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

NAAC A++

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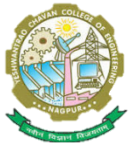
Integrity: I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

Name and Signature of Student and Date

(Signature and Date in Handwritten)

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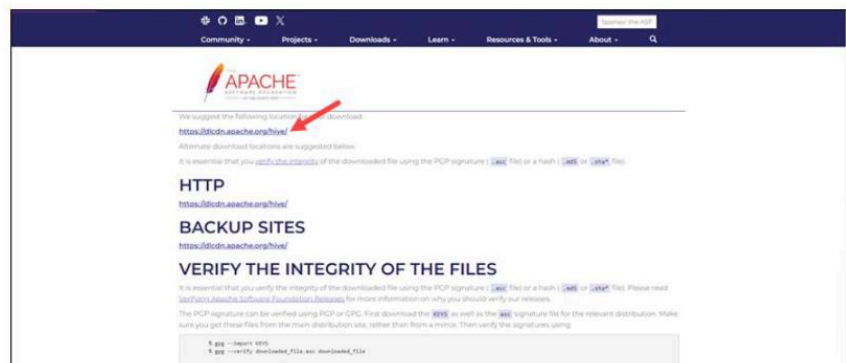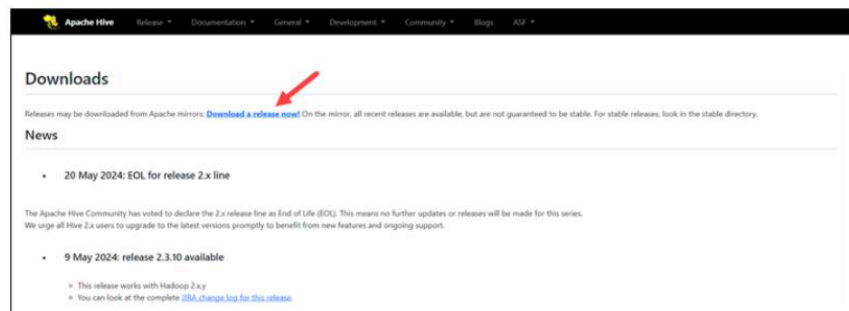**Vision of the Department**
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Session	2025-26 (ODD)	Course Name	BDH Lab
Semester	7 AIDS	Course Code	22ADS703
Roll No	21	Name of Student	**Sanskruti. Paunikar**

Practical Number	**4**
Course Outcome	**CO1:-** 1. Understand big data analytics and its business applications. **CO2:-** Analyze the HADOOP and Map Reduce technologies associated with big data analytics. **CO3:-** Apply Big Data analytics Using Pig and Hive.
Aim	Installation of Apache Hive on Linux with Hadoop Integration.
Problem Definition	
Theory (100 words)	Apache Hive is a data warehouse tool built on top of Hadoop that allows users to query and analyze large datasets using HiveQL, a SQL-like language. It translates queries into MapReduce, Tez, or Spark jobs for distributed processing. Hive simplifies data summarization, querying, and analysis on HDFS-stored data. Installing Hive on Linux involves setting up Hadoop first, then integrating Hive by configuring environment variables and metastore connectivity (using Derby or MySQL). This integration enables structured querying of big data, providing an SQL interface for Hadoop's distributed storage system, making data analysis easier and faster for users.
Procedure and Execution (100 Words)	Steps of Implementation:- 1. Install and configure Hadoop. 2. Download and extract Apache Hive. 3. Move Hive folder to `/usr/local/hive`. 4. Set Hive and Hadoop environment variables in `~/.bashrc`. 5. Create Hive warehouse directory in HDFS. 6. Configure `hive-site.xml` (metastore settings). 7. Initialize Hive metastore (Derby/MySQL). 8. Start Hadoop services (HDFS and YARN). 9. Launch Hive shell using `hive` command. 10. Verify installation with Hive queries (`show databases;`, `create table;`).

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Code:


```
hdoop@phoenixNAP:~$ hadoop version
Hadoop 3.4.0
Source code repository git@github.com:apache/hadoop.git -r bd8b77f398f626bb77917
83192ee7a5dfaeec760
Compiled by root on 2024-03-04T06:35Z
Compiled on platform linux-x86_64
Compiled with protoc 3.21.12
From source with checksum f7fe694a3613358b38812ae9c31114e
This command was run using /home/hdoop/hadoop-3.4.0/share/hadoop/common/hadoop-c
ommon-3.4.0.jar
```

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	Index of /hive/hive-4.0.0 Name Last modified Size Description Parent Directory - apache-hive-4.0.0-bin.tar.gz 2024-03-25 20:58 438M apache-hive-4.0.0-bin.tar.gz.asc 2024-03-25 20:58 862 apache-hive-4.0.0-bin.tar.gz.sha256 2024-03-25 20:58 95 apache-hive-4.0.0-src.tar.gz 2024-03-25 20:58 60M apache-hive-4.0.0-src.tar.gz.asc 2024-03-25 20:58 862 apache-hive-4.0.0-src.tar.gz.sha256 2024-03-25 20:58 95
	Output: `hdoop@phoenixNAP:~$ wget https://downloads.apache.org/hive/hive-4.0.0/apache-hive-4.0.0-bin.tar.gz` `--2024-09-02 07:57:53-- https://downloads.apache.org/hive/hive-4.0.0/apache-hive-4.0.0-bin.tar.gz` `Resolving downloads.apache.org (downloads.apache.org)... 88.99.208.237, 135.181.214.104, 2a01:4f8:10a:39da::2, ...` `Connecting to downloads.apache.org (downloads.apache.org)|88.99.208.237|:443... connected.` `HTTP request sent, awaiting response... 200 OK` `Length: 458782861 (438M) [application/x-gzip]` `Saving to: 'apache-hive-4.0.0-bin.tar.gz'` `apache-hive-4.0.0-b 100%[===================>] 437.53M 17.6MB/s in 26s` `2024-09-02 07:58:19 (16.9 MB/s) - 'apache-hive-4.0.0-bin.tar.gz' saved [458782861/458782861]` `hdoop@phoenixNAP:~$ tar xzf apache-hive-4.0.0-bin.tar.gz` `hdoop@phoenixNAP:~$ ls -l	grep hive` `drwxrwxr-x 11 hdoop hdoop 4096 Sep 2 08:00 apache-hive-4.0.0-bin` `-rw-rw-r-- 1 hdoop hdoop 458782861 Mar 25 13:58 apache-hive-4.0.0-bin.tar.gz`
Output Analysis	After successful installation and integration, Hive connects seamlessly with Hadoop's HDFS. Commands like show databases;, create table;, and select * from table; execute successfully, confirming Hive's interaction with Hadoop. The output displays query results processed via MapReduce or Tez, showing Hive's ability to transform SQL-like queries into distributed execution. The creation of warehouse directories in HDFS (/user/hive/warehouse) further validates proper configuration. Smooth execution and accurate results indicate successful Hadoop-Hive integration and functional query processing.
Link of student Github profile where lab assignment has been uploaded	https://github.com/sanskruti-1234/BDH.git
Conclusion	The installation and integration of Apache Hive with Hadoop on Linux were successful. Hive provides a user-friendly, SQL-based interface for managing and analyzing large datasets stored in HDFS. The experiment demonstrates Hive's effectiveness in converting SQL queries into MapReduce jobs, simplifying big data analysis and making Hadoop accessible to users with SQL knowledge..

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