Lab Three

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1 Question One

Explain the difference between internal and external fragmentation.

1.1 Answer One

The difference between internal and external fragmentation is that internal fragmentation is unused memory that is internal to the partition. External fragmentation is when there is enough memory space to satisfy a request, but the spaces are not contiguous.

2 Question Two

Give 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)?

2.1 Answer Two

The optimal algorithm to partition memory is the best-fit algorithm. It chooses the partition whose size is large enough, closest to its size and does not waste space.

The first-fit algorithm selects the first free partition that can fit the request.

212 KB = 500 KB partition, leaves a 288 KB partition
417 KB = 600 KB, leaves a 183 KB partition
112 KB = 288 KB partition, leaves a 176 KB partition
426 KB = no partition large enough

The best-fit algorithm selects the partition whose size is closest and large enough to its size.

212 KB = 300 KB, leaves a 88 KB partition
417 KB = 500 KB, leaves a 83 KB partition
112 KB = 200 KB, leaves a 88 KB partition
426 KB = 600 KB, leaves a 174 KB partition

The worst-fit algorithm selects the largest partition for each request.

212 KB = 600 KB, leaves a 388 KB partition
417 KB = 500 KB, leaves a 83 KB partition
112 KB = 388 KB, leaves a 276 KB partition
426 KB = no partition large enough