Kiersten Grove

Project 1 Runtimes

SNHU: CS 300

Vector run time table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Line Cost** | **# of Times Executed** | **Total Cost** |
| Open Fstream | 1 | 1 | 1 |
| While not end of file read each line | 1 | n | n |
| If less than two values return error | 1 | n | n |
| Else continue | 1 | n | n |
| Initialize course vector | 1 | 1 | 1 |
| For each line | 1 | n | n |
| Add value to vector | 1 | n | n |
| Pushback item | 1 | n | n |
|  |  | Total Cost | 7n+2 |
|  |  | Runtime | O(n) |

Hash Table run time:

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Line Cost** | **# of Times Executed** | **Total Cost** |
| Open Fstream | 1 | 1 | 1 |
| While not end of file read each line | 1 | n | n |
| If less than two values return error | 1 | n | n |
| Else continue | 1 | n | n |
| Create HashTable | 1 | 1 | 1 |
| Insert bid to table | 1 | n | n |
| Loop through file | 1 | n | n |
| For each line | 1 | n | n |
| Create temp item to hold | 1 | n | n |
|  |  | Total Cost | 8n+2 |
|  |  | Runtime | O(n) |

Binary Search Tree run time:

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Line Cost** | **# of Times Executed** | **Total Cost** |
| Open Fstream | 1 | 1 | 1 |
| While not EOF read each line | 1 | n | n |
| If less than two values return error | 1 | n | n |
| Else continue | 1 | n | n |
| Create binary search tree | 1 | 1 | 1 |
| Insert bids to tree | 1 | n | n |
| While not EOF | 1 | n | n |
| Loop through file | 1 | n | n |
| For each line in file | 1 | n | n |
| For first and second value, add course ID and name | 1 | n | n |
| If a third value exists , add prerequisite until newline is found | 1 | n | n |
|  |  | Total Cost | 10n+2 |
|  |  | Runtime | O(n) |