

**Department of Artificial Intelligence & Data Science****Vision of the Department***To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.***Mission of the Department***To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.***Session 2025-2026**

<b>Vision:</b> Dream of where you want.	<b>Mission:</b> Means to achieve Vision
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**Program Educational Objectives of the program (PEO):** (broad statements that describe the professional and career accomplishments)

PEO1	<b>Preparation</b>	<b>P: Preparation</b>	<b>Pep-CL abbreviation pronounce as Pep-si-IL easy to recall</b>
PEO2	<b>Core Competence</b>	<b>E: Environment (Learning Environment)</b>	
PEO3	<b>Breadth</b>	<b>P: Professionalism</b>	
PEO4	<b>Professionalism</b>	<b>C: Core Competence</b>	
PEO5	<b>Learning Environment</b>	<b>L: Breadth (Learning in diverse areas)</b>	

**Program Outcomes (PO):** (statements that describe what a student should be able to do and know by the end of a program)

**Keywords of POs:**

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

**PSO Keywords:** Cutting edge technologies, Research

“I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life.” to contribute to the development of cutting-edge technologies and Research.

**Integrity:** I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

**Name and Signature of Student and Date**

(Signature and Date in Handwritten)



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<b>Session</b>	2025-26 (ODD)	<b>Course Name</b>	BIG DATA AND HADOOP-LAB
<b>Semester</b>	7 AIDS	<b>Course Code</b>	22ADS704
<b>Roll No</b>	03	<b>Name of Student</b>	Debasrita Chattopadhyay

<b>Practical Number</b>	05
<b>Course Outcome</b>	1. Understand big data analytics and its business applications. 2. Analyze the HADOOP and Map Reduce technologies associated with big data analytics. 3. Apply Big Data analytics Using Pig and Hive.
<b>Aim</b>	Perform Hive Operations: Create, Alter and Drop Databases, Tables, Views, and Indexes.
<b>Problem Definition</b>	Perform Hive Operations: Create, Alter and Drop Databases, Tables, Views, and Indexes.
<b>Theory (100 words)</b>	A database is a logical namespace in Hive to manage tables. Use the CREATE DATABASE statement to create a database. You may also use IF NOT EXISTS to avoid an error if the database you want to create already exists. You can add properties or modify a database with the ALTER DATABASE command. You can remove a database using the DROP DATABASE command; using CASCADE will delete all tables in the database. A table in Hive represents a format for storing structured data. You can create a table using the CREATE TABLE statement, and also define columns and their data types and file format. You can change tables with ALTER TABLE to rename, add, or replace columns or properties of the table. You can remove a table with the DROP TABLE command. A view is a virtual table, which is based on the result of a query. Views can be created with the CREATE VIEW command, and updated using ALTER VIEW to change the query definition.

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<b>Procedure and Execution</b>  (100 Words)	<b>Steps of Implementation: -</b> <b>Database</b> Create: CREATE DATABASE mydb; Alter: ALTER DATABASE mydb SET DBPROPERTIES (...); Drop: DROP DATABASE mydb CASCADE;  <b>Table</b> Create: CREATE TABLE students (...); Alter: ALTER TABLE students RENAME TO learners; / ADD COLUMNS (...); Drop: DROP TABLE learners;  <b>View</b> Create: CREATE VIEW v1 AS SELECT ...; Alter: ALTER VIEW v1 AS SELECT ...; Drop: DROP VIEW v1;  <b>Index</b> Create: CREATE INDEX idx1 ON TABLE students(col) AS 'COMPACT'; Alter: ALTER INDEX idx1 ON students REBUILD; Drop: DROP INDEX idx1 ON students;  <b>Code:</b>  sudo apt install openjdk-8-jdk -y 2 sudo update-alternatives --config java 3 /usr/lib/jvm/java-8-openjdk-amd64/bin/java 4 java -version 5 hive 6 ls /usr/local/hive 7 export HIVE_HOME=/usr/local/hive 8 export PATH=\$PATH:\$HIVE_HOME/bin 9 hive --version 10 ls /usr/local/hadoop 11 export HADOOP_HOME=/usr/local/hadoop 12 export HADOOP_CONF_DIR=\$HADOOP_HOME/etc/hadoop 13 export PATH=\$PATH:\$HADOOP_HOME/bin:\$HADOOP_HOME/sbin 14 export HIVE_HOME=/usr/local/hive 15 export PATH=\$PATH:\$HIVE_HOME/bin
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```
16 hadoop version
17 hive --version
18 hive
19 java -version
20 export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
21 export PATH=$JAVA_HOME/bin:$PATH
22 echo $JAVA_HOME
23 java -version
24 hive
25 # Check current Java
26 java -version
27 # If needed, install Java 8 (Ubuntu example)
28 sudo apt install openjdk-8-jdk
29 # Set Java 8 for Hive
30 export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
31 export PATH=$JAVA_HOME/bin:$PATH
32 hive
33 sudo apt update
34 sudo apt install openjdk-8-jdk -y
35 export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
36 export PATH=$JAVA_HOME/bin:$PATH
37 java -version
38 hive
39 # Install Java 8 (if not already installed)
40 sudo apt update
41 sudo apt install openjdk-8-jdk -y
42 # Set Java 8 as default for this session
43 export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
44 export PATH=$JAVA_HOME/bin:$PATH
45 # Verify Java version
46 java -version
47 # Now start Hive
48 hive
49 echo 'export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-
amd64; export PATH=$JAVA_HOME/bin:$PATH' >> ~/.bashrc
&& source ~/.bashrc
50 hive
51 beeline -u jdbc:hive2://localhost:10000
52 hive --service hiveserver2 &
53 beeline -u jdbc:hive2://localhost:10000
54 -- Create database
55 CREATE DATABASE IF NOT EXISTS olympics;
56 USE olympics;
57 -- Create external table
```



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	<p>58 CREATE EXTERNAL TABLE IF NOT EXISTS olympic_data ( 59 )</p>
	<p>Output:</p> <pre>theia@theiadocker-srita201326:/home/project\$ sudo apt update sudo apt install openjdk-11-jdk -y Get:2 https://packages.microsoft.com/ubuntu/22.04/prod jammy InRelease [3632 B] Get:1 https://apt.llvm.org/jammy llvm-toolchain-jammy-17 InRelease [6833 B] Get:4 https://deb.nodesource.com/node_20.x nodistro InRelease [12.1 kB] Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB] Get:6 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB] theia@theiadocker-srita201326:/home/project\$ wget https://downloads.apache.org/hadoop/common/hadoop-3.3.6/hadoop-3.3.6.tar.gz tar -xzf hadoop-3.3.6.tar.gz sudo mv hadoop-3.3.6 /usr/local/hadoop --2025-10-28 10:24:56-- https://downloads.apache.org/hadoop/common/hadoop-3.3.6/hadoop-3.3.6.tar.gz Resolving downloads.apache.org (downloads.apache.org)... 135.181.214.104, 88.99.208.237, 135.181.214.104, ... Connecting to downloads.apache.org (downloads.apache.org) 135.181.214.104 :443... connected. HTTP request sent, awaiting response... 200 OK Length: 730107476 (696M) [application/x-gzip] theia@theiadocker-srita201326:/home/project\$ echo 'export HADOOP_HOME=/usr/local/hadoop' &gt;&gt; ~/.bashrc echo 'export PATH=\$PATH:\$HADOOP_HOME/bin:\$HADOOP_HOME/sbin' &gt;&gt; ~/.bashrc echo 'export HADOOP_COMMON_HOME=\$HADOOP_HOME' &gt;&gt; ~/.bashrc echo 'export HADOOP_HDFS_HOME=\$HADOOP_HOME' &gt;&gt; ~/.bashrc echo 'export HADOOP_MAPRED_HOME=\$HADOOP_HOME' &gt;&gt; ~/.bashrc echo 'export HADOOP_YARN_HOME=\$HADOOP_HOME' &gt;&gt; ~/.bashrc source ~/.bashrc theia@theiadocker-srita201326:/home/project\$ wget https://archive.apache.org/dist/hive/hive-3.1.3/apache-hive-3.1.3-bin.tar.gz tar -xzf apache-hive-3.1.3-bin.tar.gz sudo mv apache-hive-3.1.3-bin /usr/local/hive --2025-10-28 10:27:34-- https://archive.apache.org/dist/hive/hive-3.1.3/apache-hive-3.1.3-bin.tar.gz Resolving archive.apache.org (archive.apache.org)... 65.108.204.189, 65.108.204.189 Connecting to archive.apache.org (archive.apache.org) 65.108.204.189 :443... connected. HTTP request sent, awaiting response... 200 OK Length: 326940667 (312M) [application/x-gzip] Saving to: 'apache-hive-3.1.3-bin.tar.gz' theia@theiadocker-srita201326:/home/project\$ echo 'export HIVE_HOME=/usr/local/hive' &gt;&gt; ~/.bashrc echo 'export PATH=\$PATH:\$HIVE_HOME/bin' &gt;&gt; ~/.bashrc source ~/.bashrc theia@theiadocker-srita201326:/home/project\$  theia@theiadocker-srita201326:/home/project\$ schematool -initSchema -dbType derby SLF4J: Class path contains multiple SLF4J bindings. SLF4J: Found binding in [jar:file:/usr/local/hive/lib/log4j-slf4j-impl-2.17.1.jar!/org/slf4j/impl/StaticLoggerBinder.class] SLF4J: Found binding in [jar:file:/usr/local/hadoop/share/hadoop/common/lib/slf4j-reload4j-1.7.36.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] Metastore connection URL: jdbc:derby;databaseName=metastore_db;create=true  theia@theiadocker-srita201326:/home/project\$ sudo nano /usr/local/hive/bin/hive-config.sh  theia@theiadocker-srita201326:/home/project\$ /usr/lib/jvm/java-8-openjdk-amd64/bin/java Usage: java [-options] class [args...]  theia@theiadocker-srita201326:/home/project\$ export HIVE_HOME=/usr/local/hive export PATH=\$PATH:\$HIVE_HOME/bin</pre>
Output Analysis	Each Hive operation either creates, modifies, or removes a database, table, view, or index as specified.



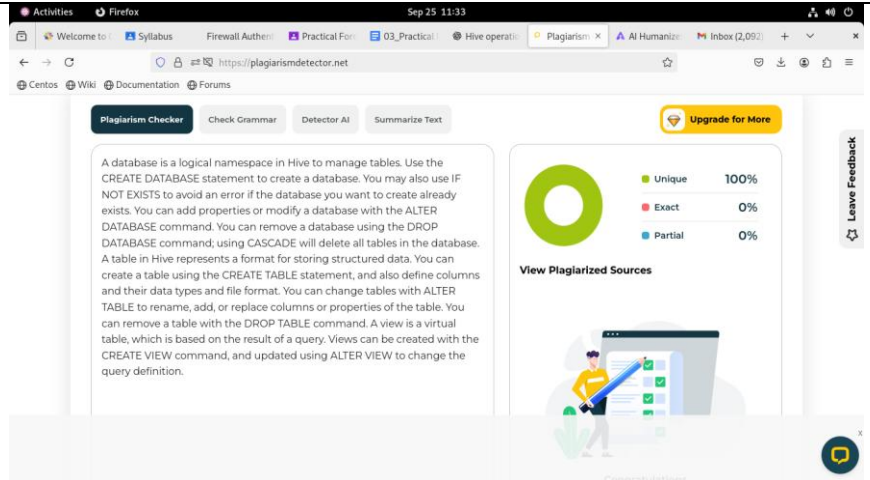
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Link of student Github profile where lab assignment has been uploaded	
Conclusion	Hive Operations: Create, Alter and Drop Databases, Tables, Views, and Indexes implemented successfully.
Plag Report (Similarity index < 12%)	
Date	21/ 08/ 25