

Group 2

MIA Painting Database

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Team Assignments

Alex Crawford - team leader and main function.

Zachery Minshall - hash function, screen output, and BST algorithms.

Yu Wen Ssu - file I/O and test plan.

James Johnston - undoDelete function.

Introduction

Our program will:

- Read in and parse a CSV file from the Minneapolis Institute of Art
- Generate a “Painting” object with the title, artist, year, and medium used.
- Hash the title and store the painting object in a hash table.
- Build a binary tree of Painting objects based on artist name.
- Cycles through a menu to ask the user if they want to add, list, search, delete, or quit.

Data Structure Design Diagram

https://docs.google.com/document/d/1rasHyLo_V_BFz3k9owKcGoxLsqRi5pQQdi3PB8HSbpc/edit?usp=sharing

UML Diagram

https://docs.google.com/document/d/1lNEkfLOGiqs3Z142_bfTP6n9KYWs8XDbb4OVVPfUoH4/edit?usp=sharing

Structure Chart

Main calls the following functions:

- printGreeting

- buildStructures

 - hash.insertItem

 - titleTree.insert

 - artistTree.insert

- menuSelect

 - hashInsertManager

 - hash.insertItem

 - titleTree.insert

 - artistTree.insert

 - hashDeleteManager

 - listManager

 - primaryKeyList

 - secondaryKeyList

 - searchManager

 - primaryKeySearch

 - secondaryKeySearch

 - undoDelete

 - writeToFile

Hash Function

```
template<class T>
int Hash<T>::goodHashFunc(string key)
{
    int seed = 23;
    unsigned long sum = 0;
    for (int i = 0; i < key.length(); i++)
    {
        sum = (sum * seed) + key[i]*key[i]*key[i];
    }
    return sum % BucketCount;
}
```

Collision Resolution Method

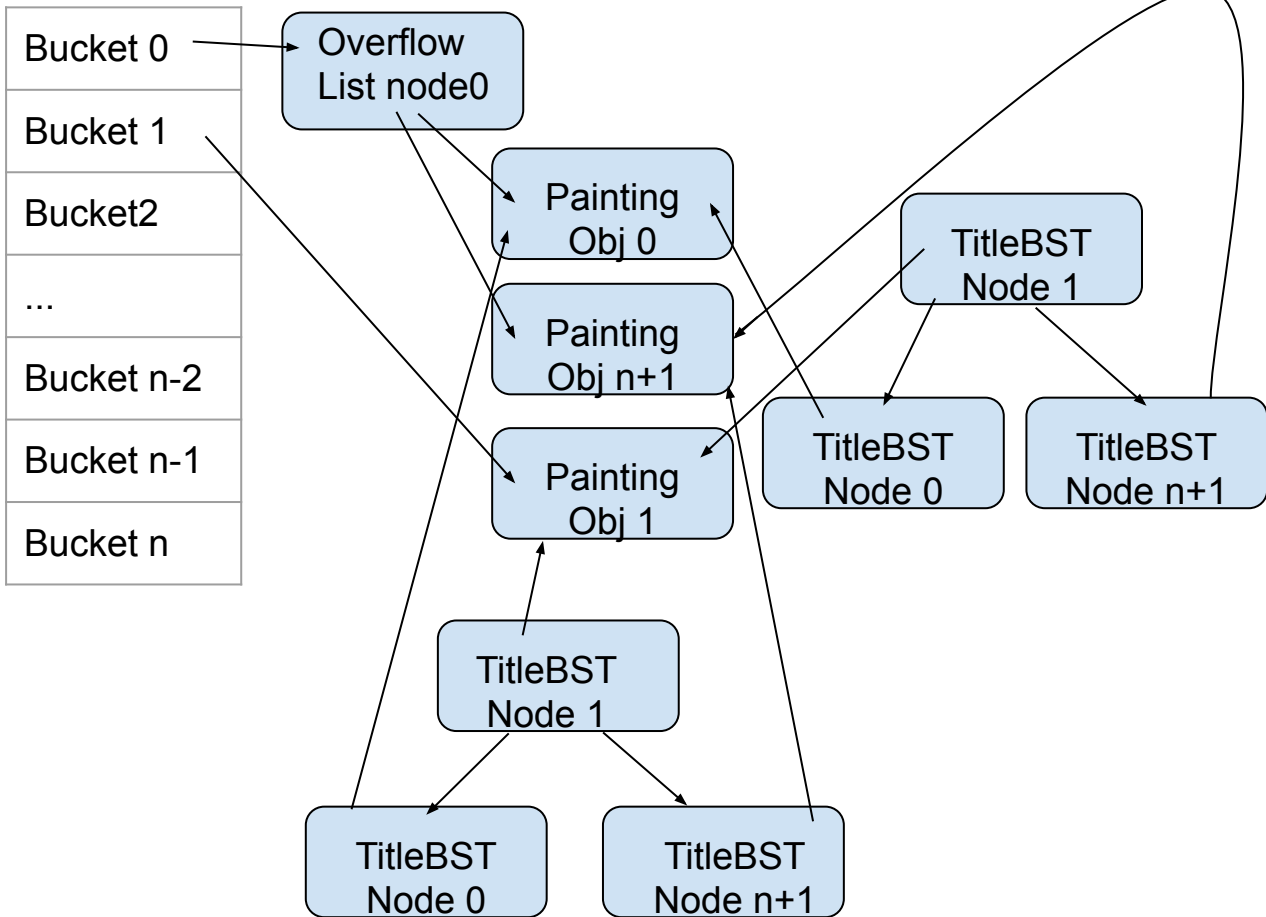
- Create a linked list with the hashed bucket as the head
- If there's more than one collision add on to the linked list

Any Questions?

FAQ:

- Why is the sky blue? The sky is blue due to interaction of sunlight with oxygen in the upper atmosphere.
- Which is a better text editor? Vi >> EMACS.
- Which graphics card should I get? Nvidia >> AMD

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UML diagram

