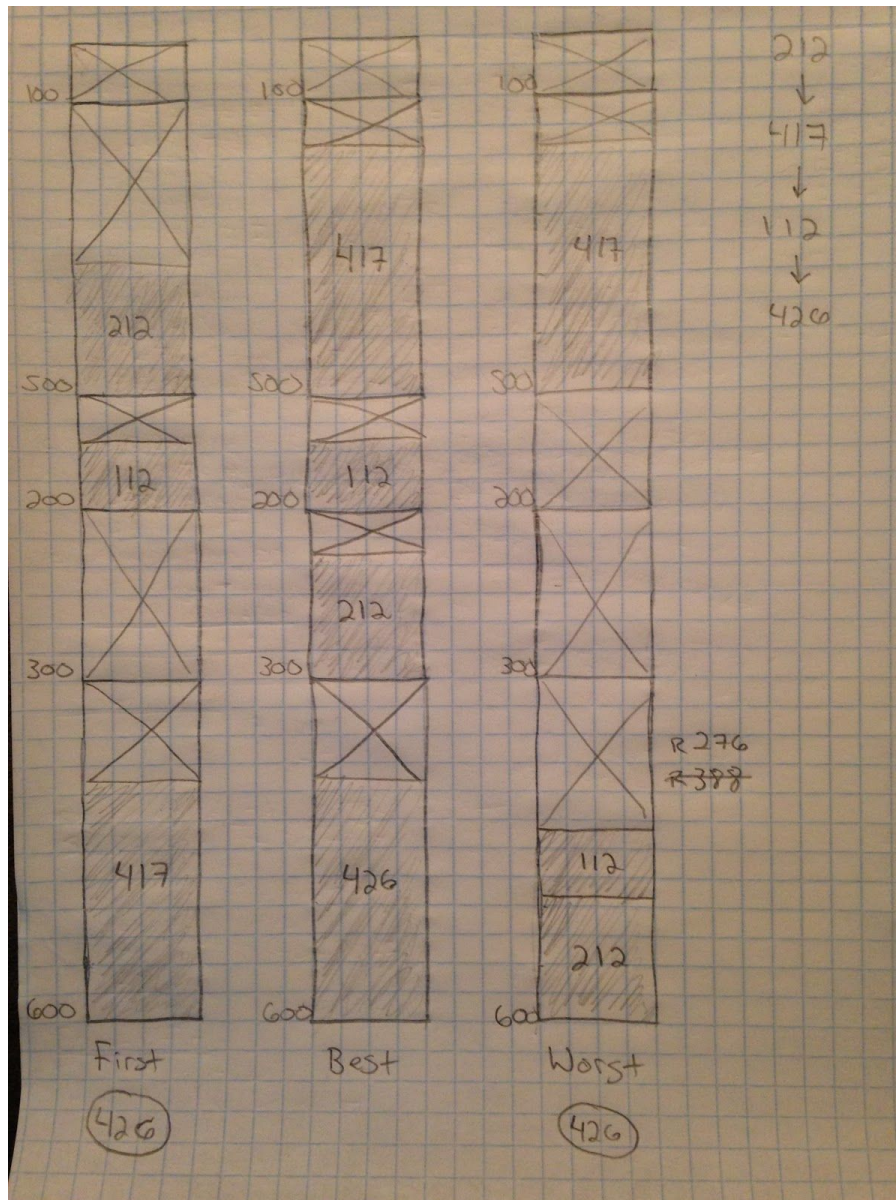


Exercise 8.11: Given five memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in that order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in that order)? Which algorithm makes the most efficient use of memory?



Best fit makes the most efficient use of memory because it's the only one that accommodates all the processes.

Exercise 8.18: Consider a logical address space of 32 pages with 1,024 words per page, mapped onto a physical memory of 16 frames.

- **a. How many bits are required in the logical address?**

$2^5 \text{ pages} * 2^{10} \text{ words per page} = 15 \text{ bits required}$

- **b. How many bits are required in the physical address?**

$2^4 \text{ frames} * 2^{10} \text{ words per page} = 14 \text{ bits required}$

Exercise 8.19: Consider a computer system with a 32-bit logical address and 4-KB page size. The system supports up to 512 MB of physical memory. How many entries are there in each of the following?

- **a. A conventional single-level page table**

$2^{32} \text{ addresses} / 2^{12} \text{ page size} = 2^{20} \text{ entries}$

- **b. An inverted page table**

$2^{29} \text{ size of physical memory} / 2^{12} \text{ page size} = 2^{17} \text{ entries}$