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CS-300: Analysis & Design

SNHU - Instructor Ling

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Week 6 - Project 1 Pseudocode & Big O Limitations

VECTOR

Create A Course Object	Line Cost	Times Executed	Total Cost
INITIALIZE a structure for each course	1	n	n
CREATE a string variable to hold the course ID	1	n	n
CREATE a string variable to hold the course name	1	n	n
CALL the addPrereq function (includes a loop)	1	n	n

Total Cost = 4n

Runtime = O(n)

Reading A File	Line Cost	Times Executed	Total Cost
PRINT "Loading CSV file"	1	1	1

INITIALIZE a vector of courses	1	1	1
INITIALIZE a parsing variable	1	1	1
TRY	1	n	n
LOOP until the file size is reached	1	n	n
INITIALIZE a course object	1	n	n
ADD course ID to structure	1	n	n
ADD course name to structure	1	n	n
ADD course prerequisites to prereq vector	1	n	n
ADD course object to courses vector	1	n	n
CATCH any parsing errors	1	n	n
RETURN courses vector	1	1	1

Total Cost = 8n + 4

Runtime = O(n)

HASHTABLE

Create A Course Object	Line Cost	Times Executed	Total Cost
INITIALIZE a structure for each course	1	n	n
CREATE a string variable to hold the course ID	1	n	n

CREATE a string variable to hold the course name	1	n	n
CALL the addPrereq function (includes a loop)	1	n	n

Total Cost = 4n

Runtime = O(n)

Reading A File	Line Cost	Times Executed	Total Cost
PRINT "Loading CSV file"	1	1	1
INITIALIZE a vector of courses	1	1	1
INITIALIZE a parsing variable	1	1	1
TRY	1	n	n
LOOP until the file size is reached	1	n	n
INITIALIZE a course object	1	n	n
ADD course ID to structure	1	n	n
ADD course name to structure	1	n	n
ADD course prerequisites to prereq vector	1	n	n
ADD course object to courses hash table	1	n	n
CATCH any parsing errors	1	n	n
RETURN courses hash table	1	1	1

Total Cost = 8n + 4

Runtime = O(n)

BINARY TREE

Create A Course Object	Line Cost	Times Executed	Total Cost
INITIALIZE a structure for each course	1	n	n
CREATE a string variable to hold the course ID	1	n	n
CREATE a string variable to hold the course name	1	n	n
CALL the addPrereq function (includes a loop)	1	n	n

Total Cost = 4n

Runtime = O(n)

Reading A File	Line Cost	Times Executed	Total Cost
PRINT "Loading CSV file"	1	1	1
INITIALIZE a vector of courses	1	1	1
INITIALIZE a parsing variable	1	1	1
TRY	1	n	n
LOOP until the file size is reached	1	n	n
INITIALIZE a course object	1	n	n
ADD course ID to structure	1	n	n
ADD course name to structure	1	n	n

ADD course prerequisites to prereq vector	1	n	n
ADD course object to courses binary tree	1	n	n
CATCH any parsing errors	1	n	n
RETURN courses binary tree	1	1	1

Total Cost = 8n + 4

Runtime = O(n)