2.2 Explain dynamic storage allocation techniques?

Ans:- Dynamic memory allocation is when an executing program requests that the operating system give it a block of main memory. The program then uses this memory for some purpose. Usually the purpose is to add a node to a data structure. In object oriented language dynamic memory allocation is used to get the memory for a new object.

The memory comes from above the static part of the data segment. Programs may request memory and may also return previously dynamically allocated memory. Memory may be returned whenever it is no longer needed. Memory can be returned in any order without any relation to the order in which it was allocated. The heap may develop "holes" where previously allocated memory has been returned b/w blocks of memory still in use. A new dynamic request for memory might return a range of addresses out of one of

the holes. But it might not use up all the hole, so further dynamic requests might be satisfied out of the original hold.

If too many small holes develop, memory is wasted because the total memory used by the holes may be large, but the holes cannot be used to satisfy dynamic requests this situation is called memory fragmentation.

keeping track of allocated and deallocated memory is complicated. A modern operating system does all this.