

Vector	Line Cost	# Times Executes	Total Cost
Create Vector	1	1	1
For each line in file	1	n	n
Create vector course item	1	n	N
While prereq exists	1	n	n
Append prereq	1	n	n
Pushback course item	1	N	N
Total Cost			5n+1
Runtime			O(n)
HashTable	Line Cost	#Times Executes	Total Cost
Create hash table	1	1	1
Insert method	0	0	0
Create key for course	1	n	n
If no entry found for key	1	n	n
Assign node to key	1	n	n
Else	1	n	n
Assign old node key to UNIT_MAX, set to key, set old node to course and old node next to null pointer	4	n	4n
Else	1	n	n
Find the next open node	1	n	n
Add new newNode to end	1	n	n
For each new line in file	1	n	n
Create vector course item	1	n	n
While prereq exists	1	n	n
Append prereq	1	n	n
Insert course item	1	n	n
Total Cost			16n+1
Runtime			O(n)
Tree	Line Cost	#Times Executes	Total Cost
Add node method	0	0	0
If root is null, add root	1	1	1
If node is less than root then add to left	1	n	n
If no left node	1	n	n
This node becomes left	1	n	n
If node is greater than root add to right	1	n	n
If no right node	1	n	n
This node becomes right	1	n	n
For each line in file	1	n	n
Create vector course item	1	n	n
While prereq exists	1	n	n
Append prereq	1	n	n
Insert course item	1	n	n
Total Cost			11n+2
Runtime			O(n)