Lab6

# Class designs

### Object

- Parent class for all the polymorphic classes
- Contains standard functions used by all classes
- Contains a string for its name

#### LinkList

- This is a polymorphic single link-list that stores object pointers
- It has multiple functions allowing it to work as a stack, queue or link-list
- Tracks the amount of items in it, total amount of items stored and more
- it is also a member class of Object

## **PTree**

- This class is a polymorphic binary tree
- It contains all the standard functions of a binary tree
- keeps track of how many items are stored within it

#### Rating

- contains an int for a ratings and a string for a comment
- Is a member class of Object allowing it to be stored in LinkList or PTree

#### RTime

- Contains two integers to track a movies runtime (hours, minutes)
- Is a member class of Object

#### Movie

- contains a string for the movies title, RTime to track the movies runtime, and a polymorphic LinkList of sorted Ratings
- Is a member class of Object allowing it to be stored in LinkList or PTree

#### MovieTree

Binary tree that sorts Movies by title and has all the standard functions

### MoviePlayList

- A LinkList of movies sorted by title title
- Contains a RTime to keep track of its total time and a string for its name

### PlayListTree

- A PTree of playlists
- Sorts playlists by name and contains some of the PTree functions such as keeping track of how many items are in the PlayListTree

#### Algorithms Used

- Most of the algorithms used were from lab4 and lab5
- For my PTree I used standard functions taught in class that are recursive by nature

- For my random playlist generator I used Fisher-Yates Shuffling algorithm. I used a LinkList of movies to create the random play list. My random number generator wasn't working properly on rabbit for some reason

## **Compiling Instructions**

## Short Explanation:

Make sure that you have all the following files in a working directory on rabbit and type the following command:

g++ app.cpp Object.h Object.cpp LinkList.h LinkList.cpp PTree.h
PTree.cpp Rating.h Rating.cpp RTime.h RTime.cpp Movie.h Movie.cpp
MovieTree.h MovieTree.cpp MoviePlayList.h MoviePlayList.cpp PlayListTree.h PlayListTree.cpp

## Long Explanation:

- All my source code compiles properly on rabbit make sure you include all of the following source and text files: app.cpp
  - This is a pine like console application
  - It uses gui.txt, movies.txt and playlistTree.txt to run
- When you exit the application it automatically saves all the work done to those files
- You can add new playlists and movies to the database qui.txt
- contains all the loading menus for the application movies.txt
- contains all the movies
  playlistTree.txt
- contains all the default playlists
  Other files: Object.h Object.cpp LinkList.h LinkList.cpp PTree.h
  PTree.cpp Rating.h Rating.cpp RTime.h RTime.cpp Movie.h Movie.cpp
  MovieTree.h MovieTree.cpp MoviePlayList.h MoviePlayList.cpp PlayList-Tree.h PlayListTree.cpp

### Sample Runs

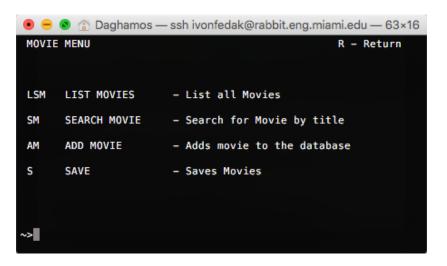
Check it out the app, let me know if you like it

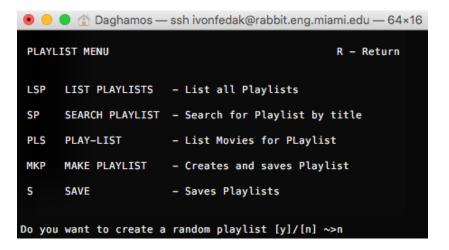
```
PLAYLIST MENU
                                      R - Return
LSP
     LIST PLAYLISTS - List all Playlists
SP
     SEARCH PLAYLIST - Search for Playlist by title
PLS
     PLAY-LIST
                  - List Movies for PLaylist
MKP
     MAKE PLAYLIST
                  - Creates and saves Playlist
s
     SAVE
                  - Saves Playlists
```

```
O Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63×16
MAIN MENU
      HELP
                      - Open help menu
L
      LOAD
                      - Load data from files
М
      MOVIE
                      - List and search movies
Ρ
      PLAYLIST
                      - List and configure playlists
Q
      QUIT
                      - Quit the program
|LL movies.txt|LM movies.txt|LP playlistTree.txt| ~>
```

```
    O @ A Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63×16

HELP MENU
                                                 R - Return
Reading in data
  - the file read should be in the following format:
       START
                                  [marks start of file]
       PSTART
                                  [marks start of playlist]
       playlist title
       movie title
       RSTART
                                  [marks start of Ratings]
       rating
       comment
       REND
                                  [marks end of Ratings]
                                [marks end of playlist]
       PEND
       END
                                  [marks end of file]
```





```
● ● Playlists - List all Playlists

SP SEARCH PLAYLIST - Search for Playlist by title

PLS PLAY-LIST - List Movies for Playlist

MKP MAKE PLAYLIST - Creates and saves Playlist

S SAVE - Saves Playlists

Playlist name ~>Miami Movie name ~>Good Guy Ram Couldn't find Movie name ~>lsm
```

