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SNHU

6-2

Open the file using the command fstream

Open file

If return is an error

Cout file is not found

Else

While if it is not the end of file

Read each line

If less than 2 values

Return error

Else

Read parameters

If there is a third or more parameter

Then continue

Close the file

Make a class for the hash table

Make an insert method

While loop

While not at the end of file

Create a temporary item that will hold the current key

Call back to the insert method for the key

Create tree class

Set root to nullptr

Create insert method

If root is equal to null

Set the current course to null

Else

Course number is less than root

Add to the left

If root does equal null

Insert course number

If right is null

Insert course number

If right is less than null

Add to the right

Initialize the course vector

Loop through the file

While for not the end of file

For each line

For first and second value

Add a value

Print:

Get user input

Assign that input to a key

Make a loop that will loop through the hash table

If there is a key

Print course info

For the prerequisites

Print prerequisite info

| **Hash table** | **Line Cost** | **# Times Executes** | **Total Cost** |
| --- | --- | --- | --- |
| **Create table** | 1 | 1 | n |
| **Make insert method** | 1 | n | n |
| **While loop** | 1 | n | 1 |
| **While not at end of file** | 2 | n | n |
| **Call back to inset method** | 1 | n | n |
| **Total Cost** | | | 6n + 1 |
| **Runtime** | | | O(n) |

| **Tree** | **Line Cost** | **# Times Executes** | **Total Cost** |
| --- | --- | --- | --- |
| **Create tree class** | 1 | n | n |
| **Set root to null** | 1 | n | n |
| **Create insert method** | 1 | 1 | 1 |
| **If root is equal to null** | 1 | n | n |
| **Set current course to null** | 1 | n | n |
| **Else** | 1 | 1 | 1 |
| **Add to the left** | 2 | n | n |
| **Total Cost** | | | 8n + 1 |
| **Runtime** | | | O(n) |