

# Use Instruction

- Tool for ComScore Code Challenge

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## 1. Tool Functions

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### 1.1 Function Summary

This tool has two functions:

- Import input sample, generate data store.
- Accept args command, run SELECT, FILTER, ORDER query against data store

### 1.2 Tool Running Environment

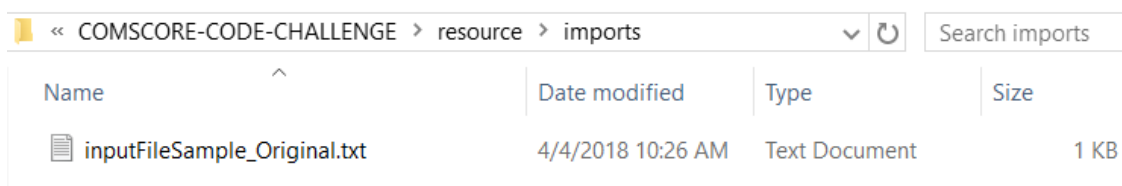
This tool is implemented by Java. The development environment is **jdk1.8.0\_0131**. To run this tool, it requires JRE version higher than 8.

## 2. IMPORT AND GENERATE DATA STORE

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Please follow the below steps to import input data sample and generate data store.

**Step 1:** Put the input sample under folder {project}\resource\imports. The input file should be in txt format.



Name	Date modified	Type	Size
inputFileSample_Original.txt	4/4/2018 10:26 AM	Text Document	1 KB

The content of the input file should be with format as:

```
STB|TITLE|PROVIDER|DATE|REV|VIEW_TIME
stb1|the matrix|warner bros|2014-04-01|4.00|1:30
stb1|unbreakable|buena vista|2014-04-03|6.00|2:05
.....
```

**Step 2:** Run the tool entry. The entry is a simple Java main method.

The entry path is: {project}\src\dataEngine\StartEngine.java

To use the import feature, remove comment for line 15 and 16. Then run it.

```
Start.java
1 package dataEngine;
2
3 import java.util.HashMap;
9
10 public class Start {
11
12     public static void main(String[] args) {
13
14         /**Import input sample into data store.
15         ImporterService importer = new ImporterServiceImpl();
16         importer.readAndHandleFileSample();
17
18
```

After running it, if import successfully, the IDE console will show below information.

```
Properties | Data Source Explorer | Servers | Snippets | Console
<terminated> Start (1) [Java Application] C:\Program Files\Java\jre1.8.0_131\bin
directory created.
File STB.txt created.
File TITLE.txt created.
File PROVIDER.txt created.
File DATE.txt created.
File REV.txt created.
File VIEW_TIME.txt created.
File RecordHash.txt created.
```

**Step 3:** Check the data store. This tool is designed to implement column-oriented storage, which is the similar concept on how PostgreSQL stores the data.

Go to `{project}\resource\dataStore\{inputSampleName}` to check all data store files. Each file stores a corresponding column in input sample. The data store file is in txt format.

« resource » dataStore » inputFileSampleOriginal				
Name	Date modified	Type	Size	
DATE.txt	4/4/2018 10:27 AM	Text Document	1 KB	
PROVIDER.txt	4/4/2018 10:27 AM	Text Document	1 KB	
RecordHash.txt	4/4/2018 10:27 AM	Text Document	1 KB	
REV.txt	4/4/2018 10:27 AM	Text Document	1 KB	
STB.txt	4/4/2018 10:27 AM	Text Document	1 KB	
TITLE.txt	4/4/2018 10:27 AM	Text Document	1 KB	
VIEW_TIME.txt	4/4/2018 10:27 AM	Text Document	1 KB	

## 3. Run SELECT, FILTER, ORDER Query

### 3.1 SELECT

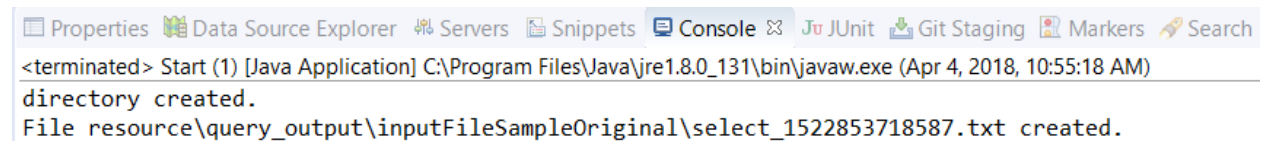
Please follow the below steps to run SELECT query against data store.

**Step 1:** Run the SELECT query entry. The entry path is: *{project}\src\dataEngine\StartEngine.java*

Remove the comment for line 20 – 24. Then run it.

```
18 |
19 | /**Run SELECT only query. Command format: $s column1, column2,column...
20 |     String command1 = "$s TITLE,REV,DATE";
21 |     QueryCommandParser queryCommandParser = new QueryCommandParser();
22 |     HashMap<String, String[]> commandMap = queryCommandParser.parseQueryCommand(command1);
23 |     QueryServiceInvoker queryServiceInvoker = new QueryServiceInvoker();
24 |     queryServiceInvoker.selectServiceInvoker(commandMap);
25 |
```

After running it, if query successfully, the IDE console will show below information.

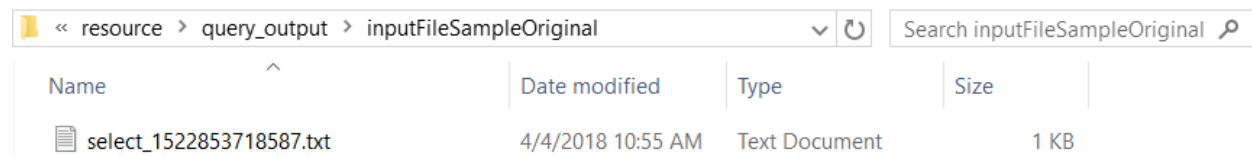


```
<terminated> Start (1) [Java Application] C:\Program Files\Java\jre1.8.0_131\bin\javaw.exe (Apr 4, 2018, 10:55:18 AM)
directory created.
File resource\query_output\inputFileSampleOriginal\select_1522853718587.txt created.
```

**Step 2:** Check the query output under output folder

*{project}\resource\query\_output\{inputSampleName}*

The output file is in txt format, the name of the file is select\_{CurrentTimeMillisecond}.txt



« resource > query_output > inputFileSampleOriginal			
Name	Date modified	Type	Size
select_1522853718587.txt	4/4/2018 10:55 AM	Text Document	1 KB

### 3.2 FILTER

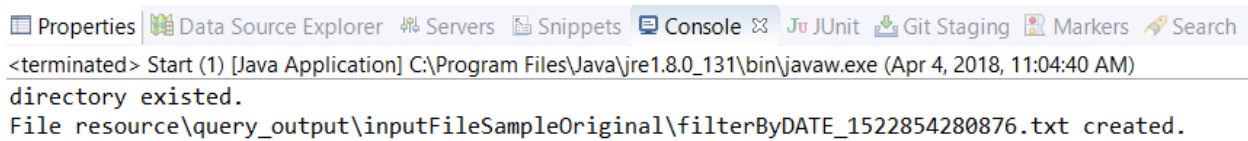
Please follow the below steps to run SELECT query against data store.

**Step 1:** Run the FILTER query entry. The entry path is: *{project}\src\dataEngine\StartEngine.java*

Remove the comment for line 28 – 32. Then run it.

```
27 /**Run filter query. Command format: $s column1, column2,column... $f columnX={}
28     String command2 = "$s TITLE,REV,DATE $f DATE=2014-04-01";
29     QueryCommandParser queryCommandParser = new QueryCommandParser();
30     HashMap<String, String[]> commandMap = queryCommandParser.parseQueryCommand(command2);
31     QueryServiceInvoker queryServiceInvoker = new QueryServiceInvoker();
32     queryServiceInvoker.filterServiceInvoker(commandMap);
33
34
```

After running it, if query successfully, the IDE console will show below information.

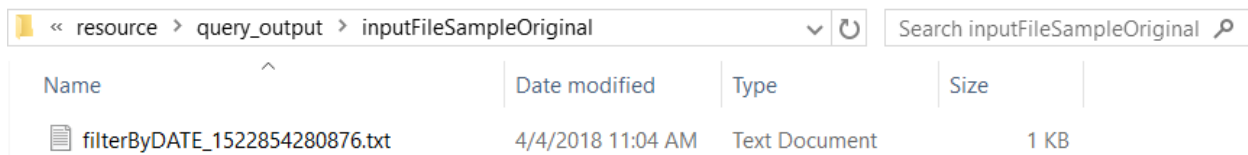


The screenshot shows the IDE console with the following output:

```
<terminated> Start (1) [Java Application] C:\Program Files\Java\jre1.8.0_131\bin\javaw.exe (Apr 4, 2018, 11:04:40 AM)
directory existed.
File resource\query_output\inputFileSampleOriginal\filterByDATE_1522854280876.txt created.
```

**Step 2:** Check the query output under output folder  
*{project}\resource\query\_output\{inputSampleName}*

The output file is in txt format, the name of the file is  
*filterBy{COLUMN}\_{CurrentTimeMillisecond}.txt*



The screenshot shows the IDE file explorer with the following table of files:

Name	Date modified	Type	Size
filterByDATE_1522854280876.txt	4/4/2018 11:04 AM	Text Document	1 KB

## 3.3 ORDER

### 3.3.1 Order By Date

**Step 1:** Run the Order query entry. The entry path is: *{project}\src\dataEngine\StartEngine.java*

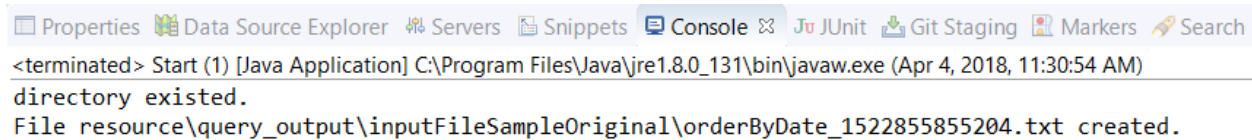
Remove the comment for line 36 – 40. Then run it.

```

35 //***Run order by DATE query. Command format: $s column1, column2,column... $o DATE
36     String command3 = "$s TITLE,REV,DATE $o DATE";
37     QueryCommandParser queryCommandParser = new QueryCommandParser();
38     HashMap<String, String[]> commandMap = queryCommandParser.parseQueryCommand(command3);
39     QueryServiceInvoker queryServiceInvoker = new QueryServiceInvoker();
40     queryServiceInvoker.orderServiceInvoker(commandMap);

```

After running it, if query successfully, the IDE console will show below information.



The screenshot shows the IDE console with the following output:

```

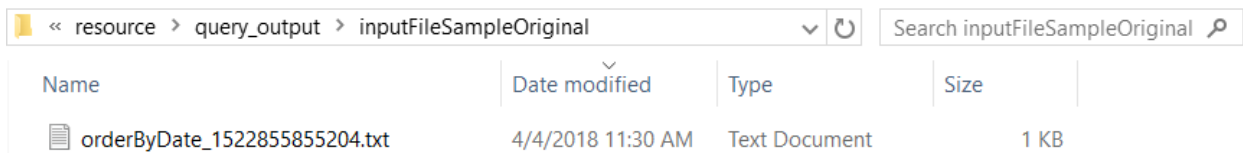
<terminated> Start (1) [Java Application] C:\Program Files\Java\jre1.8.0_131\bin\javaw.exe (Apr 4, 2018, 11:30:54 AM)
directory existed.
File resource\query_output\inputFileSampleOriginal\orderByDate_1522855855204.txt created.

```

**Step 2:** Check the query output under output folder

*{project}\resource\query\_output\{inputSampleName}*

The output file is in txt format, the name of the file is *OrderByDate\_{CurrentTimeMillisecond}.txt*



The screenshot shows the file explorer with the following structure and content:

Name	Date modified	Type	Size
orderByDate_1522855855204.txt	4/4/2018 11:30 AM	Text Document	1 KB

### 3.3.2 Order By Name

**Step 1:** Run the Order query entry. The entry path is: *{project}\src\dataEngine\StartEngine.java*

Remove the comment for line 44 – 48. Then run it.

```

43 //***Run order by NAME query. Command format: $s column1, column2,column... $o ColumnX
44     String command4 = "$s TITLE,REV,DATE $o TITLE";
45     QueryCommandParser queryCommandParser = new QueryCommandParser();
46     HashMap<String, String[]> commandMap = queryCommandParser.parseQueryCommand(command4);
47     QueryServiceInvoker queryServiceInvoker = new QueryServiceInvoker();
48     queryServiceInvoker.orderServiceInvoker(commandMap);

```

After running it, if query successfully, the IDE console will show below information.

```
<terminated> Start (1) [Java Application] C:\Program Files\Java\jre1.8.0_131\bin\javaw.exe (Apr 4, 2018, 11:34:32 AM)
directory existed.
File resource\query_output\inputFileSampleOriginal\orderByTITLE_1522856072748.txt created.
```

**Step 2:** Check the query output under output folder  
*{project}\resource\query\_output\{inputSampleName}*

The output file is in txt format, the name of the file is  
*OrderBy{COLUMN}\_\_{CurrentTimeMillisecond}.txt*

Name	Date modified	Type	Size
orderByTITLE_1522856072748.txt	4/4/2018 11:34 AM	Text Document	1 KB

### 3.3.3 Order By Date and Name

**Step 1:** Run the Order query entry. The entry path is: *{project}\src\dataEngine\StartEngine.java*

Remove the comment for line 44 – 48. Then run it.


```
51 /**Run order by DATE then columnName query. Command format: $s column1, column2,column... $o DATE,columnX
52     String command5 = "$s TITLE,REV,DATE $o DATE,TITLE";
53     QueryCommandParser queryCommandParser = new QueryCommandParser();
54     HashMap<String, String[]> commandMap = queryCommandParser.parseQueryCommand(command5);
55     QueryServiceInvoker queryServiceInvoker = new QueryServiceInvoker();
56     queryServiceInvoker.orderServiceInvoker(commandMap);
57
```

After running it, if query successfully, the IDE console will show below information.

```
<terminated> Start (1) [Java Application] C:\Program Files\Java\jre1.8.0_131\bin\javaw.exe (Apr 4, 2018, 11:38:57 AM)
directory existed.
File resource\query_output\inputFileSampleOriginal\orderByDateThenTITLE_1522856337914.txt created.
```

**Step 2:** Check the query output under output folder  
*{project}\resource\query\_output\{inputSampleName}*

The output file is in txt format, the name of the file is  
*OrderByDateThen{COLUMN}\_{CurrentTimeMillisecond}.txt*

« resource > query_output > inputFileSampleOriginal				Search inputFileSampleOriginal	
Name	Date modified	Type	Size		
 orderByDateThenTITLE_1522856337914.txt	4/4/2018 11:38 AM	Text Document	1 KB		