

# Library management

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## 1 Question

How does one keep a library organized if people are moving books improperly at a certain rate?

## 2 Answer

In order to keep the library as ordered as possible, librarian should suggest that books that have been removed from the shelves be put onto cart or tables where those will be properly shelved again. Given that an individual may think they properly shelved a book, they might have actually introduced a slight error in the ordering of the books. If there is enough disorder created through this method, then it becomes more challenging for librarians to keep the books ordered.

We know from computer science that efficient sorting algorithms are of complexity  $O(n \log n)$ . For a nearly sorted initial order, insertion sort is considered to be the best as it will become close to  $O(n)$  complexity (while it is  $O(n^2)$  in the average/worst case).