22DS3L1: DEEP LEARNING LAB

Course Name	Deep Leaning Lab		L	T	P	C	CIA	SEE	TM
Course Code	22DS3L1		4	0	0	4	30	70	100
Year of Introduction: 2021	Year of Offering: 2022	Year of Revision: No Revision			Percentage of Revision: Nil				
L-Lecture, T-Tutorial, P-Practical, C-Credits, CIA-Internal Marks, SEE-External Marks, TM-Total Marks									

Course Description and Purpose: This laboratory course focuses on practical skills in developing facial recognition, voice recognition, object recognition, object counting, sentiment analysis, and fake news detection applications.

Course Objectives: This laboratory course aimed to develop *Face Recognition Application, Voice Recognition Application, Object Recognition Application, Object Counting Application* and *Sentiment Analysis Application* & *Fake News Detection Application*

Specific objectives include:
1. To learn developing *Face Recognition Application*.
2. To learn developing *Voice Recognition Application*.
3. To learn developing *Object Recognition Application*.
4. To learn developing *Object Counting Application*.
5. To learn developing *Sentiment Analysis Application* & *Fake News Detection Application.*

Course Outcomes:
On successful completion of this course
CO1: Students will have developed the practical skills to implement a face recognition application using a chosen framework, enabling them to apply facial recognition technology in real-world applications.
CO2: Students will be proficient in developing a voice recognition application using their chosen framework, equipping them to integrate voice recognition technology into various real-world applications.
CO3: students will be skilled in developing object recognition applications, enabling them to create software capable of identifying and classifying objects within images or video streams for various practical applications.
CO4: Students will have the expertise to develop object counting applications, allowing them to create software that accurately counts and tracks objects within images or video streams for diverse real-world scenarios.
CO5: Students will be proficient in developing both sentiment analysis and fake news detection applications, equipping them to analyze text data for sentiment and identify misleading or false information in text content for various applications.

Lab Exercises:
1. Implement *Face Recognition Application* using any frame work. (CO1,L6)
2. Implement *Voice Recognition Application* using any frame work. (CO2,L6)
3. Implement *Object Recognition Application* using any frame work. (CO3,L6)
4. Implement *Object Counting Application* using any frame work. (CO4,L6)
5. Implement *Sentiment Analysis Application* using any frame work. (CO5,L6)
6. Implement *Detection of Fake News Application* using any frame work. (CO5,L6)

22DS3L2: BIG DATA AND ANALYTICS LAB

Course Name	Big Data Analytics Lab			L	T	P	C	CIA	SEE	TM
Course Code	22DS3L2			4	0	0	4	30	70	100
Year of Introduction: 2021	Year of Offering: 2022	Year of Revision: No Revision		Percentage of Revision: Nil						
L-Lecture, T-Tutorial, P-Practical, C-Credits, CIA-Internal Marks, SEE-External Marks, TM-Total Marks										

Course Description and Purpose: This laboratory course focuses on hands-on experience with Hadoop installations and commands, implementing word count in Hadoop, Pig installations and commands, MongoDB tasks and operations, including bulk documents, arrays, and MapReduce, as well as Spark installation and operations, including RDDs, data frames, and Spark SQL.

Course Objectives: This laboratory course aimed to implement Hadoop Installations, Hadoop Commands,Word Count in Hadoop, Pig Installation, Pig Commands, MongoDB, MongoDB Commands, Tasks On Mongodb, Bulk Documents in Mongodb, Arrays in Mongodb, Map Reduce in Mongodb, Aggregate Functions in Mongodb, Mongo Import & Export and Spark Installation, Operations of Rdd, Working With Data Frames, Spark SQL Operations.

Specific objectives include:

1. To implement Hadoop Installations, Hadoop Commands,Word Count in Hadoop.
2. To implement Pig Installation, Pig Commands, MongoDB.
3. To implement MongoDB Commands, Tasks On Mongodb, Bulk Documents in Mongodb, Arrays in Mongodb.
4. To implement Map Reduce in Mongodb, Aggregate Functions in Mongodb, Mongo Import & Export.
5. To implement Spark Installation, Operations of Rdd, Working With Data Frames, Spark SQL Operations.

Course Outcomes:

Upon successful completion of the course, the student will be able to:

CO1: Students will be capable of setting up Hadoop installations, executing Hadoop commands, and implementing the Word Count program in Hadoop, enabling them to work with distributed data processing using Hadoop technology.

CO2: Students will be proficient in installing Pig, utilizing Pig commands, and integrating with MongoDB, equipping them with the skills to work with data processing and analysis in a Hadoop ecosystem using Pig and MongoDB technologies.

CO3: Students will possess the ability to effectively use MongoDB commands, perform various tasks in Mongo DB, manage bulk documents, and work with arrays in MongoDB, enabling them to work with NoSQL databases for data storage and retrieval efficiently.

CO4: Students will be proficient in implementing MapReduce in MongoDB, utilizing aggregate functions for data analysis, and performing data import and export operations, equipping them with essential skills for processing and managing data in MongoDB efficiently.

CO5: Students will be adept at installing Spark, performing operations on RDDs (Resilient Distributed Datasets), working with DataFrames, and conducting Spark SQL operations, enabling them to harness the power of distributed data processing with Apache Spark for various data analysis tasks.

1. Hadoop Installation Steps. (CO1,L3)
2. Hadoop Commands. (CO1,L3)
3. Word Count Program in Hadoop. (CO2,L1)
4. Pig Installation Steps. (CO2,L3)
5. Pig Commands. (CO3,L3)
6. Introduction To Mongodb. (CO3,BTL1)
7. Mongodb Commands. (CO3,BTL3)
8. Tasks on Mongodb. (CO4,BTL3)

9. Creating Bulk Documents In Mongodb. (CO4,L6)
10. Arrays in Mongodb. (CO3,L1)
11. Map Reduce in Mongodb. (CO4,L3)
12. Aggregate Functions in Mongodb. (CO4,L3)
13. Mongo Import. (CO4,L3)
14. Mongo Export. (CO4,L3)
15. Spark Installation. (CO5,L3)
16. Operations of Rdd. (CO5,L3)
17. Working With Data Frames. (CO5,L3)
18. Spark Sql Operations. (CO5,L3)