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 (A), 417KB (B), 112KB (C), and 426KB (D) (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	D	C	A	B	false
First-Fit	N/A	A + C	N/A	N/A	B	true, D
Best-Fit	N/A	B	C	A	D	false
Worst-Fit	N/A	B	N/A	N/A	A + C	true, D