PP1

1. Group members: Violettee Muzondi; Moyosoreoluwa Ayoade
2. Project name: CD/DVD Stack
3. Build pp1.cpp in the student cluster:
    Run the command ‘g++ -Wall pp1.cpp’
    Then run the command ./a.out
    The file songs.txt is provided for user input as info for recipes.

4. To use the program we have programmed a user input interface.
To push a CD or DVD, type ‘a’
To call the top of the CD/DVD , type ‘t’’
To print all the CDs and DVDs in the list, type ‘p’
To delete the top CD/DVD in the list, type ‘d’
To quit, type ‘q’

The program takes in a letter, however, if you give the program a bunch of letters it will choose the first character in the string. Also the ‘add’ function puts you in the add CD/DVD UI till all the variables are added. All the variables in the classes are strings in order to allow flexibility when inputting properties.

5. The purpose of our program is to implement a common CD/DVD type stack similar to physical stacks of media. Where you can read the disc off the top (top), move the disc to another pile (pop), sieve through all the discs to find the one you're looking for (print) and add another disc to the pile (add). This simulates the stack structure as discs are taken off the top of the pile.

6. The program uses stacks as it represents a physical stack of discs to which you add and remove from the top. The program defines its main class in line 23-42 labeled entertainment. The subclasses to entertainment are defined in lines 44-88 and are named CD and DVD. These classes have their own respective properties besides the general Entertainment class properties. The Linked stack structure builds off the structure of a singly linked list. The singly linked list structure is defined from lines 91-163. The linked list structure has all the required functions to build the stack structure. The stack structure has two properties, a linked list and a count. The stacks functions call the linked lists functions in specific ways to perfectly act like a stack. The stack has a size, empty, top, push, print and pop function. The stack also takes in Templated values in order to accommodate for other data types. The stack structure is defined from lines 164-269.

The main function holds the code for the user interface where there is an operational code for each function. It loops until the quit function is called. Each operational code calls a function in the linkedStack class.

1. The stack used in lines to add CDs to the stack (line 280). The stack is also called when printing the CDs stored (line 282). The stack is also used to present the top element (line 286) and remove the top element (line 284).
2. The classes CD and DVD are child classes of the Entertainment class and they inherit the variables artist, length, and genre. The CD class creates two new variables called album and numsongs while the DVD class creates two new variables called movie and cast. They both have their own print function while the Entertainment class has a virtual print function.

7. Violettee Muzondi 50%; Moyosoreoluwa Ayoade 50%

8. **We understand that there will no tolerance towards academic dishonesty, and that cheating will lead to an academic referral. We are aware of the identified behaviors that are considered violations of the academic standards for Undergraduate and Graduate students per USF policy.**