Unlimited Attempts Allowed

4/17/2024

Details

Use Tree Structures to create an object-oriented program (OOP), a menu-driven Grade Book of your course grade, and store the information in the data files.

I am looking for your best effort to demonstrate your understanding of the data structures. ***You need to use Tree structures, B-Trees, maps, or hashtable, and you may also use the classes that we have learned this semester.***

Lab 5 Grade Book using B-Trees

Missing 50 Points Possible

5/13/2024

Attempt 1

In Progress

NEXT UP: Submit Assignment

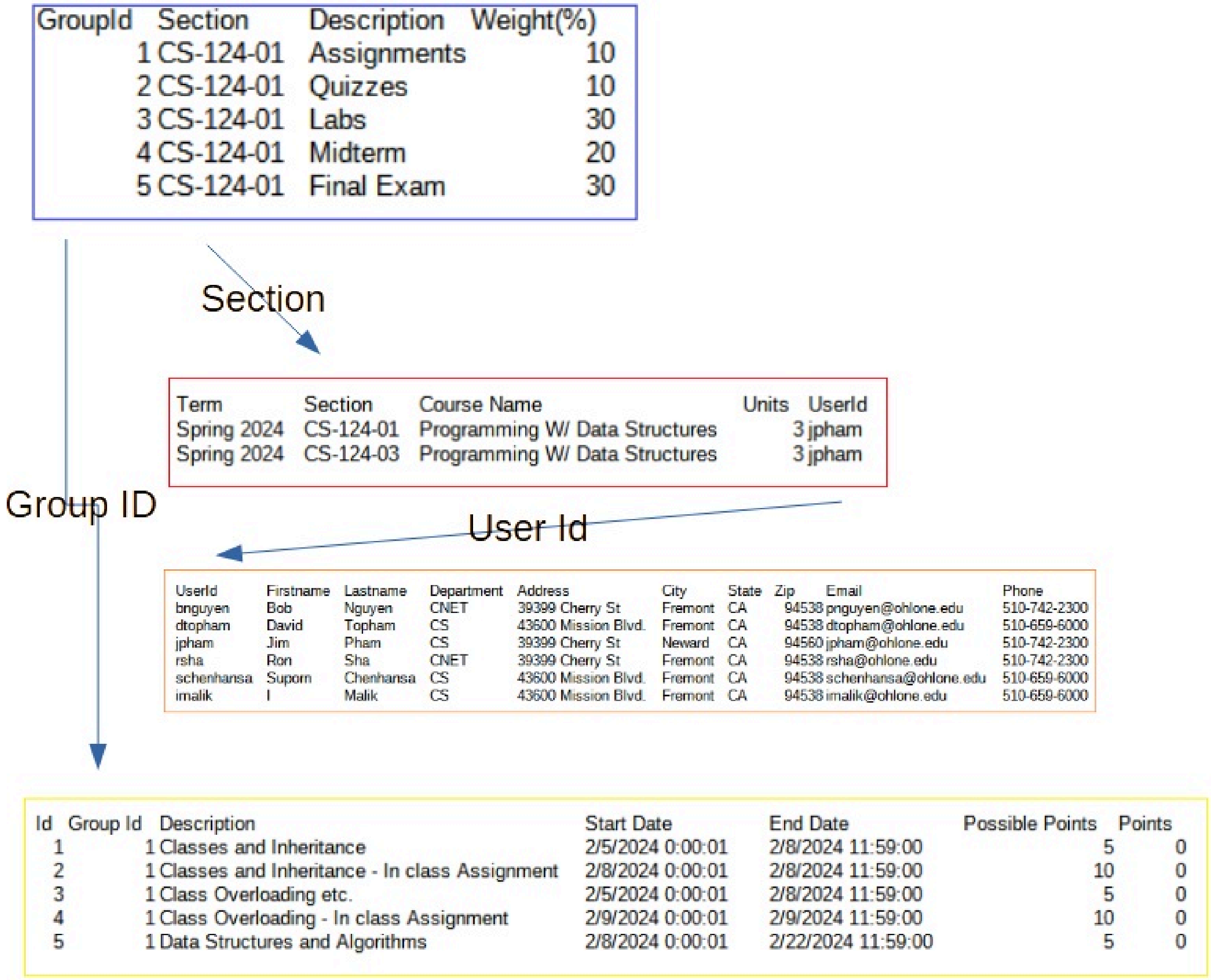
Add Comment

1) Class Participation: 10%
2) Quizzes: 10%
3) Labs: 30%
4) Midterm: 20%
5) Final Exam: 30%

GRADING SCALE:
A = 90-100
B = 80-89
C = 65-79
D = 55-64
F = <55

- To calculate the percentage of each group multiply by its weight (percentage) and add all the groups together, then divide by the sum of the weights.
- To calculate the percentage of each group, the sum of the total points divided by the possible points multiplied by 100.

Your data structures and data requirements:



GroupId	Section	Description	Weight(%)
1	CS-124-01	Assignments	10
2	CS-124-01	Quizzes	10
3	CS-124-01	Labs	30
4	CS-124-01	Midterm	20
5	CS-124-01	Final Exam	30

Term	Section	Course Name	Units	UserId
Spring 2024	CS-124-01	Programming W/ Data Structures	3	jpham
Spring 2024	CS-124-03	Programming W/ Data Structures	3	jpham

UserId	Firstname	Lastname	Department	Address	City	State	Zip	Email	Phone
bnguyen	Bob	Nguyen	CNET	39399 Cherry St	Fremont	CA	94538	pnguyen@ohlone.edu	510-742-2300
dtopham	David	Topham	CS	43600 Mission Blvd.	Fremont	CA	94538	dtopham@ohlone.edu	510-659-6000
jpham	Jim	Pham	CS	39399 Cherry St	Neward	CA	94560	jpham@ohlone.edu	510-742-2300
rsha	Ron	Sha	CNET	39399 Cherry St	Fremont	CA	94538	rsha@ohlone.edu	510-742-2300
schenhansa	Supom	Chenhansa	CS	43600 Mission Blvd.	Fremont	CA	94538	schenhansa@ohlone.edu	510-659-6000
imalik	I	Malik	CS	43600 Mission Blvd.	Fremont	CA	94538	imalik@ohlone.edu	510-659-6000

Id	Group Id	Description	Start Date	End Date	Possible Points	Points
1	1	Classes and Inheritance	2/5/2024 0:00:01	2/8/2024 11:59:00	5	0
2	1	Classes and Inheritance - In class Assignment	2/8/2024 0:00:01	2/8/2024 11:59:00	10	0
3	1	Class Overloading etc.	2/5/2024 0:00:01	2/8/2024 11:59:00	5	0
4	1	Class Overloading - In class Assignment	2/9/2024 0:00:01	2/9/2024 11:59:00	10	0
5	1	Data Structures and Algorithms	2/8/2024 0:00:01	2/22/2024 11:59:00	5	0

The root node (Spring 2024 CS-124-01 or 03):

----Chapter 1 Classes

----Chapter 2 Overloading etc.

----Chapter 3 Data Structures and Algorithms

----Chapter 4 Arrays and Vectors

----Chapter 5 List and Template,

----Chapter 6 Linked List Stacks Queues

----Chapter 7 Sorting and Searching

----Chapter 8 Maps Hash Tables, etc.

----Chapter 9 Tree

----Chapter 10 B-Trees

----ZyBooks Participation

+Quizzes

----Quiz 1

...

+Labs
----Lab 1 Basic Class Structures
...
+Midterm
----Midterm Part 1
...
+Final Exam
----Final Exam Part 1
...

2) Data files and data for your trees

- **grade-scale.csv**
  - grade-scale.csv (https://ohlone.instructure.com/courses/29469/files/5266900?wrap=1) (https://ohlone.instructure.com/courses/29469/files/5266900/download?download_frd=1)
- **assignment-data.csv**
  - assignment-data.csv (https://ohlone.instructure.com/courses/29469/files/5267430?wrap=1) (https://ohlone.instructure.com/courses/29469/files/5267430/download?download_frd=1)
- **course-data.csv**
  - course-data.csv (https://ohlone.instructure.com/courses/29469/files/5267431?wrap=1) (https://ohlone.instructure.com/courses/29469/files/5267431/download?download_frd=1)
- **faculty-data.csv**
  - faculty-data.csv (https://ohlone.instructure.com/courses/29469/files/5267432?wrap=1) (https://ohlone.instructure.com/courses/29469/files/5267432/download?download_frd=1)

We will be working together in class the B-Trees classes implementing the tree interface template using an underlying binary tree representation.

** The only requirement is to populate the assignment-data.csv into the BinarySearchTree. For any other list, you may use any classes or lists ***we have learned this semester to structure your program.***

Example:

template <typename T>
class BinarySearchTree

or

template <typename T>
class BinaryTree

template <typename T>
class Tree

- This first record is the root node.
- All other records are sub_tree - *use root.add_subtree(Assignment)*

Note: Be sure to test your binary tree demo works with the "template <typename T>"

3) Implement the classes using the tree interface using an underlying binary tree representation.

See your in-class assignment tree.h and binaryTree.h

4) Implement your menu to include the following operations

- doList - display all data from the root of the tree.
- doView - view individual assignment and view group of assignments in rows and columns
- doAdd - add to tree.
- doEdit - edit any fields
- doRemove - remove a node from the tree
- calculateGrade - **Implement your grade and display.**
- doSave - save data to .csv file

5) Be sure to use <iomanip> to format your output and follow the coding guidelines.

*****The rubrics will be the same as previous lab assignments and the evidence of your understanding of the concepts covered in class.**

*** For submission, please attach a screenshot of your output (i.e.** Lab 5-<your name>.jpg**) file and zip all sources:** Lab 5-<your name>.cpp **and** .h **files.**

Choose a submission type

Text

Upload

Canvas Studio

More

Submit Assignment