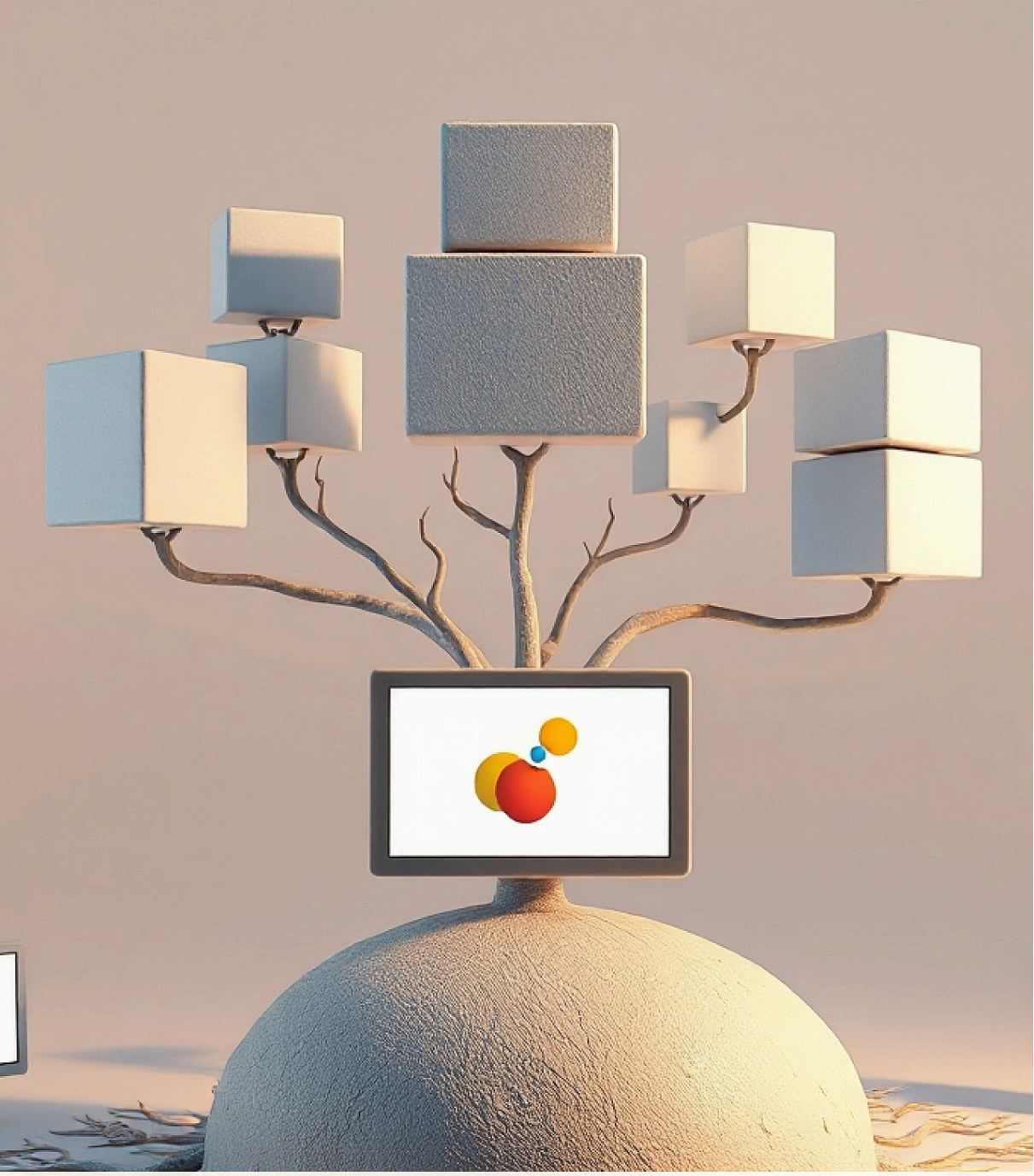
A file path is the location of a file or folder in a computer system. It tells the system where to find something, much like a map coordinate tells you where a place is. The short answer: a file path is the address of a file or folder. This book explains paths step by step, starting from zero, so you can understand how files are found and why they sometimes are not.



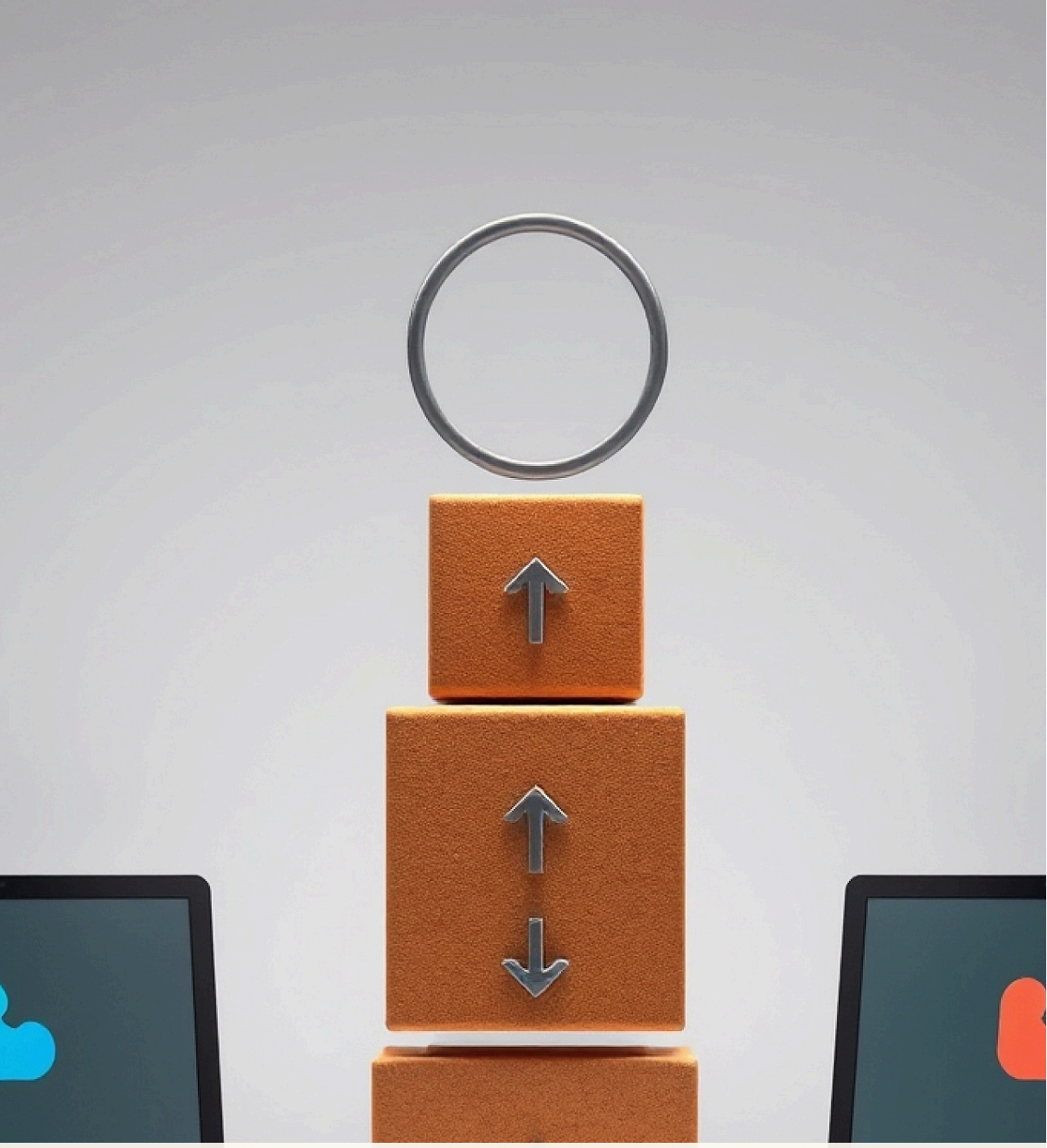
Files are stored inside folders, and folders can sit inside other folders. This creates a tree-like structure: a folder can contain files and more folders. A path describes where something sits in that arrangement. For example, a photo might be inside a folder called Pictures, which is inside your home folder. The path records that chain of folders.



Think of a path as an address that tells the system where to find a file or folder. Just as a home address leads to one specific door, a path leads to one specific place in the folder structure. For example, the address 12 Oak Street, Springfield points to one house; similarly, a path like /home/user/Pictures/photo.jpg points to one file. Every path is unique to its target.



Everything starts from one top folder called the root. The root is the beginning of the whole folder structure; it has no parent folder above it. On many systems, the root is written as a single slash (/) or as a drive letter like C:\. For example, on a Linux system, the root folder is simply /, and all other folders branch from it.



An absolute path starts at the root and lists each folder down to the file. It always points to the same place, no matter where you are currently working. For example, /home/user/Documents/report.txt is an absolute path: it begins at the root (/) and goes through home, then user, then Documents, to reach report.txt. Because it starts from the root, it is not affected by your current location.



Reading an absolute path means walking through it folder by folder. Start at the root, then move to the first folder listed, then the next, and so on until you reach the file. Each part of the path is one step deeper into the folders. For example, in /home/user/Pictures/cat.jpg, you start at /, go into home, then user, then Pictures, and finally find cat.jpg. That is four steps down.



The system always has a current location: the folder you are working in at the moment. This is often called the current directory or working directory. When you open a terminal or a file explorer, you start in some folder, and that folder is your current location. For example, if you open a terminal and see a prompt, you are usually in your home folder. This current location is the starting point for relative paths.



A relative path describes a location starting from the current folder instead of the root. It is shorter because it only says how to get there from here. For example, if your current location is /home/user, then the relative path Pictures/cat.jpg points to /home/user/Pictures/cat.jpg. You do not need to write the full absolute path; you just say how to go from where you are.



The same file can be pointed to by both an absolute path and a relative path. Both can work, but they start from different places. For example, if you are in /home/user, the absolute path /home/user/Pictures/cat.jpg and the relative path Pictures/cat.jpg both lead to the same image file. The absolute path works from anywhere; the relative path works only when your current location is /home/user.



Consider an application that opens an image file inside its own folder. If the application uses a relative path like images/photo.png, it looks for the image starting from its current working directory, which is often the folder where the application was started. For example, if you run the app from its own folder, the relative path images/photo.png finds the image inside that folder.



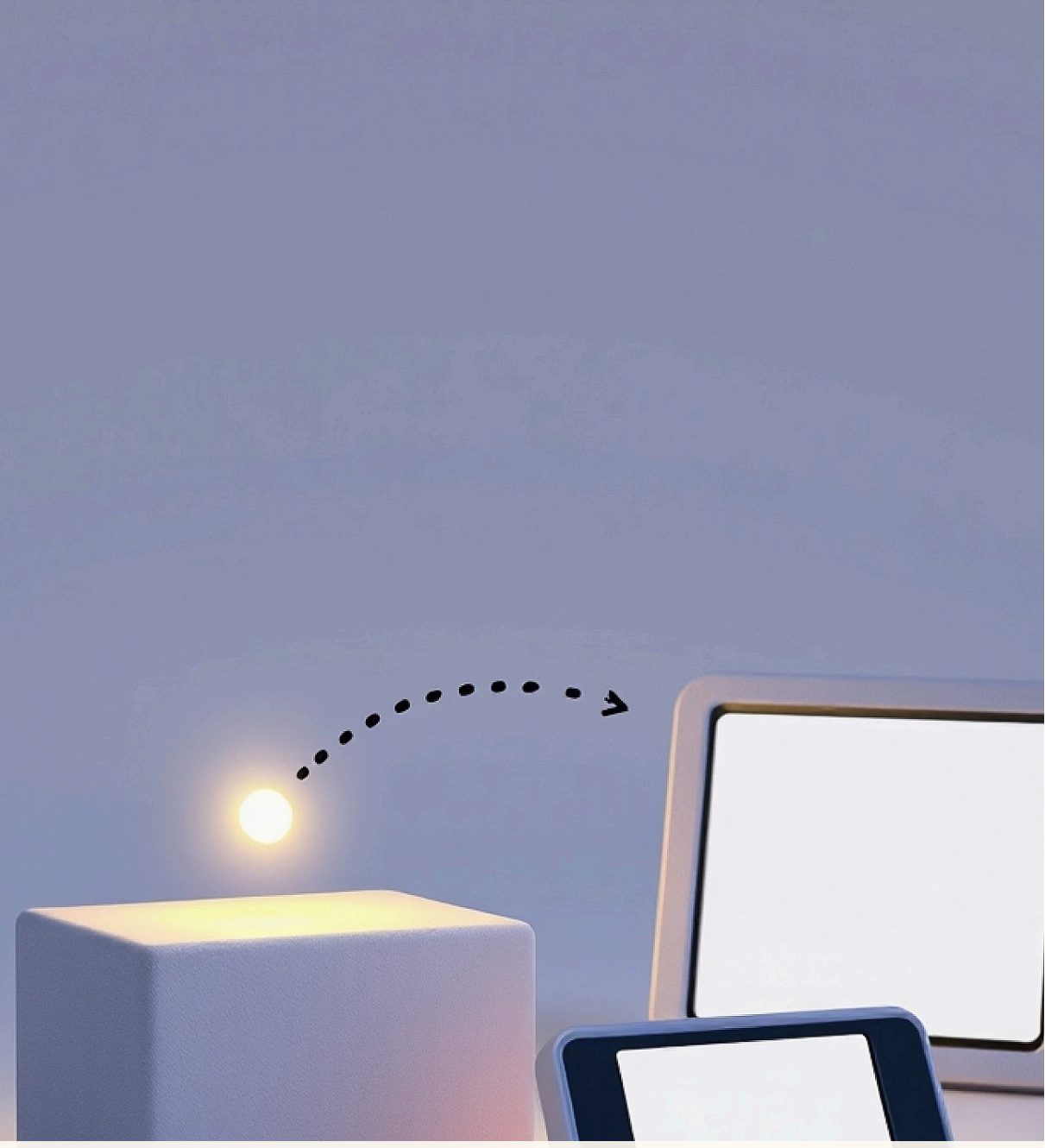
When the program is run from another location, the relative path is interpreted from that new place. The same relative path can then point somewhere else. For example, if you run the application from your home folder instead of its own folder, the relative path images/photo.png now means /home/user/images/photo.png, which is a different place. The program may not find the image there.



After moving, the relative path no longer finds the image. The path was correct only relative to the old location. For example, if the application was moved to a new folder but still uses the relative path images/photo.png, and you run it from the new folder, it looks for images/photo.png inside the new folder. If the image is not there, the path fails. The relative path did not change, but the starting point did.



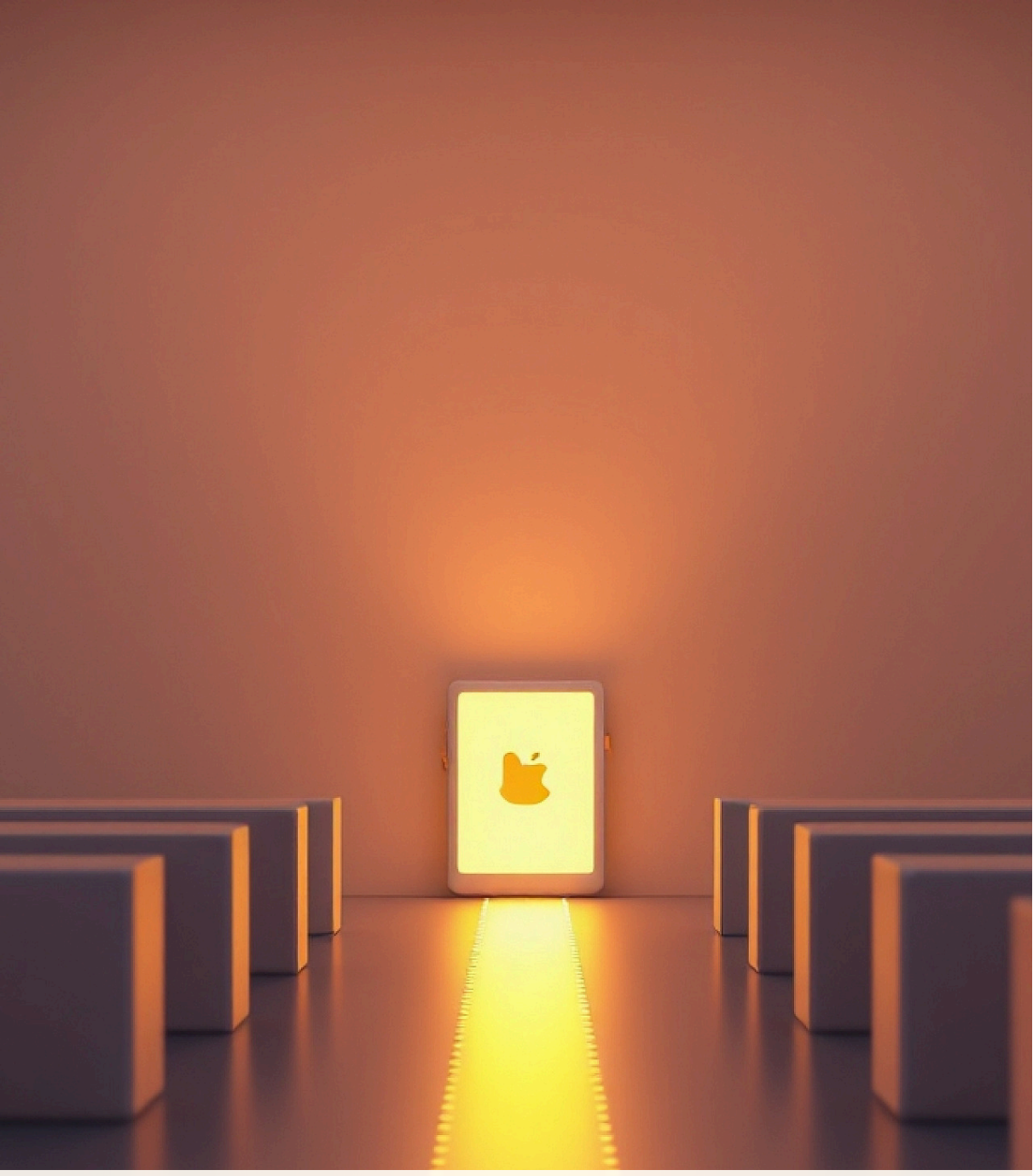
A broken path leads to a file not found error. The system looked where the path said, and nothing was there. For example, if the application tries to open images/photo.png from a folder that does not contain an images subfolder, the system reports that the file cannot be found. The error does not mean the file is gone; it means the path did not lead to it.



A common mistake is assuming a relative path starts from the root or from the file itself. It always starts from the current location. For example, if you are in /home/user/Documents and use the relative path Pictures/cat.jpg, it looks for /home/user/Documents/Pictures/cat.jpg, not /home/user/Pictures/cat.jpg. Always check where you are before using a relative path.



Another common mistake is moving or renaming a file or folder without updating the path. The path then points to a place that no longer exists. For example, if you rename the folder Pictures to Photos, any path that includes Pictures will break. The system will look for Pictures and not find it. Always update paths when you move or rename things.



A file path is the location of a file or folder. Absolute paths start from the root and always point to the same place. Relative paths start from your current location and can change meaning if you move. Remembering this distinction explains many file not found errors: the path simply did not lead to the file from where you were.