Mud Sand and Clay

 # Write Up Program 2

Starting Write Up 10/9/24

We will have a storage unit that we can store different types of material (mulch, sand, clay, dirt, silt, gravel). The material is going to have the attributes of color, cost, abundance, and index. The program will have 4 different types of material already in the storage units and the user can have a truck put in more types of materials into other storage units to take out materials from the units.

The classes that we will be using are Storage class that will represent the different storage units that are holding different material. We will also be using a linked list class to hold the different materials that are going to be stored in the storage unit. We will also have a class for the smart pointer in order to help with the risk of memory leaks.

The flow of the program is the user will have a menu of options to choose to do:

1) Add material to storage

2) Take material from storage

3) Check materials in storage

4) End program

They are then able to add to preexisting materials that have been stored or are able to add a new type of material into storage. Also, they can take an amount out of storage to bring to something like a construction site.

Structure

The materials are in a bonus template called storage.

Storage<Materials>

The materials are being stored on different storage units (like storage wars), this would help to demonstrate the insert and remove abilities from anywhere in the list.

LinkedList <Storage<Materials>>

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Functions

The functions that we are going to need are:

1) addMaterial(): this will add a new or existing material into the linked list

2) displayMaterials(): this will get the material type, color, and amount for what is in the linked list and display to the user what is in the "storage"

3) removeMaterial(): this will take out a specified number of a specific material and check to see if there is any more material still left.

4) checkMaterial(): this function will check to see if there is any material left if a section of the storage unit after material has been taken out. It will also check to see if the material exists inside of the storage unit already or if it needs to make a new node in the list.

5) getMaterialType(): get the material type for a specified node

6) setMaterialType(): set the material type for a node

7) getMaterialColor(): get the material color for a specified node

8) setMaterialColor(): set the material type for a node

9) getMaterialAmount(): get the material amount for a specified node

10) setmaterialAmount(): est the amount of a material in a node