-- Student Number: 10241485

-- Name: Jeslyn Ho Ka Yan   
-- Date: 13 Oct 2024

-- Assignment 2, Task 4

**HAD0OP TERMINAL**

# Start Hadoop services, but first, permissions issue prevents execution

bigdata@bigdata-VirtualBox:~$ ./startHadoop.sh

Starting namenodes on [localhost]

localhost: starting namenode, logging to /usr/share/hadoop-2.7.3/logs/hadoop-bigdata-namenode-bigdata-VirtualBox.out

localhost: starting datanode, logging to /usr/share/hadoop-2.7.3/logs/hadoop-bigdata-datanode-bigdata-VirtualBox.out

Starting secondary namenodes [0.0.0.0]

0.0.0.0: starting secondarynamenode, logging to /usr/share/hadoop-2.7.3/logs/hadoop-bigdata-secondarynamenode-bigdata-VirtualBox.out

starting yarn daemons

starting resourcemanager, logging to /usr/share/hadoop-2.7.3/logs/yarn-bigdata-resourcemanager-bigdata-VirtualBox.out

localhost: starting nodemanager, logging to /usr/share/hadoop-2.7.3/logs/yarn-bigdata-nodemanager-bigdata-VirtualBox.out

starting historyserver, logging to /usr/share/hadoop-2.7.3/logs/mapred-bigdata-historyserver-bigdata-VirtualBox.out

3536 Jps

2523 NameNode

3499 JobHistoryServer

2924 SecondaryNameNode

3261 NodeManager

3103 ResourceManager

2703 DataNode

# Creating the authors directory in the a2 database  
bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -mkdir /user/hive/warehouse/a2.db/authors

# Creating the items directory in the a2 database

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -mkdir /user/hive/warehouse/a2.db/items

# Listing contents of a2 database to confirm both authors and items directories are created

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -ls /user/hive/warehouse/a2.db/

Found 2 items

drwxr-xr-x - bigdata supergroup 0 2024-10-30 02:17 /user/hive/warehouse/a2.db/authors

drwxr-xr-x - bigdata supergroup 0 2024-10-30 02:17 /user/hive/warehouse/a2.db/items

# Upload the author.tbl file to the authors directory in Hive warehouse

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -put ~/ISIT312/A2/Task4/author.tbl /user/hive/warehouse/a2.db/authors/

# Upload the item.tbl file to the items directory in Hive warehouse

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -put ~/ISIT312/A2/Task4/item.tbl /user/hive/warehouse/a2.db/items/

**BEELINE TERMINAL**

-- Start Beeline: Open the Beeline command line tool for Hive.

bigdata@bigdata-VirtualBox:~$ $HIVE\_HOME/bin/beeline

Beeline version 2.1.1 by Apache Hive

-- Connect to Hive: Connect to the Hive server running on your local machine

beeline> !connect jdbc:hive2://localhost:10000

SLF4J: Class path contains multiple SLF4J bindings.

SLF4J: Found binding in [jar:file:/usr/share/apache-hive-2.1.1-bin/lib/log4j-slf4j-impl-2.4.1.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: Found binding in [jar:file:/usr/share/hadoop-2.7.3/share/hadoop/common/lib/slf4j-log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: See http://www.slf4j.org/codes.html#multiple\_bindings for an explanation.

SLF4J: Actual binding is of type [org.apache.logging.slf4j.Log4jLoggerFactory]

Connecting to jdbc:hive2://localhost:10000

Enter username for jdbc:hive2://localhost:10000:

Enter password for jdbc:hive2://localhost:10000:

Connected to: Apache Hive (version 2.1.1)

Driver: Hive JDBC (version 2.1.1)

24/10/30 02:16:57 [main]: WARN jdbc.HiveConnection: Request to set autoCommit to false; Hive does not support autoCommit=false.

Transaction isolation: TRANSACTION\_REPEATABLE\_READ

-- Create Database: Make a new database called `a2`.

0: jdbc:hive2://localhost:10000> create database a2;

No rows affected (0.135 seconds)

-- Show Databases: List all existing databases to check if `a2` was created.

0: jdbc:hive2://localhost:10000> show databases;

+----------------+--+

| database\_name |

+----------------+--+

| a2 |

| default |

+----------------+--+

2 rows selected (0.07 seconds)

-- Use Database: Switch to using the `a2` database.

0: jdbc:hive2://localhost:10000> use a2;

No rows affected (0.019 seconds)

-- This table will use the data from the author.tbl file in HDFS

0: jdbc:hive2://localhost:10000> CREATE EXTERNAL TABLE IF NOT EXISTS author (

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> a\_id INT, -- Unique author ID

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> a\_fname STRING, -- First name of author

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> a\_mname STRING, -- Middle name of author

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> a\_lname STRING, -- Last name of author

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> a\_dob DATE, -- Date of birth of author

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> a\_bio STRING -- Biography of the author

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> )

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> ROW FORMAT DELIMITED

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> FIELDS TERMINATED BY '|'

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> STORED AS TEXTFILE

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> LOCATION '/user/hive/warehouse/a2.db/authors/';

No rows affected (0.077 seconds)

-- This table will use the data from the item.tbl file in HDFS

0: jdbc:hive2://localhost:10000> CREATE EXTERNAL TABLE IF NOT EXISTS item (

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_id INT, -- Unique ID of item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_title STRING, -- Title of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_a\_id INT, -- Author ID (foreign key referencing AUTHOR table)

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_pub\_date DATE, -- Publication date of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_publisher STRING, -- Publisher of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_subject STRING, -- Subject category of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_desc STRING, -- Description of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_related1 INT, -- Related item ID 1

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_related2 INT, -- Related item ID 2

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_related3 INT, -- Related item ID 3

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_related4 INT, -- Related item ID 4

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_related5 INT, -- Related item ID 5

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_thumbnail STRING, -- Path to thumbnail image of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_image STRING, -- Path to main image of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_srp DECIMAL(15,2), -- Suggested retail price

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_cost DECIMAL(15,2), -- Cost of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_avail DATE, -- Availability date of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_stock INT, -- Quantity in stock

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_isbn STRING, -- ISBN of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_page INT, -- Number of pages (for books)

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_backing STRING, -- Book binding type (e.g., paperback, hardback)

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> i\_dimensions STRING -- Physical dimensions of the item

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> )

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> ROW FORMAT DELIMITED

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> FIELDS TERMINATED BY '|'

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> STORED AS TEXTFILE

. . . . . . . . . . . . . . . .>

. . . . . . . . . . . . . . . .> LOCATION '/user/hive/warehouse/a2.db/items/';

No rows affected (0.108 seconds)

-- Query to count the total rows in the AUTHOR table

0: jdbc:hive2://localhost:10000> SELECT COUNT(\*) AS author\_row\_count FROM author;

WARNING: Hive-on-MR is deprecated in Hive 2 and may not be available in the future versions. Consider using a different execution engine (i.e. spark, tez) or using Hive 1.X releases.

+-------------------+--+

| author\_row\_count |

+-------------------+--+

| 2500 |

+-------------------+--+

1 row selected (16.874 seconds)

-- Query to count the total rows in the ITEM table

0: jdbc:hive2://localhost:10000> SELECT COUNT(\*) AS item\_row\_count FROM item;

WARNING: Hive-on-MR is deprecated in Hive 2 and may not be available in the future versions. Consider using a different execution engine (i.e. spark, tez) or using Hive 1.X releases.

+-----------------+--+

| item\_row\_count |

+-----------------+--+

| 10000 |

+-----------------+--+

1 row selected (20.8 seconds)

-- This query sums up the row counts from both tables to get the total row count across tables

0: jdbc:hive2://localhost:10000> SELECT SUM(count) AS total\_row\_count

. . . . . . . . . . . . . . . .> FROM (

. . . . . . . . . . . . . . . .> SELECT COUNT(\*) AS count FROM author

. . . . . . . . . . . . . . . .> UNION ALL

. . . . . . . . . . . . . . . .> SELECT COUNT(\*) AS count FROM item

. . . . . . . . . . . . . . . .> ) AS combined\_counts;

WARNING: Hive-on-MR is deprecated in Hive 2 and may not be available in the future versions. Consider using a different execution engine (i.e. spark, tez) or using Hive 1.X releases.

+------------------+--+

| total\_row\_count |

+------------------+--+

| 12500 |

+------------------+--+

1 row selected (63.419 seconds)

-- Query to retrieve the first 3 rows from the AUTHOR table

0: jdbc:hive2://localhost:10000> SELECT \* FROM author LIMIT 3;

+--------------+-----------------+---------------------+---------------------+---------------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+--+

| author.a\_id | author.a\_fname | author.a\_mname | author.a\_lname | author.a\_dob | author.a\_bio |

+--------------+-----------------+---------------------+---------------------+---------------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+--+

| 1 | 5P040 | nS0c2GP0n | BABABABABABAOGl7xF | NULL | Minutes search in the young, labour years. Individuals will have to come. Trousers continue in the following changes: Actions at the big, young aspects shall sleep clear, african ideas. Great, large pupils do pick. Necessary eyes to the large, small years carry long, external circumstances. Questions might carry. Lovely, actual talks might rest customers: Social, other players identify. Systems could play. Standards ride. Overseas, federal goods interfere. |

| 2 | cy8o | ZkcR139U86m9K5642 | BABABABABABAALwH | NULL | Duties give between the methods. High, other children in the numbers realise modern, good years. Mountains talk teachers. New, hot studies forget to the members. Present, good programmes will take. Soviet, parliamentary dogs avoid. Sales to the only, joint persons ought to lead various, great lips. Areas wear about. Names could get with the unable, big quantities. Common, genuine shows between the mutual, prime houses miss between the |

| 3 | dC5 | Imnd0eY3A2712S6F9d | BABABABABABARI | NULL | Big, black employers could tell. Ways exist. Available, regional waters in the limited, personal matters will have to make in the eyes. Ways should move |

+--------------+-----------------+---------------------+---------------------+---------------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+--+

3 rows selected (0.118 seconds)

-- Query to retrieve the first 3 rows from the ITEM table

0: jdbc:hive2://localhost:10000> SELECT \* FROM item LIMIT 3;

+------------+---------------------------------------------------------+--------------+------------------+-------------------------------------------+-----------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+------------------+------------------+------------------+------------------+------------------+-------------------+---------------+-------------+--------------+---------------+---------------+----------------+--------------+-----------------+--------------------+--+

| item.i\_id | item.i\_title | item.i\_a\_id | item.i\_pub\_date | item.i\_publisher | item.i\_subject | item.i\_desc | item.i\_related1 | item.i\_related2 | item.i\_related3 | item.i\_related4 | item.i\_related5 | item.i\_thumbnail | item.i\_image | item.i\_srp | item.i\_cost | item.i\_avail | item.i\_stock | item.i\_isbn | item.i\_page | item.i\_backing | item.i\_dimensions |

+------------+---------------------------------------------------------+--------------+------------------+-------------------------------------------+-----------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+------------------+------------------+------------------+------------------+------------------+-------------------+---------------+-------------+--------------+---------------+---------------+----------------+--------------+-----------------+--------------------+--+

| 1 | Open, BABABABABABAOG wrong | 1 | NULL | Common occasions will have to | ROMANCE | General reasons during the long, living subjects might take with the goods. Cells continue. Small, new schools shift. Nations to the offences might show by the subsequent, simple homes. Important, elderly years encourage. Dogs from the types shall have to pull organic, top sources. Materials go to the big, french friends. Social, nuclear examples should ask. Patients strengthen for the other, northern | 9272 | 9550 | 707 | 2253 | 5398 | c:\ | c:\ | 1727.42 | 821.00 | NULL | 22 | JQyQ5MIc91ANC | 4273 | PAPERBACK | 8.49x69.77x55.64 |

| 2 | Children with BABABABABABAAL the other, necessary | 2 | NULL | Activities may forget. Blue birds need? | COOKING | Similar, southern goods know to the centres. Round, domestic months must improve probably on the thanks. Attitudes shall have to land. Full, russian walls could control. Useful, economic hundreds make at the nuclear, great colours. Cultural, immediate ministers give. Other, ordinary pictures make. Likely, great days satisfy before the wrong, small companies. Economic, specific women lose. Other, | 8661 | 5159 | 7081 | 5701 | 3667 | c:\ | c:\ | 8893.32 | 3909.30 | NULL | 25 | dFSe5WCeX3GJz | 8473 | AUDIO | 93.76x84.33x1.71 |

| 3 | Years will break BABABABABABARI pleasant, free terms-- | 3 | NULL | Simple, clear feet represent. Functions | SCIENCE-NATURE | Hands on the british names come christian, other minutes. Members do make; Large others can appear. Bodies suffer. Wages should know by the obvious minutes. Policies ensure on the communities. Objects can cost in the interesting, early years. Active, inner points meet. Departments in the particular, human years might evaluate such as the weeks. Growing, left theories to the legal, old | 4546 | 7449 | 7146 | 9690 | 69 | c:\ | c:\ | 8345.49 | 3981.86 | NULL | 15 | hIs86uiW15pA6 | 9255 | PAPERBACK | 45.30x52.68x72.80 |

+------------+---------------------------------------------------------+--------------+------------------+-------------------------------------------+-----------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+------------------+------------------+------------------+------------------+------------------+-------------------+---------------+-------------+--------------+---------------+---------------+----------------+--------------+-----------------+--------------------+--+

3 rows selected (0.15 seconds)

# Start Hadoop services, but first, permissions issue prevents execution

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Starting namenodes on [localhost]

localhost: starting namenode, logging to /usr/share/hadoop-2.7.3/logs/hadoop-bigdata-namenode-bigdata-VirtualBox.out

localhost: starting datanode, logging to /usr/share/hadoop-2.7.3/logs/hadoop-bigdata-datanode-bigdata-VirtualBox.out

Starting secondary namenodes [0.0.0.0]

0.0.0.0: starting secondarynamenode, logging to /usr/share/hadoop-2.7.3/logs/hadoop-bigdata-secondarynamenode-bigdata-VirtualBox.out

starting yarn daemons

starting resourcemanager, logging to /usr/share/hadoop-2.7.3/logs/yarn-bigdata-resourcemanager-bigdata-VirtualBox.out

localhost: starting nodemanager, logging to /usr/share/hadoop-2.7.3/logs/yarn-bigdata-nodemanager-bigdata-VirtualBox.out

starting historyserver, logging to /usr/share/hadoop-2.7.3/logs/mapred-bigdata-historyserver-bigdata-VirtualBox.out

3536 Jps

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# Creating the items directory in the a2 database

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -mkdir /user/hive/warehouse/a2.db/items

# Listing contents of a2 database to confirm both authors and items directories are created

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -ls /user/hive/warehouse/a2.db/

Found 2 items

drwxr-xr-x - bigdata supergroup 0 2024-10-30 02:17 /user/hive/warehouse/a2.db/authors

drwxr-xr-x - bigdata supergroup 0 2024-10-30 02:17 /user/hive/warehouse/a2.db/items

# Upload the author.tbl file to the authors directory in Hive warehouse

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -put ~/ISIT312/A2/Task4/author.tbl /user/hive/warehouse/a2.db/authors/

# Upload the item.tbl file to the items directory in Hive warehouse

bigdata@bigdata-VirtualBox:~$ $HADOOP\_HOME/bin/hadoop fs -put ~/ISIT312/A2/Task4/item.tbl /user/hive/warehouse/a2.db/items/

Screenshot

HADOOP TERMINAL

A screenshot of a computer screen

Description automatically generated

BEELINE TERMINAL

A screenshot of a computer

Description automatically generated

A screen shot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screen shot of a computer

Description automatically generated

A screen shot of a computer error

Description automatically generated