Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
Hingna Road, Wanadongri, Nagpur - 441 110
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Ph.: 07104-237919, 234623, 329249, 329250 Fax: 07104-232376, Website: www.ycce.edu

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

Vision: Dream of where you want.	**Mission:** Means to achieve Vision

Program Educational Objectives of the program (PEO): (broad statements that describe the professional and career accomplishments)

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

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

Practical Number	04
Course Outcome	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.
Aim	Installation of Apache Hive on Linux with Hadoop Integration.
Problem Definition	Install Apache Hive on Linux with Hadoop
Theory (100 words)	Hadoop is an open-source framework for distributed storage (HDFS) and parallel processing (MapReduce) of big data. Hadoop consists of: HDFS: The Hadoop Distributed File System - used for storing data. YARN: Yet Another Resource Negotiator - used for resource management. MapReduce or another engine: Used for processing data. Apache Hive Hive is a data warehousing related tool built on top of Hadoop. It offers an SQL like language (HiveQL) to query large datasets located on your HDFS data store. Hive translates HiveQL into MapReduce, Tez or Spark jobs, dependent on how you configure it. Hive uses a metastore for storing its metadata e.g. table schemas, table locations, partitions, etc. The metastore can be an embedded database (Derby) or an RDBMS external to Hive (e.g. MySQL, PostgreSQL).
Procedure and Execution (100 Words)	Steps of Implementation: - **Install Java & Hadoop** • Ensure Java is installed. • Hadoop must be installed, configured, and running (HDFS + YARN). **Download and Extract Hive**

- Get Hive from the official Apache site.
- Extract it to a directory (e.g., `/usr/local/hive`).

Set Environment Variables

- Add `HIVE_HOME`, `HADOOP_HOME`, and update `PATH` in `.bashrc` or `.profile`.

Configure Hive

- Edit `hive-site.xml` with:
  - Metastore connection settings
  - Warehouse directory path
- Set Java and Hadoop paths in `hive-env.sh`.

Initialize Hive Metastore

- Use Derby (default) for testing OR
- Configure MySQL/PostgreSQL for production.
- Run schema initialization command

Create HDFS Directories for Hive

- Create `/user/hive/warehouse` and set proper permissions.

Start Hive CLI or Beeline

- Use `hive` or `beeline` to run HiveQL queries.

Run Hive Queries
Create tables, insert data, and query data stored in HDFS.

	Code: 1 cd /usr/local 2 sudo wget https://dlcdn.apache.org/hive/hive-4.0.1/apache-hive-4.0.1-bin.tar.gz 3 sudo tar -xzvf apache-hive-4.0.1-bin.tar.gz 4 sudo mv apache-hive-4.0.1-bin hive 5 nano ~/.bashrc 6 source ~/.bashrc 7 echo $HADOOP_HOME 8 echo $HIVE_HOME 9 echo $PATH 10 hadoop version 11 ls /usr/local/hadoop 12 cd /usr/local 13 sudo wget https://downloads.apache.org/hadoop/common/hadoop-3.3.6/hadoop-3.3.6.tar.gz 14 sudo tar -xvzf hadoop-3.3.6.tar.gz 15 sudo mv hadoop-3.3.6 hadoop 16 ls /usr/local/hadoop 17 sudo chmod -R 755 /usr/local/hadoop 18 source ~/.bashrc 19 hadoop version 20 java -version Part 2: Integrate Apache Hive with Hadoop 1 cd /usr/local 2 sudo wget https://downloads.apache.org/hadoop/common/hadoop-3.3.6/hadoop-3.3.6.tar.gz 3 sudo tar -xzf hadoop-3.3.6.tar.gz 4 sudo mv hadoop-3.3.6 hadoop 5 sudo chmod -R 755 /usr/local/hadoop 6 cd /usr/local 7 sudo wget https://dlcdn.apache.org/hive/hive-4.0.1/apache-hive-4.0.1-bin.tar.gz 8 sudo tar -xzf apache-hive-4.0.1-bin.tar.gz 9 sudo mv apache-hive-4.0.1-bin hive 10 sudo chmod -R 755 /usr/local/hive 11 nano ~/.bashrc 12 source ~/.bashrc 13 hadoop version 14 hive --version 15 hdfs namenode -format

```
16 hdfs namenode &
17 hdfs datanode &
18 hdfs secondarynamenode &
19 yarn resourcemanager &
20 yarn nodemanager &
21 # HDFS daemons
22 hdfs namenode -format -force  # first time only
23 hdfs namenode &
24 hdfs datanode &
25 hdfs secondarynamenode &
26 # YARN daemons
27 yarn resourcemanager &
28 yarn nodemanager &
29 jps
30 hive
```

Output:

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	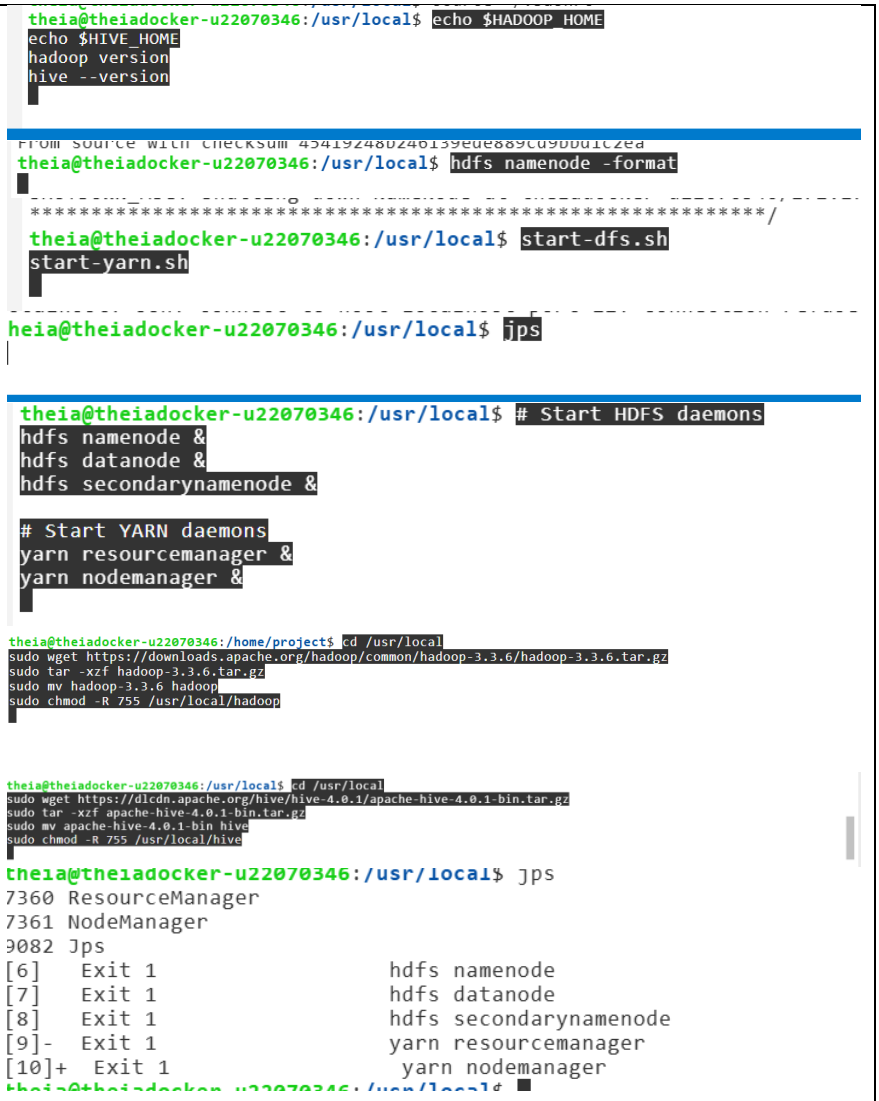
Output Analysis	Hive translates SQL-like queries into Hadoop jobs, executes them on HDFS data, and returns the results efficiently.
Link of student Github profile where lab assignment has been uploaded	
Conclusion	Installation of Apache Hive on Linux with Hadoop Integration implemented successfully.

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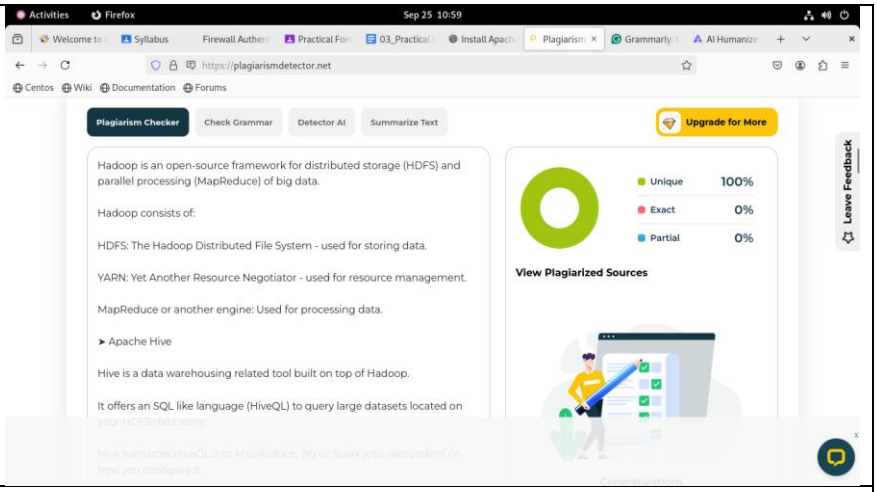
Plag Report (Similarity index < 12%)	
Date	**14/ 08/ 25**