**Binary Tree:**

**BIG-O ANALYSIS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Line Cost** | **# Times Executes** | **Total Cost** |
| FOR line in file  Split list by “,” | **1** | **n** | **n** |
| IF split list < 2  Return // Invalid data | **1** | **n** | **n** |
| Else if line len >/= 2:  Create new node  Assign variables | **1** | **n** | **n** |
| IF line len > 2  Append elements 2: to prerequsiste list  FOR element in prerequisite  IF element not in Courses BST  Delete Node  Return //Invalid course | **1** | **n** | **n** |
| **Total Cost** |  |  | **4n** |
| **Runtime** |  |  | **O(n)** |

**Hash Table:**

**BIG-O ANALYSIS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Line Cost** | **# Times Executes** | **Total Cost** |
| FOR line in file  Split list by “,” | **1** | **n** | **n** |
| IF split list < 2  Return // Invalid data | **1** | **n** | **n** |
| Else if line len >/= 2:  Create new node  Assign variables | **1** | **n** | **n** |
| IF line len > 2  Append elements 2: to prerequsiste list  FOR element in prerequisite  IF element not in Courses Hash  Delete Node  Return //Invalid course | **1** | **n** | **n** |
| **Total Cost** |  |  | **4n** |
| **Runtime** |  |  | **O(n)** |

**Vector:**

**BIG-O ANALYSIS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Line Cost** | **# Times Executes** | **Total Cost** |
| FOR line in file  Split list by “,” | **1** | **n** | **n** |
| IF split list < 2  Return // Invalid data | **1** | **n** | **n** |
| Else if line len >/= 2:  Create new node  Assign variables | **1** | **n** | **n** |
| IF line len > 2  Append elements 2: to prerequsiste list  FOR element in prerequisite  IF element not in Courses Vector  Delete Node  Return //Invalid course | **1** | **n** | **n** |
| **Total Cost** |  |  | **4n** |
| **Runtime** |  |  | **O(n)** |