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CIS 350

# Program 1: Simple Inventory Management Using Provided AVL Tree Source

## Time and Space Analysis

|  |  |  |
| --- | --- | --- |
| Function | Time | Space |
| num\_products() | O(n2) | O(n) |
| size() | O(n3) | O(n) |
| print\_product() | O(n log(n)) | O(1) |
| available() | O(n2) | O(n) |
| in() | O(log n) | O(1) |
| save() | O(n) | O(n) |
| open() | O(n) | O(n) |
| display() | O(n2) | O(n) |
| out() | O(log n) | O(1) |
| process() | O(n2) | O(1) |
| print() | O(n2) | O(n) |
| main() | O(n4) | O(n2) |

## Tests

|  |  |  |
| --- | --- | --- |
| Type | Description | Status |
| File input | can find and open input file, transaction file, and output file | Pass |
| Process files | can read input file and execute commands, can read transaction file and apply actions to inventory | Pass |
| Utilize AVL tree correctly to manage inventory | can iterate through the tree, add and remove items, and accurately keep track of quantities of specific items | Pass |
| File output | can output to new inventory file and output files accurately | Pass |