Lab 3

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1 Questions

1.1 Explain the difference between internal and external fragmentation.

External fragmentation is when there is enough total memory space to satisfy a request, but the available spaces are not contiguous so the storage is fragmented into a large number of small holes instead of one big block.

Internal fragmentation is the memory in a partition that is currently held within a process but not actually used. This happens when the memory allocated to a process is slightly larger than the requested memory.

1.2 Given five memory partitions of 100kb, 500kb, 200kb, 300kb, and 600kb (in that order), how would optimal, first-fit, best-fit, and worst-fit algorithms place processes of 212kb, 417kb, 112kb, and 426kb (in that order)?

The first-fit algorithm would place the processes in the first hole that is big enough. So the 212kb process would be allocated to the 500kb partition, then the 417kb process to the 600kb partition, then the 112kb process to the 200kb partition, but the 426kb process cannot be allocated until a process is finished.

The best-fit algorithm would place the processes in the smallest hole that is big enough. So the 212kb process would be allocated to the 300kb partition, then the 417kb process to the 500kb partition, then the 112kb process to the 200kb partition, then the 426kb process to the 600kb partition.

The worst-fit algorithm would place the process in the largest hole. So the 212kb process would be allocated to the 600kb partition, the 417kb process to the 500kb partition, the 112kb process to the 300kb partition, but the 426kb process cannot be allocated until a process has finished.