Lab Three

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1. Explain the difference between internal and external fragmentation.

   Internal fragmentation occurs when memory is divided into fixed-sized partitions. A process is allocated more memory than required and few space is left unused. The fix is allocating memory dynamically or having partitions of different sizes. External fragmentation occurs when memory is divided into variable-sized partitions based on size of process. When processes are swapped out of memory and smaller processes replace them, many small non contiguous blocks of unused spaces are created which can serve a new request if they are put together. However, since they are non contiguous, a new request can't be served. It can be fixed by compaction, paging, and segmentation.

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)?

   First fit: 212k is put in 500K partition, 417k is put in 600k partition, 112k is put in 288k partition, and 426k must wait

   Best fit: 212k is put in 300k partition, 417k is put in 500k partition, 112k is put in 200k partition, and 426k is put in 600k partition

   Worst fit: 212k is put in 600k partition, 417k is put in 500k partition, 112k is put in 388k partition, and 426k must wait