PRIMARY KEYS AND FOREIGN KEYS

When `Primary` keys and `Foreign` keys where enabled query `a` and `b` finished in 0.02 seconds and 0.18 seconds respectively. The results of the two queries are shown below.

```
+-----------------+
| count(playerID) |
+-----------------+
|             458 |
+-----------------+
1 row in set (0.02 sec)
+-----------+----------+
| playerID  | totalPay |
+-----------+----------+
| belleal01 | 37417830 |
| kershcl01 | 33000000 |
| lackejo01 | 31950000 |
+-----------+----------+
3 rows in set (0.18 sec)
```

NO FOREIGN KEYS

When `Primary` keys where enabled and `Foreign` keys where disabled query `a` and `b` finished in 0.03 seconds and 0.17 seconds respectively. The results of the two queries are shown below. As the queries finished so quickly it is hard to gauge if this affects the performance or not.

```
+-----------------+
| count(playerID) |
+-----------------+
|             458 |
+-----------------+
1 row in set (0.03 sec)

+-----------+----------+
| playerID  | totalPay |
+-----------+----------+
| belleal01 | 37417830 |
| kershcl01 | 33000000 |
| lackejo01 | 31950000 |
+-----------+----------+
3 rows in set (0.17 sec)
```

NO PRIMARY KEYS AND FOREIGN KEYS

When both `Primary` keys where and `Foreign` keys where disabled query `a` and `b` finished in 0.04 seconds and 14.47 seconds respectively. It can be seen that query `b` took significantly longer when compared to the

query with Primary Keys and Foreign Keys enabled (0.18 sec). As such it can be concluded that Primary keys improve performance significantly.

```
+-----------------+
| count(playerID) |
+-----------------+
|             458 |
+-----------------+
1 row in set (0.04 se
+-----------+----------+
| playerID  | totalPay |
+-----------+----------+
| belleal01 | 37417830 |
| kershcl01 | 33000000 |
| lackejo01 | 31950000 |
+-----------+----------+
3 rows in set (1 min 14.47 sec)
```

EFFECTS OF INDEXES

I added indexes on `yearID` for tables `Salaries, Managers, Appearances` and indexes on `birthyear, birthmonth, birthcountry, deathcountry` on table `Master`. Query `a` and `b` took 0.04 seconds and 0.16 seconds respectively. It can be seen that the effect on performance is negligible with these chosen indexes for this dataset as it is very similiar to the results with `Primary` and `Foreign` keys. These attributes where chosen as they seem to have numerous tuples with the same values, so it seemed bucketing them would be logical i.e many players born in the same year.

```
+-----------------+
| count(playerID) |
+-----------------+
|             458 |
+-----------------+
1 row in set (0.04 sec)

+-----------+----------+
| playerID  | totalPay |
+-----------+----------+
| belleal01 | 37417830 |
| kershcl01 | 33000000 |
| lackejo01 | 31950000 |
+-----------+----------+
3 rows in set (0.16 sec)
```