What is Virtual Memory?

Virtual Memory management-

Physical memory (pAS))

Logical Memory(Las)

Virtual Memory

We have finite limited memory.

We load only needed pages.

So we have Ram to load our processes. All the processes we have may not need to load all the frame s they have. So this can save us ram space. The OS reserves a space in disk calling it SWAP space, the frames which are not needed are loaded into it and frames needed are identified and placed in RAM, whenever a process call for the thread which was placed in disk swap space as not needed, the frame is brought back into RAM. Eg 19 kb program can run in 12 kb ram, because not needed programs are in swap space.

This makes user to feel that all the programs are loaded into the ram. RAM + Swap space = Virtual Memory

SWAP area is also one type of ram. So virtual memory is creating an illusion of bigger memory

Demand Paging is a popular method of virtual memory management.

1. In demand paging, the pages of a process which are least used, get stored in the secondary memory.
2. A page is copied to the main memory when its demand is made, or page fault occurs. There are various page replacement algorithms which are used to determine the pages which will be replaced
3. Rather than swapping the entire process into memory, we use Lazy Swapper. A lazy swapper never swaps a page into memory unless that page will be needed

Further refer notes