19CSB201 - OPERATING SYSTEMS

UNIT III

1. **What is the purpose of paging the page table?**

   In certain situations the page tables could become large enough that by paging the page tables, one could simplify the memory allocation problem (by ensuring that everything is allocated as fixed-size pages as opposed to variable-sized chunks) and also enable the swapping of portions of page table that are not currently used.

2. **Define demand paging in memory management**

   In virtual memory systems, demand paging is a type of swapping in which pages of data are not copied from disk to RAM until they are needed.

3. **What are the steps required to handle a page fault indemand paging?**

   Steps in handling page fault:

   1. Operating system looks at another table todecide:
      • Invalid reference – abort
      • Just not in memory
   2. Find free frame
   3. Swap page into frame via scheduled diskoperation
   4. Reset tables to indicate page now in memory Setvalidation bit = v

   Restart the instruction that caused the page fault

4. **What do you meant by thrashing?**

   A process that is spending more time in paging than executing is said to be thrashing. In other words it means that the process doesn't have enough frames to hold all the pages for its execution, it will do swapping pages in and out very frequently to keep executing.

5. **Explain dynamic loading.**

   To obtain better memory-space utilization dynamic loading is used. With dynamic loading, a routine is not loaded until it is called. All routines are kept on disk in a relocatable load format. The main program is loaded into memory and executed. If the routine needs another routine, the calling routine checks whether the routine has been loaded. If not, the relocatable linking loader is called to load the desired program into memory.

6. **Explain dynamic Linking.**

Dynamic linking is similar to dynamic loading, rather that loading being postponed until execution time, linking is postponed. This feature is usually used with system libraries, such as language subroutine libraries. A stub is included in the image for each library-routine reference. The stub is a small piece of code that indicates how to locate the appropriate memory-resident library routine, or how to load the library if theroutine is not already present.

7. **Define swapping.**

A process needs to be in memory to be executed. Howevera process can be swapped temporarily out of memory to a backing store and then brought back into memory for continued execution. This process is called swapping.

8. **What is Demand Paging?**

Virtual memory is commonly implemented by demand paging. In demand paging, the pager brings only those necessary pages into memory instead of swapping in a whole process. Thus it avoids reading into memory pages that will not be used anyway, decreasing the swap time and the amount of physical memory needed.

9. **Outline about virtual memory.**

Virtual memory is a technique that allows the execution of processes that may not be completely in memory. It is the separation of user logical memory from physical memory. This separation provides an extremely large virtual memory, when only a smaller physical memory is available.

10. **What are the common strategies to select a free hole from aset of available holes?**

The most common strategies are,

•   First fit

•   Worst fit

•   Best fit