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CS202
11/20/20

Media Manager – Design Writeup

For this project we are supposed to design media managing software for several classes being offered at PSU. These classes will be contained in a binary search tree data structure. Each class has a playlist of different topics, and those topics can range from a video, a quiz that has a video, or documents. We want to give the user the ability to add or remove classes, publish media for a specific class, create or remove a topic, to view specific topics for all classes and much more.

To fulfill this, we are going to have a hierarchy. In the hierarchy will be a superclass named media. Media - which is going to be my abstract base class - has a topic, description, comments, and a view count. Derived from media is video, quiz and documents. Video has a title and duration and document has a questions and number system. This is where most of the information is stored in the program. To store the media, we created a class called tree and inside tree is a root to a class. Each class, which is essentially a tree node, will have a left and right pointer as well as a name for the class, a course description, course ID number, and a playlist. The playlist – which acts as an array of media – will have a name, description, a sequence number, and a head for a node. Inside the node we have a media reference and a next pointer to the next media.

Media will have published, upload, and edit functionality. Tree will have the ability to add a class, remove a class, display a class, display all classes, retrieve a class, find a class – which returns a reference to the class we're are looking for, and finally remove all classes. I think this design and layout makes the most sense to me. Since a node has a media and media

can represent documents, video, or quiz with a video. I will need to use dynamic binding to ensure we can point to any one of those types in our array. For the function overloading it makes sense to me to have multiple add functions depending on what were adding.

Project 4 we are supposed to be predominately the playlist portion which is implemented as an array of linear linked lists. So, this is what I will focus on to start. The first thing I will work on is the hierarch, I need to get my media abstract base class and its children documents, video and quiz fully editable so I can fill my node with a reference to them. Second, I need to implement a node class since that's what the array is going to hold. The node needs to support media references and a next pointer. Third, I will create my playlist which will have a sequence of node head pointers, I will implement the functionality of add, remove, display, and display all. I think once I get project 4's portion down the rest will fall in place since its essentially creating a binary search tree after that.

Overall, I'm a little excited and scare to program in java, it appears to be a lot easier to work with, especially since I get to use and IDE. But the little details that don't cross over from C++ will be troublesome. The way that functions pass in data and manipulate data is a little different from C++. But it will be a good learning experience and I hope java ends up clicking for me.