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Design Write up

Program 4-5

From what I understood for this assignment that we will make a program that helps the user orders a pizza from a restaurant. My approach for this program will require using many classes especially that program 5 is going to be continues of that. Therefore, I’m going to need twelve classes in total. First class is going to be the **manager** class which will be the class the controls everything in the program it will have a root pointer to **restaurant** class and also the **manager** class will have a has a relationship with the **user** class which will be the class that holds the head pointer to the doubly linked list, **d\_node** class. The double linked list on the other hand will have a pointer to the **pizza** class which I will use to create an array of pizzas for the user. The **pizza** class will have a **toppings** class pointer and a head pointer maybe to a linked list. The topping class will be an abstract class and it will be derived from a name class which will only contain a char name. The **toppings** class will have four children which are **veggie**, **cheese**, **protein** and **crust**. And I’m going to use dynamic binding to know which one to point to using dynamic binding based on the user’s choice. The manager class will be reading from the external data file and save them in toppings linked list. Also, it will read from the external data file to save the restaurants locations and I may add that it reads the kind of pizzas for each restaurant. Also, it will have a function that will get the user information and create the user’s order by calling a function in the **user** class which will ask the user how many orders the user wants and it will create the doubly linked list based on that. Approaching the toppings creation will be by creating an array of pointers and each pointer will point to a toppings derived class and when the user chose one of the toping I just add a linked list node there so that way the user can add as many topping as the user wants and the linked list will grow as needed. The restaurant class will be a binary search tree of restaurants and I’m thinking about making it by zip code so I can just compare numbers and that would make allocate less memory, hence the program will be faster. The restaurants will be read from a file and then inserted into the binary search tree in the manager class once the program has started. Also, I’m thinking about making the pizza specialties read from the file into each restaurant node so that each restaurant will have its own specialty, but I’m trying to think of a way to inserted randomly into restaurants, so that every run gives a new specialty to a different restaurant. Also, I believe I’m going to need to use a lot of exception handling for this program like for example I’m going to give the user range of zip codes and if the user chose something outside of the range I would through an exception and deal with that in a try block. Another thing is I might add a name class that will be the parent of the linked list so that every node will be a name so I can save the type of toppings. All in all, I believe my approach will be fine for this program however, I might need to modify relationships when I start implementing the program especially for the toppings and the linked list I want to add to that.