**CSE222**

**HW6 Report**

**Muhammed Eyüp**

**1801042679**

**Q1**

**Class diagram:**

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**Problem solution approach:**

The problem was to insert a set of integers to a set of data structures and the were AVL Tree, Red Black Tree, B tree, 2-3 tree and a skip list, the set of integers were inserted according to the rules of each data structure and removed in FIFO format

**Test Cases:**

There were no test cases as there wasn’t any code written

**Running commands and result:**

There were no running commands and results as there wasn’t any code written

**Q3**

**Class Diagram:**

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**Problem solution approach:**

The problem was to test the performance of the self balancing tree data structures and the binary search tree. each data structure had an object with a size of 10000,20000,40000 and 80000 then for each data structure 10 more integers were inserted and the time it took to insert them was printed as an output then the 10 integers were deleted and the time it took to delete them was also printed as an output

**Test cases:**

|  |  |  |
| --- | --- | --- |
| Test scenario | Test case | Result |
| Insert an element | Element provided | Element inserted |
| Remove an element | Element provided | Element removed |

**Running command and results:**

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**Q4**

**Class Diagram:**

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**Problem solution approach:**

The problem was to create a menu driven software store. The store was created using a binary search tree to store the products but it has an interface to implement any type of tree the user wants.

The program has two types of login as an administrator or as a customer.

The admin needs a password to login and can modify the stores products.

The customer can only buy products.

**Test cases:**

|  |  |  |
| --- | --- | --- |
| Test scenario | Test case | Result |
| Login as an admin | Correct password | Login success |
| Wrong password | Gives a warning and asks again |
| Add a product | Product parameters provided | Adds the product |
| Remove a product | Product name provided | Removes the product |
| Updating a product | Product name provided | Asks the admin what to update |
| Buy a product | Product name provided | Buys the product and decrease quantity by one |

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Description automatically generatedRunning commands and results:**

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