

APACHE SOLR TASKS

Assignment - Apache Solr: Build a Product Search Engine for an E-commerce Platform

Overview:

You are tasked with building a product search engine for an e-commerce platform using Apache Solr. The platform has a large catalog of products, and customers need to search through these products efficiently. The main requirements are indexing product data, querying search results, and automating the data import process with DIH.

Task I - Indexing Product Data: Setting Up and Importing Product Catalog into Solr

➤ Indexing Product Data

Product_id	Name	Description	Price	Category	Availability
1	Wireless Mouse	Ergonomic wireless mouse	29.99	Electronics	In Stock
2	LED Monitor	27-inch LED monitor	199.99	Electronics	Out of Stock
3	Running Shoes	Comfortable running shoes for men	49.99	Fashion	In Stock
4	Smartphone	Latest model with 64GB storage	699.99	Electronics	In Stock
5	Winter Jacket	Insulated winter jacket	129.99	Fashion	Out of Stock

➤ Creating a Solr Core for Product Catalog

```
C:\solr-9.8.0\bin>solr start
"Solr will start in SolrCloud mode by default in version 10, and you will have to provide --user-managed if you want to stay on the user-managed (aka. standalone) mode."
Java 17 detected. Enabled workaround for SOLR-16463
Java HotSpot(TM) 64-Bit Server VM warning: JVM cannot use large page memory because it does not have enough privilege to lock pages in memory.
WARNING: A command line option has enabled the Security Manager
WARNING: The Security Manager is deprecated and will be removed in a future release
Waiting up to 180 seconds to see Solr running on port 8983
Started Solr server on port 8983. Happy searching!

C:\solr-9.8.0\bin>solr create -c product_catalog
Neither --zk-host or --solr-url parameters provided so assuming solr url is http://localhost:8983.
WARNING: Using _default configset. Data driven schema functionality is enabled by default, which is
NOT RECOMMENDED for production use.

To turn it off:
  curl http://localhost:8983/solr/product_catalog/config -d '{"set-user-property":{"update.autoCreateFields":"false"}}'
Or:
  bin/solr config -c product_catalog -s http://localhost:8983 --action set-user-property --property update.autoCreateFields --value false

Created new core 'product_catalog'
```

Solr

Dashboard

Logging

Security

Core Admin

Java Properties

Thread Dump

Core Selector

product_catalog

Instance

Start10 minutes ago

Versions

solr-spec

9.8.0

solr-impl

9.8.0 8bf0100e502ade4b8161e4b90f762b117a6ef442 - anshum - 2025-01

lucene-spec

9.11.1

lucene-impl

9.11.1 0c087dffd10e0f6f3f6faecc6af4415e671a9e69 - 2024-06-23 12:31

JVM

Runtime

Oracle Corporation Java HotSpot(TM) 64-Bit Server VM 17.0.12 17.0.12+8

Processors

4

Args

-Xms512m

-Xmx512m

-Duser.timezone=UTC

-XX:-OmitStackTraceInFastThrow

-XX:+CrashOnOutOfMemoryError

-XX:ErrorFile=C:\solr-9.8.0\server\logs\jvm_crash_%p.log

-XX:+UseG1GC

-XX:+PerfDisableSharedMem

-XX:+ParallelRefProcEnabled

-XX:MaxGCPauseMillis=250

System

Physical Memory54.6%

8.63 GB

15.80 GB

Swap Space43.2%

11.36 GB

26.30 GB

JVM-Memory37.1%

189.78 MB

512.00 MB

512.00 MB

Security

WARNING: Security is not enabled for this server!

See security screen for how to enable authentication

TLS enabled? ❌

Type here to searchEarnings upcomingENG US12:06 PM03-02-2025

Solr

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product_catalog

Overview

Analysis

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Params

Files

Ping

Plugins / Stats

Query

Replication

Request-Handler (qt)

/update

Document Type

CSV

Document(s)

product_id,name,description,price,category,availability

1,Wireless Mouse,Ergonomic wireless mouse,29.99,Electronics,In Stock

2,LED Monitor,27-inch LED monitor,199.99,Electronics,Out of Stock

3,Running Shoes,Comfortable running shoes for men,49.99,Fashion,In Stock

4,Smartphone,Latest model with 64GB storage,699.99,Electronics,In Stock

5,Winter Jacket,Insulated winter jacket,129.99,Fashion,Out of Stock

Commit Within

1000

Overwrite

true

Submit Document

Status: success

Response:

{

"responseHeader": {

"status": 0,

"QTime": 5

}

}

Type here to searchDollar soars, oil price...ENG US12:12 PM03-02-2025DocumentationSolr Query SyntaxCommunityIssue TrackerSlackIRC

localhost:8983/solr/#/product_catalog/query?q=*&q.op=OR&indent=true&useParams=

Solr

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Request-Handler (qt) /select

q: *

q.op: OR

fq:

sort:

start, rows: 0, 10

df:

paramset(s):

wt: -----

☒ indent on

☐ debugQuery

defType: -----

☐ hl

☐ facet

☐ spatial

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 0,
    "params": {
      "q": "*",
      "indent": "true",
      "q.op": "OR",
      "useParams": "",
      "_": "1738565779690"
    }
  },
  "response": {
    "numFound": 5,
    "start": 0,
    "numFoundExact": true,
    "docs": [
      {
        "product_id": [1],
        "name": ["Wireless Mouse"],
        "description": ["Ergonomic wireless mouse"],
        "price": [29.99],
        "category": ["Electronics"],
        "availability": ["In Stock"],
        "id": ["4e697694-c59a-4753-89fd-dae46d519083"],
        "_version_": 1823018324714323968,
        "_root_": ["4e697694-c59a-4753-89fd-dae46d519083"]
      },
      {
        "product_id": [2],
        "name": ["LED Monitor"],
        "description": ["27-Inch LED monitor"],
        "price": [199.99],
        "category": ["Electronics"],
        "availability": ["Out of Stock"],
        "id": ["f280d064-f4f1-4567-91c1-b299d11918a0"],
        "_version_": 1823018324709898496,
        "_root_": ["f280d064-f4f1-4567-91c1-b299d11918a0"]
      }
    ]
  }
}
```

Task II - Querying Solr

- Search for a Product by Name

localhost:8983/solr/#/product_catalog/query?q=name:Wireless%20Mouse&q.op=OR&indent=true&useParams=

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Request-Handler (qt) /select

q: name:Wireless Mouse

q.op: OR

fq:

sort:

start, rows: 0, 10

df:

paramset(s):

wt: -----

☒ indent on

☐ debugQuery

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 6,
    "params": {
      "q": "name:Wireless Mouse",
      "indent": "true",
      "q.op": "OR",
      "useParams": "",
      "_": "1738565779690"
    }
  },
  "response": {
    "numFound": 1,
    "start": 0,
    "numFoundExact": true,
    "docs": [
      {
        "product_id": [1],
        "name": ["Wireless Mouse"],
        "description": ["Ergonomic wireless mouse"],
        "price": [29.99],
        "category": ["Electronics"],
        "availability": ["In Stock"],
        "id": ["4e697694-c59a-4753-89fd-dae46d519083"],
        "_version_": 1823018324714323968,
        "_root_": ["4e697694-c59a-4753-89fd-dae46d519083"]
      }
    ]
  }
}
```

- Filter Products by Category

localhost:8983/solr/#/product_catalog/query?q=*:*&q.op=OR&indent=true&fq=category:Electronics&useParams=

Solr

Request-Handler (qt) /select

q: *

q.op: OR

fq: category:Electronics

sort:

start, rows: 0, 10

df:

paramset(s):

wt: -----

☒ indent on

☐ debugQuery

defType: -----

☐ hl

☐ facet

☐ spatial

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 0,
    "params": {
      "q": "*:*",
      "indent": "true",
      "q.op": "OR",
      "fq": "category:Electronics",
      "useParams": "",
      "_:": "1738565779690"
    }
  },
  "response": {
    "numfound": 3,
    "start": 0,
    "numfoundExact": true,
    "docs": [
      {
        "product_id": [1],
        "name": ["wireless Mouse"],
        "description": ["ergonomic wireless mouse"],
        "price": [29.99],
        "category": ["Electronics"],
        "availability": ["In Stock"],
        "id": "4e697694-c59a-4753-89fd-dae46d519083",
        "version": "18230818324714323968",
        "_root_": "4e697694-c59a-4753-89fd-dae46d519083"
      },
      {
        "product_id": [2],
        "name": ["LED Monitor"],
        "description": ["22-Inch LED monitor"],
        "price": [199.99],
        "category": ["Electronics"],
        "availability": ["Out of Stock"],
        "id": "f280b064-f4f1-4567-91c1-b299d11918a0",
        "version": "18230818324709898496"
      }
    ]
  }
}
```

Rs 5 lk cr wiped off T...

ENG 12:27 PM 03-02-2025

➤ Filter Products by Availability

localhost:8983/solr/#/product_catalog/query?q=*:*&q.op=OR&indent=true&fq=availability:In%20Stock&useParams=

Solr

Request-Handler (qt) /select

q: *

q.op: OR

fq: availability:In Stock

sort:

start, rows: 0, 10

df:

paramset(s):

wt: -----

☒ indent on

☐ debugQuery

defType: -----

☐ hl

☐ facet

☐ spatial

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 2,
    "params": {
      "q": "*:*",
      "indent": "true",
      "q.op": "OR",
      "fq": "availability:In Stock",
      "useParams": "",
      "_:": "1738565779690"
    }
  },
  "response": {
    "numfound": 3,
    "start": 0,
    "numfoundExact": true,
    "docs": [
      {
        "product_id": [1],
        "name": ["wireless Mouse"],
        "description": ["ergonomic wireless mouse"],
        "price": [29.99],
        "category": ["Electronics"],
        "availability": ["In Stock"],
        "id": "4e697694-c59a-4753-89fd-dae46d519083",
        "version": "18230818324714323968",
        "_root_": "4e697694-c59a-4753-89fd-dae46d519083"
      },
      {
        "product_id": [3],
        "name": ["Running Shoes"],
        "description": ["Comfortable running shoes for men"],
        "price": [49.99],
        "category": ["Fashion"],
        "availability": ["In Stock"],
        "id": "918a246c-b0ac-4036-bcfa-fb688377b993",
        "version": "1823081832470947072"
      }
    ]
  }
}
```

Dollar soars, oil price...

ENG 12:28 PM 03-02-2025

➤ Sort Products by Price

localhost:8983/solr/#/product_catalog/query?q=*:*&q.op=OR&indent=true&sort=price%20asc&useParams=

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Request-Handler (qt) /select

q *:*

q.op OR

fq

sort price asc

start, rows 0 10

fl

df

paramset(s) Select paramset(s)...

wt

indent on

☐ debugQuery

defType

☐ hl

☐ facet

☐ spatial

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 18,
    "params": {
      "q": "/*:*",
      "indent": "true",
      "q.op": "OR",
      "sort": "price asc",
      "useParams": "",
      "_": "1738565779690"
    }
  },
  "response": {
    "numFound": 5,
    "start": 0,
    "numFoundExact": true,
    "docs": [
      {
        "product_id": [1],
        "name": ["wireless Mouse"],
        "description": ["ergonomic wireless mouse"],
        "price": [29.99],
        "category": ["electronics"],
        "availability": ["In Stock"],
        "id": "4e697694-c59a-4753-89fd-dae46d519083",
        "version": "1823618324714323968",
        "_root_": "4e697694-c59a-4753-89fd-dae46d519083"
      },
      {
        "product_id": [3],
        "name": ["Running Shoes"],
        "description": ["Comfortable running shoes for men"],
        "price": [49.99],
        "category": ["Fashion"],
        "availability": ["In Stock"],
        "id": "918a24dc-6bec-4936-bcfa-fb688377b493",
        "version": "1823618324770947072",
        "_root_": "918a24dc-6bec-4936-bcfa-fb688377b493"
      }
    ]
  }
}
```

Type here to search

NIFTY -0.78%

ENG US 12:31 PM 03-02-2025

➤ Combine Filters for Complex Queries

localhost:8983/solr/#/product_catalog/query?q=name:Mouse&q.op=AND&indent=true&sort=price%20asc&fq=category:Fashion&fq=availability:In%20Stock...

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Request-Handler (qt) /select

q name:Mouse

q.op AND

fq category:Fashion

availability:In Stock

sort price asc

start, rows 0 10

fl

df

paramset(s) Select paramset(s)...

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 1,
    "params": {
      "q": "name:Mouse",
      "indent": "true",
      "q.op": "AND",
      "fq": ["category:Fashion", "availability:In Stock"],
      "sort": "price asc",
      "useParams": "",
      "_": "1738565779690"
    }
  },
  "response": {
    "numFound": 0,
    "start": 0,
    "numFoundExact": true,
    "docs": [ ]
  }
}
```

Type here to search

85°F Sunny

ENG US 01:51 PM 03-02-2025