Two performance optimizations:

1) Multithreading
Uses 1 producer and 4 worker threads to parse and add data from the xml file into the SQL Database.

MySAXParser: parsing
MySAXParser: done parsing
Movies Parsing finish
Total SaxParser time: 72386ms
ActorParser: Connected to database
Actors Parsing finish
Total Actors time: 14159ms
Connected to database
Cast Parsing finish
Total Cast time: 92664ms

Figure 1. Parse runtimes with NO multithreading

finished MySAXParser thread
Total Movie time: 37764ms
starting ActorParser thread
ActorParser: Connected to database
finished ActorParser thread
Total Actor time: 2821ms
starting CastParser thread
Connected to database
finished CastParser thread
Total Cast time: 10989ms
finished SQLInserter threads

Figure 2. Parse runtimes with multithreading

2) Database Indexing
Creates indexes on movies table by director and year.
This shortens movie table lookup times if the user wishes to search by director's name or year.

```
finished MySAXParser thread
Total Movie time: 34197ms
starting ActorParser thread
ActorParser: Connected to database
finished ActorParser thread
Total Actor time: 2325ms
starting CastParser thread
Connected to database
finished CastParser thread
Total Cast time: 798058ms
finished SQLInserter threads
```

Figure 3. Parse runtimes with NO SQL table indexing

```
MySAXParser: parsing
MySAXParser: done parsing
finished MySAXParser thread
Total Movie time: 38923ms
starting ActorParser thread
ActorParser: Connected to database
finished ActorParser thread
Total Actor time: 2787ms
starting CastParser thread
Connected to database
finished CastParser thread
Total Cast time: 7916ms
finished SQLInserter threads
```

Figure 4. Parse runtimes with SQL table indexing