

A process or situation that emulates the same concept of caching is a student preparing for and going to a class. In this situation, a student will first evaluate all the things they could possibly need for the class, including notebooks and a laptop and a pencil case containing everything they might need. They will then put everything that they think they need into their backpack, which they will take with them to class. In class, they will then see what items they immediately need (i.e. notebook and pencil case) and pull them out of their backpack and place it on their desk for easier access. During the lecture, the student will use the notebook to take notes and will take out a pencil from the pencil case and keep the pencil case aside on the desk. While taking notes, if the student realizes that they need to highlight a certain part of their notes, they will reach for their pencil case again and pull out one highlighter. As the lecture goes on, the professor assigns an activity that requires a laptop. For this, the student has to reach for their backpack and take out their laptop from there to use it. In this scenario, the backpack is the main memory which stores all the data, including things that will be used for the task at hand and things that may not be used. It will hold things until they are needed and once they are required, will move them to the required place for easier access or use. The cache in this scenario is the pencil case. The cache will store all the things that are most likely to be needed while taking notes, as well as hold the things that were recently used. In this case, it is important to have the pencil case on the table because the things that are mostly likely to be used are easily accessible. The registers are the notebook, which store the important information and the data that operations are being performed on. And the ALU is the lecture and the instructions from the professor, that are then carried out on the notebook.