OS - Lab 3

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1 Explain the difference between internal and external fragmentation

Internal fragmentation refers to the space left in memory from allocating more space than is necessary for a program. Using fixed-size memory partitions, it is rare that a program uses the entire partition. The leftover space is internal fragmentation.

External fragmentation refers to the space left in memory from using variable-size memory partitions, which are fitted to the size of the process. Processes that die leave "holes" in memory, which may or may not be big enough to fit other processes. The leftover "holes" are external fragmentation.

Internal refers to the leftover space within a partition, while external refers to the leftover space outside of a partition.

2 Given Five (5) 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)?

Assuming none of the processes are allowed to switch places:

Algorithm	100KB	500KB	200KB	300KB	600KB	Out of Memory?
Optimal	N/A	417KB	112KB	212KB	426KB	false
First-Fit	N/A	212KB	112KB	N/A	417	true, 426KB
Best-Fit	N/A	417KB	112KB	212KB	426KB	false
Worst-Fit	N/A	417KB	112KB	N/A	212KB	true, 426KB