At first, we try to implement this by using batch, and calling the procedure to insert the data. The reason why we called procedure because is we check the duplicate in the procedure, not in java program. This method correspond to Insert_movie_bad.java. However, the result is not satisfying as we thought.

```
------------------inserting actors to database finished--------------------------
Movie size: 6839
Takes time: 889
--------------------inserting movies to database-----------------------------
Takes time totally: 1521397
```

The whole thing takes 1521397ms in my local machine, which could be faster in aws machine, but still it is very slow.

After that, we use two methods to improve our performance:

1.We don't check the dupilicate and isempty check in procedure. Instead, by using hashmap's key to remove the duplicate actor or movie. In this way, all the checkings are done before the inserting data to database.

2.We use hashmap to store the whole data struture in the memory. As we know, searching complexity of hashmap is O(1), which means it will save a lot of time doing inserting. Because, instead of using Arraylist and go through its each element and get each size of arraylist, hashmap is way faster than thatthat way.

3.We also use prepare Statement and set atuo commit method to improve it.

After doing those thing, the running time of program speed up to 7242ms. And this is only in local machine, in AWS would even faster.

```
------------------inserting movies to database finished--------------------------
Movie size: 8253
Takes time: 4274
--------------------inserting actors to database-----------------------------
------------------inserting actors to database finished--------------------------
Movie size: 17822
Takes time: 2953
Takes time totally: 7242

Process finished with exit code 0
```