Report Analysis

Music Library was stored using singly LinkedList and HashMap.

ADVANTAGE:

Insertions and Deletions can be done easily.

It does not need movement of elements for insertion and deletion.

Its space is not wasted as we can get space according to our requirements.

Its size is not fixed.

It can be extended or reduced according to requirements.

Elements may or may not be stored in consecutive memory available, even then we can store the data in computer.

It is less expensive.

DISADVANTAGE:

It requires more space as pointers are also stored with information.

Different amount of time is required to access each element.

If we must go to a particular element, then we must go through all those elements that come before that element.

we cannot traverse it from last & only from the beginning.

It is not easy to sort the elements stored in the linear linked list.

Alternative: As this is a music library, that will eventually include going back and skipping song, Doubly LinkedList would have performed better, taking time complexity into consideration.

But due to technical issue, I was behind in class and implemented the singly List which is the one I had caught up. If given more time, I'd be able to implement a better approach and calculate the time complexity.

I would recommend doubly LinkedList for the storage of songs.

Using HashMap is not a great idea for a music Library considering time complexity and cost efficiency.

Although it allows adding element with keypair value. But HashMap is not synchronized, therefore cannot be shared between multiple threads without proper synchronization.

It is a fail-fast iterator, it allows faster access of elements due to hashing technology.