

Lab6

Class designs

Object

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

LinkedList

- 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 LinkedList 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 LinkedList of sorted Ratings
- Is a member class of Object allowing it to be stored in LinkedList or PTree

MovieTree

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

MoviePlayList

- A LinkedList of movies sorted by 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 PlayList-
Tree.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

gui.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

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63x16

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

~>
```

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63x16

MAIN MENU

?    HELP          - Open help menu
L    LOAD           - Load data from files
M    MOVIE          - List and search movies
P    PLAYLIST       - List and configure playlists
Q    QUIT           - Quit the program

|LL movies.txt|LM movies.txt|LP playlistTree.txt| ~> █
```

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63x16

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]
    PEND                  [marks end of playlist]
    END                  [marks end of file]

~> █
```

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63x16

LOAD MENU                                     R - Return

LM   LOAD MOVIES      - Load Movies from file
LP   LOAD PLAYLISTS   - Load Playlists from files

~>
```

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 63x16

MOVIE MENU                                    R - Return

LSM  LIST MOVIES      - List all Movies
SM   SEARCH MOVIE     - Search for Movie by title
AM   ADD MOVIE        - Adds movie to the database
S    SAVE             - Saves Movies

~> |
```

```
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PLAYLIST MENU                                R - Return

LSP  LIST PLAYLISTS   - List all Playlists
SP   SEARCH PLAYLIST  - Search for Playlist by title
PLS  PLAY-LIST        - List Movies for PList
MKP  MAKE PLAYLIST    - Creates and saves Playlist
S    SAVE             - Saves Playlists

Do you want to create a random playlist [y]/[n] ~>n
```

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 64x16

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

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

```
Daghamos — ssh ivonfedak@rabbit.eng.miami.edu — 64x16

Playlist Name: Miami
Playlist Runtime: 2 hours, 35 minutes
Title: Waterworld
Runtime: 2 hours, 35 minutes
rating: 4, comment: Not nearly as bad as everyone says
rating: 3, comment: NOT the worst movie ever made
rating: -10, comment: Glug-Glug-Glug ...&... Gurgle-Gurgle-Gurgl
e
Do you want to keep the Paylist [y]/[n] ~>n
```