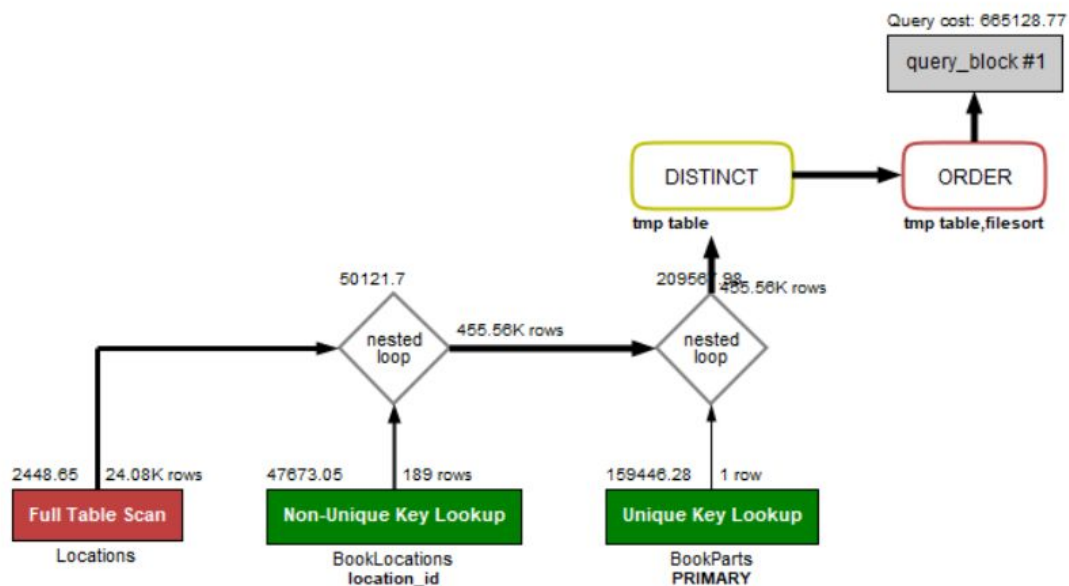


Artefakt med screenshot dokumentation af alle queries kørt både i MySQL og MongoDB. Screenshotsne viser henholdvis executionplaner og Query Stats fra mysql-workbench. For mongo er queries dokumenteret outputtet ved brug af kaldet `db.collection.explain("executionStats").aggregate` fra mongo terminallen (shell)

For en opsummering og konklusion på disse tidstagninger se "sammenligning og konklusions" afsnittet i rapporten.

## Database : MySQL

MySQL query 1, uden index



## Query stats, query 1 uden index

### Timing (as measured at client side):

Execution time: 0:00:0.04700000

### Timing (as measured by the server):

Execution time: 0:00:0.04288160

Table lock wait time: 0:00:0.00018800

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 1842

Rows examined: 40533

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 1

### Joins per Type:

Full table scans (Select\_scan): 1

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 0

### Sorting:

Sorted rows (Sort\_rows): 1842

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 1

### Index Usage:

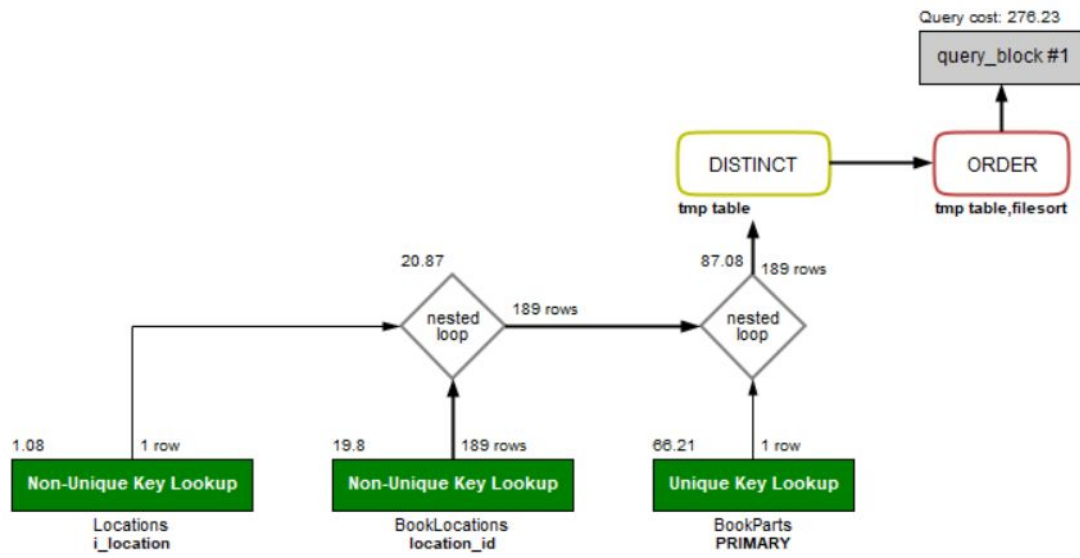
No Index used

### Other Info:

Event Id: 58

Thread Id: 83

## MySQL query 1, med index



## Query stats, query 1 med index

### Timing (as measured at client side):

Execution time: 0:00:0.03100000

### Timing (as measured by the server):

Execution time: 0:00:0.01910310

Table lock wait time: 0:00:0.00038600

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 1842

Rows examined: 16331

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 1

### Joins per Type:

Full table scans (Select\_scan): 0

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 0

### Sorting:

Sorted rows (Sort\_rows): 1842

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 1

### Index Usage:

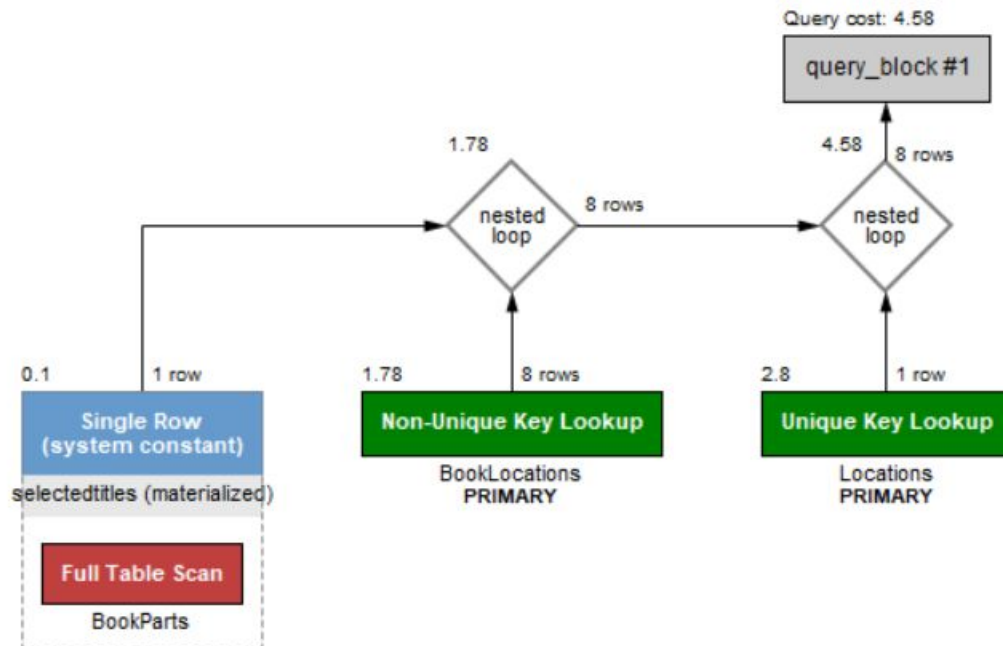
At least one Index was used

### Other Info:

Event Id: 86

Thread Id: 83

## MySQL query 2 uden index



## Query stats, query 2 uden index

### Timing (as measured at client side):

Execution time: 0:00:0.01500000

### Timing (as measured by the server):

Execution time: 0:00:0.00542800

Table lock wait time: 0:00:0.00103400

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 8

Rows examined: 31

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 1

### Joins per Type:

Full table scans (Select\_scan): 1

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 0

### Sorting:

Sorted rows (Sort\_rows): 0

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 0

### Index Usage:

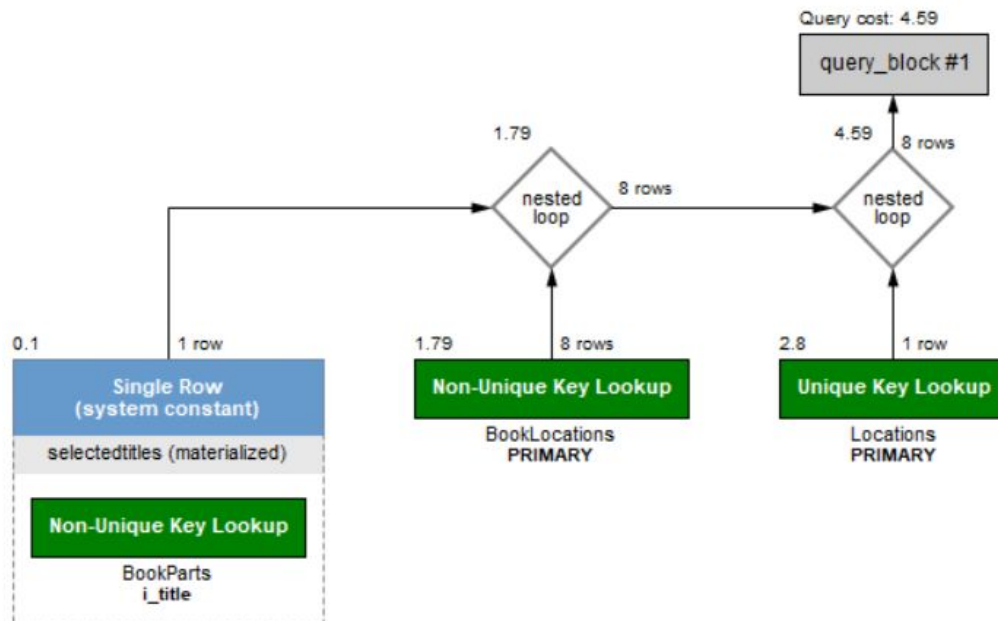
No Index used

### Other Info:

Event Id: 120

Thread Id: 56

## MySQL query 2 med index



## Query stats, query 2 med index

### Timing (as measured at client side):

Execution time: 0:00:0.01500000

### Timing (as measured by the server):

Execution time: 0:00:0.00630860

Table lock wait time: 0:00:0.00065500

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 8

Rows examined: 17

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 1

### Joins per Type:

Full table scans (Select\_scan): 0

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 0

### Sorting:

Sorted rows (Sort\_rows): 0

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 0

### Index Usage:

At least one Index was used

### Other Info:

Event Id: 144

Thread Id: 56



**MySql query 3 uden index**

*intet screenshot tilrådighed*

## Query stats, query 3 uden index

### Timing (as measured at client side):

Execution time: 0:00:0.07800000

### Timing (as measured by the server):

Execution time: 0:00:0.16812790

Table lock wait time: 0:00:0.00027300

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 19

Rows examined: 46107

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 0

### Joins per Type:

Full table scans (Select\_scan): 1

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 0

### Sorting:

Sorted rows (Sort\_rows): 19

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 1

### Index Usage:

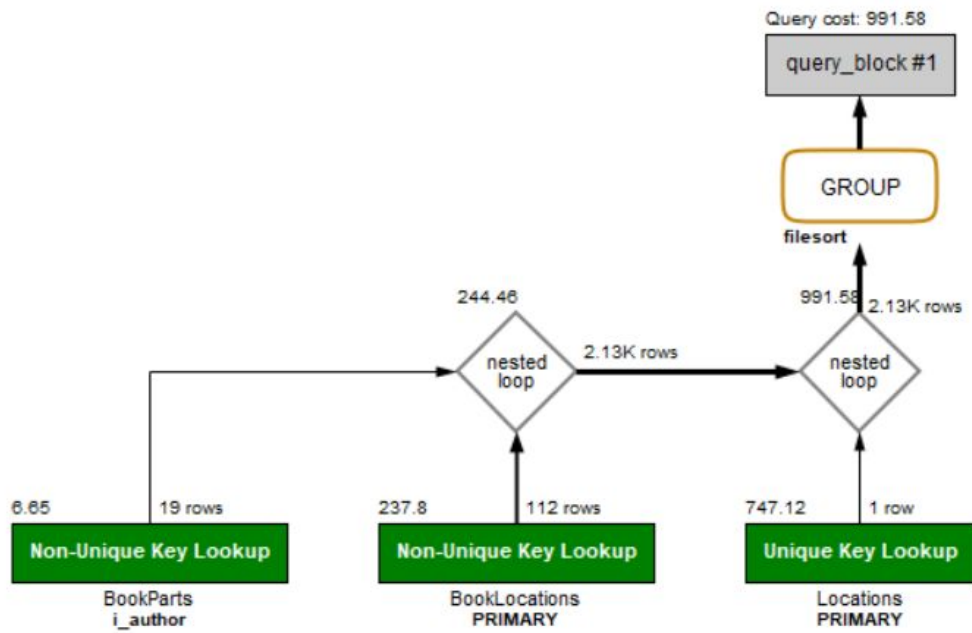
No Index used

### Other Info:

Event Id: 177

Thread Id: 56

## MySQL query 3 med index



## Querystats query 3 med index

### Timing (as measured at client side):

Execution time: 0:00:0.01600000

### Timing (as measured by the server):

Execution time: 0:00:0.11739990

Table lock wait time: 0:00:0.00043600

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 19

Rows examined: 9130

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 0

### Joins per Type:

Full table scans (Select\_scan): 0

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 0

### Sorting:

Sorted rows (Sort\_rows): 19

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 1

### Index Usage:

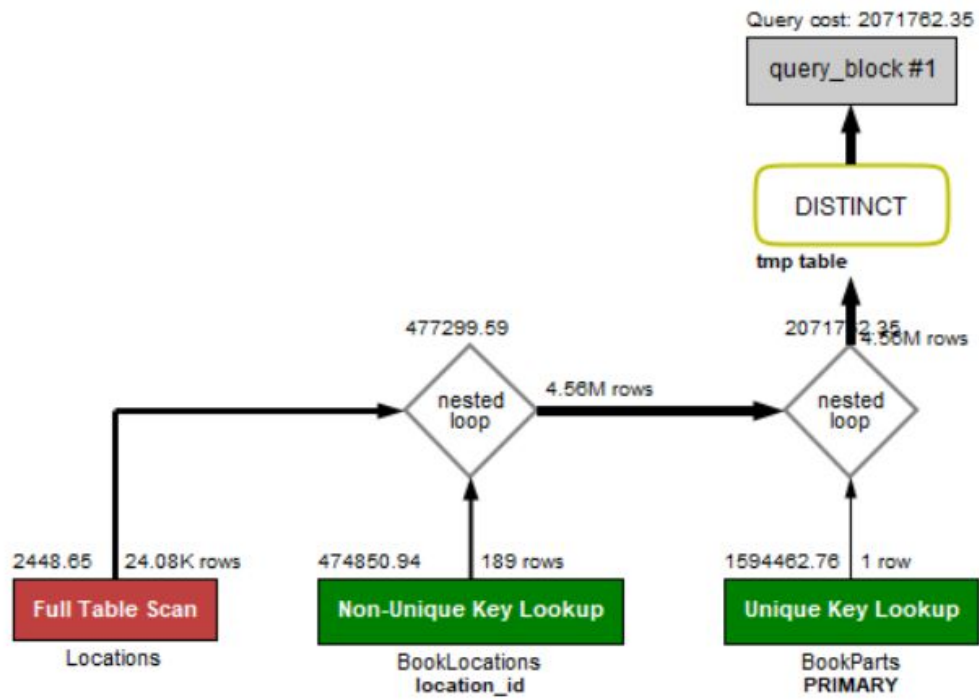
At least one Index was used

### Other Info:

Event Id: 212

Thread Id: 56

## MySQL query 4 uden index



## Querystats query 4 uden index

**Timing (as measured at client side):**  
Execution time: 0:00:7.71900000

**Timing (as measured by the server):**  
Execution time: 0:00:7.99341360  
Table lock wait time: 0:00:0.03486300

**Errors:**  
Had Errors: NO  
Warnings: 0

**Rows Processed:**  
Rows affected: 0  
Rows sent to client: 39469  
Rows examined: 916904

**Temporary Tables:**  
Temporary disk tables created: 0  
Temporary tables created: 1

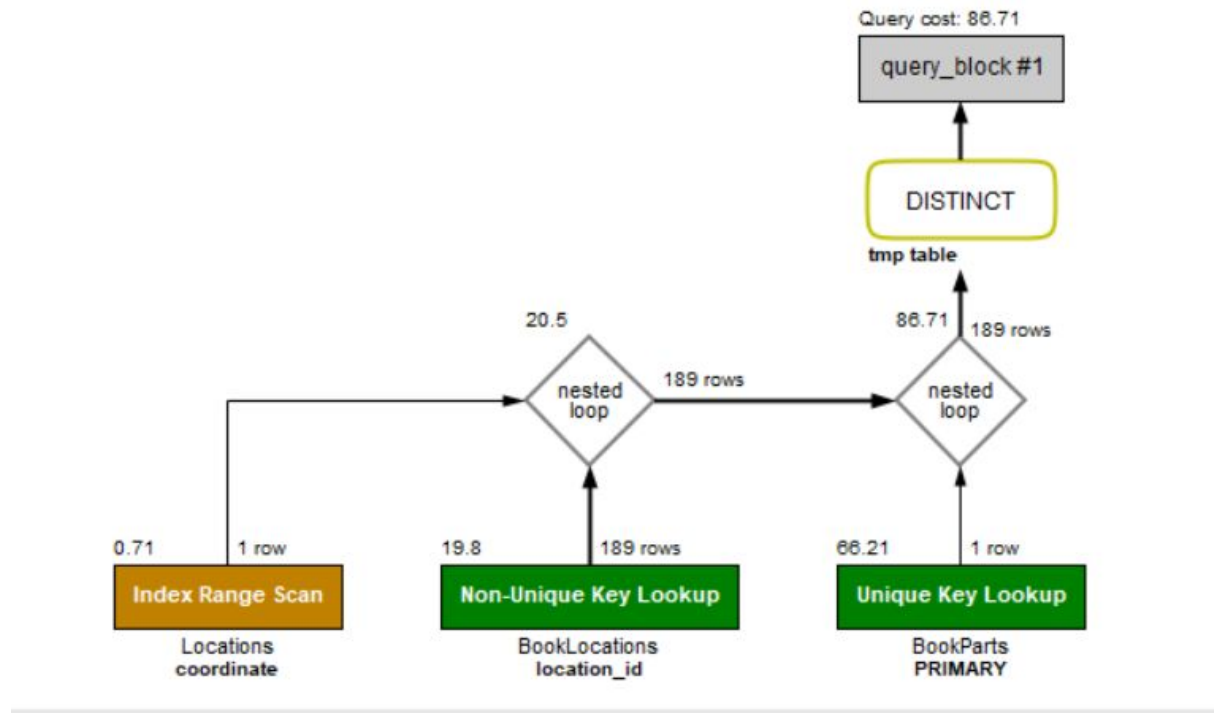
**Joins per Type:**  
Full table scans (Select\_scan): 1  
Joins using table scans (Select\_full\_join): 0  
Joins using range search (Select\_full\_range\_join): 0  
Joins with range checks (Select\_range\_check): 0  
Joins using range (Select\_range): 0

**Sorting:**  
Sorted rows (Sort\_rows): 0  
Sort merge passes (Sort\_merge\_passes): 0  
Sorts with ranges (Sort\_range): 0  
Sorts with table scans (Sort\_scan): 0

**Index Usage:**  
No Index used

**Other Info:**  
Event Id: 242  
Thread Id: 56

## Mysql query 4 med index



## Querystats query 4 med index

### Timing (as measured at client side):

Execution time: 0:00:5.82800000

### Timing (as measured by the server):

Execution time: 0:00:5.92442070

Table lock wait time: 0:00:0.00041800

### Errors:

Had Errors: NO

Warnings: 0

### Rows Processed:

Rows affected: 0

Rows sent to client: 39469

Rows examined: 892908

### Temporary Tables:

Temporary disk tables created: 0

Temporary tables created: 1

### Joins per Type:

Full table scans (Select\_scan): 0

Joins using table scans (Select\_full\_join): 0

Joins using range search (Select\_full\_range\_join): 0

Joins with range checks (Select\_range\_check): 0

Joins using range (Select\_range): 1

### Sorting:

Sorted rows (Sort\_rows): 0

Sort merge passes (Sort\_merge\_passes): 0

Sorts with ranges (Sort\_range): 0

Sorts with table scans (Sort\_scan): 0

### Index Usage:

At least one Index was used

### Other Info:

Event Id: 267

Thread Id: 56



# Database: MongoDB

## MongoDB query 1 uden index

```
    "executionStats" : {
      "executionSuccess" : true,
      "nReturned" : 1,
      "executionTimeMillis" : 42984,
      "totalKeysExamined" : 0,
      "totalDocsExamined" : 5483,
      "executionStages" : {
        "stage" : "COLLSCAN",
        "filter" : {
          "name" : {
            "$eq" : "Copenhagen"
          }
        },
        "nReturned" : 1,
        "executionTimeMillisEstimate" : 0,
        "works" : 5484,
        "advanced" : 1,
        "needTime" : 5483,
        "needYield" : 0,
        "saveState" : 43,
        "restoreState" : 43,
        "isEOF" : 0,
        "invalidates" : 0,
        "direction" : "forward",
        "docsExamined" : 5483
      }
    }
```

## MongoDB query 1 med index

```
"executionStats" : {
  "executionSuccess" : true,
  "nReturned" : 1,
  "executionTimeMillis" : 647,
  "totalKeysExamined" : 1,
  "totalDocsExamined" : 1,
  "executionStages" : {
    "stage" : "FETCH",
    "nReturned" : 1,
    "executionTimeMillisEstimate" : 0,
    "works" : 1,
    "advanced" : 1,
    "needTime" : 0,
    "needYield" : 0,
    "saveState" : 1,
    "restoreState" : 1,
    "isEOF" : 0,
    "invalidates" : 0,
    "docsExamined" : 1,
    "alreadyHasObj" : 0,
    "inputStage" : {
      "stage" : "IXSCAN",
      "nReturned" : 1,
      "executionTimeMillisEstimate" : 0,
      "works" : 1,
      "advanced" : 1,
      "needTime" : 0,
      "needYield" : 0,
      "saveState" : 1,
      "restoreState" : 1,
      "isEOF" : 0,
      "invalidates" : 0,
      "keyPattern" : {
        "name" : 1
      },
      "indexName" : "name_1",
      "isMultiKey" : false,
      "multiKeyPaths" : {
        "name" : [ ]
      },
      "isUnique" : false,
      "isSparse" : false,
      "isPartial" : false,
      "indexVersion" : 2,
      "direction" : "forward",
      "indexBounds" : {
        "name" : [
```

## MongoDB query 2 uden index

```
"executionStats" : {
  "executionSuccess" : true,
  "nReturned" : 1,
  "executionTimeMillis" : 165,
  "totalKeysExamined" : 0,
  "totalDocsExamined" : 36996,
  "executionStages" : {
    "stage" : "COLLSCAN",
    "filter" : {
      "title" : {
        "$eq" : "Peter Pan"
      }
    }
  },
  "nReturned" : 1,
  "executionTimeMillisEstimate" : 30,
  "works" : 36998,
  "advanced" : 1,
  "needTime" : 36996,
  "needYield" : 0,
  "saveState" : 290,
  "restoreState" : 290,
  "isEOF" : 1,
  "invalidates" : 0,
  "direction" : "forward",
  "docsExamined" : 36996
}
```

## MongoDB query 2 med index

```
    },
    "executionStats" : {
      "executionSuccess" : true,
      "nReturned" : 1,
      "executionTimeMillis" : 5,
      "totalKeysExamined" : 1,
      "totalDocsExamined" : 1,
      "executionStages" : {
        "stage" : "FETCH",
        "nReturned" : 1,
        "executionTimeMillisEstimate" : 0,
        "works" : 2,
        "advanced" : 1,
        "needTime" : 0,
        "needYield" : 0,
        "saveState" : 1,
        "restoreState" : 1,
        "isEOF" : 1,
        "invalidates" : 0,
        "docsExamined" : 1,
        "alreadyHasObj" : 0,
        "inputStage" : {
          "stage" : "IXSCAN",
          "nReturned" : 1,
          "executionTimeMillisEstimate" : 0,
          "works" : 2,
          "advanced" : 1,
          "needTime" : 0,
          "needYield" : 0,
          "saveState" : 1,
          "restoreState" : 1,
          "isEOF" : 1,
          "invalidates" : 0,
          "keyPattern" : {
            "title" : 1
          },
          "indexName" : "title_1",
          "isMultiKey" : false,
          "multiKeyPaths" : {
            "title" : [ ]
          },
          "isUnique" : false,
          "isSparse" : false,
          "isPartial" : false,
          "indexVersion" : 2,
          "direction" : "forward",
          "indexBounds" : {
            "title" : [
```

### MongoDB query 3 uden index

```
"executionStats" : {
  "executionSuccess" : true,
  "nReturned" : 19,
  "executionTimeMillis" : 61816,
  "totalKeysExamined" : 0,
  "totalDocsExamined" : 36996,
  "executionStages" : {
    "stage" : "COLLSCAN",
    "filter" : {
      "author" : {
        "$eq" : "Abraham Lincoln"
      }
    },
    "nReturned" : 19,
    "executionTimeMillisEstimate" : 30,
    "works" : 36998,
    "advanced" : 19,
    "needTime" : 36978,
    "needYield" : 0,
    "saveState" : 290,
    "restoreState" : 290,
    "isEOF" : 1,
    "invalidates" : 0,
    "direction" : "forward",
    "docsExamined" : 36996
  }
}
```

## MongoDB query 3 med index

```
    },
    "executionStats" : {
      "executionSuccess" : true,
      "nReturned" : 19,
      "executionTimeMillis" : 1427,
      "totalKeysExamined" : 19,
      "totalDocsExamined" : 19,
      "executionStages" : {
        "stage" : "FETCH",
        "nReturned" : 19,
        "executionTimeMillisEstimate" : 0,
        "works" : 20,
        "advanced" : 19,
        "needTime" : 0,
        "needYield" : 0,
        "saveState" : 1,
        "restoreState" : 1,
        "isEOF" : 1,
        "invalidates" : 0,
        "docsExamined" : 19,
        "alreadyHasObj" : 0,
        "inputStage" : {
          "stage" : "IXSCAN",
          "nReturned" : 19,
          "executionTimeMillisEstimate" : 0,
          "works" : 20,
          "advanced" : 19,
          "needTime" : 0,
          "needYield" : 0,
          "saveState" : 1,
          "restoreState" : 1,
          "isEOF" : 1,
          "invalidates" : 0,
          "keyPattern" : {
            "author" : 1
          },
          "indexName" : "author_1",
          "isMultiKey" : false,
          "multiKeyPaths" : {
            "author" : [ ]
          },
          "isUnique" : false,
          "isSparse" : false,
          "isPartial" : false,
          "indexVersion" : 2,
          "direction" : "forward",
          "indexBounds" : {
            "author" : [
```

### **MongoDB query 4 uden index**

*intet screenshot tilrådighed*

### **MongoDB query 1 med index**

*intet screenshot tilrådighed*