**Project Design/Implementation Document**

1. Title  
   Oscar’s with BST, Sharvita Paithankar, ​108172438​, and ​April 12, 2018
2. Problem DescriptionThe program will take two different text files which are separated by commas. It then stores the information about each film into list. Each list is in different nodes, one type of node for each list. These nodes will be added to a BST and it will add and sort based on a field. Once the data is held within the BST we can pull it into other data structures and manipulate it as per the project requirements.
3. Overall Software Architecture

In my main, I called on the read in function which will read in data, sort fields, search on fields, and print. The following is a pseudo code of things I have planned to do for the code:  1) Read data for actors and pictures. Each of these is going to have its  own nodes and their own trees   2) Choose pictures: a) sort year b) sort award c) sort names d) sort  films  3) Choose actors : a)Sort Name b)Sort Year c) Sort Nominations d)  Sort Rating e)Sort Duration f) Sort first Genre g) Sort second  Genre h)Sort Release i)Sort Metacritic  4) Search depending on the field  1) For each field I am going to use switch case for calling the sub  functions. The sub functions will sort a string and sort an integer.  You can then create a vector and take data from to and move it into the vector. And after sorting the vector, you can return the pointer to the vector. After it’s been sorter, you can search for other fields.

1. Input Requirements

User will be asked for a file name of the text file. If the file opens and is readable, The user will be given an error message that will let them know if the file is not opening. The user will be asked to input from the menu options. The user will be noted if their input is wrong as well.

1. Output Requirements

The outputs will be formatted to a text file. I have an output that the user will be able to specify, and the print selection function will print only the selected fields. The user will specify which fields they want to print from the main menu, the switch case export and then selecting 1 from the next case will allow the user to set the Boolean variable to repeat the menu. I have made a print function to print the tree and the vector as well to print out all the nodes/values that the user searched for.

1. Problem Solution Discussion

I was unsure about whether to create different trees for each type of searchable field or just use a vector to sort and search. After analyzing that binary search tree has a insertion of log(n) and if I try insert all the different searchable elements into a tree, I will have to go through each element anyway. So, to conclude, I think it is a better idea to use name as the key and insert all elements to the binary tree and search for other fields from the vector because it will take the same amount of time to go through each field and sort then and put it into a vector.

1. Data Structures

We will be using two BST’s for the project requirements, one for actor and one for picture. Vectors will be used for all of the sorting and searching for all the other searchable fields.

1. User Interface Scheme

​Mentioned in the overall structure architecture

9. Status of Application

The program an error on search and since that is not working,

my delete and modify functions are being affected. I tested the delete

and modify functions separately and they work perfectly fine. Other than

this issue, everything else works just fine on visual studios. I was having

trouble in compiling it in cse grid but it worked a few times after fixing a

few things. I believe that it should be able to compile but it sometimes runs

into an issue.