Paging is a memory management technique used by operating systems to allow processes to access more memory than is physically available. In paging, the memory is divided into fixed-sized blocks called pages, which are typically 4 KB in size. The pages are stored in physical memory or on a hard disk, depending on whether they are currently being used or not.

To implement paging in a CPU to access virtual memory, the following steps are generally taken:

1. Divide the virtual address space into fixed-size pages: In this step, the virtual address space is divided into fixed-size pages, typically 4 KB in size. Each page is given a unique page number.
2. Divide the physical memory into fixed-size page frames: The physical memory is divided into fixed-size page frames, which are also typically 4 KB in size. Each page frame is given a unique physical address.
3. Map virtual pages to physical page frames: To access virtual memory, the CPU must be able to map virtual pages to physical page frames. This is done by maintaining a page table, which is a data structure that stores the mapping between virtual pages and physical page frames.
4. Translate virtual addresses to physical addresses: When a program references a virtual address, the CPU translates the virtual address to a physical address using the page table. The translation process involves splitting the virtual address into two parts: the page number and the offset within the page. The page number is used to look up the corresponding physical page frame in the page table. Once the physical page frame is found, the offset is added to the physical address to obtain the final physical memory address.
5. Load pages from disk to memory as needed: When a program references a virtual page that is not currently in physical memory, the operating system loads the required

page from disk to memory. This is called a page fault. When a page fault occurs, the operating system selects a page frame to evict, writes its contents to disk if necessary, and then loads the required page into the newly freed page frame.

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