**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**“JnanaSangama”, Belgaum -590014, Karnataka.**

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**LAB REPORT**

**on**

**COURSE TITLE**

***Submitted by***

**SUSHANTH (1BM21CS227)**

***in partial fulfillment for the award of the degree of***

**BACHELOR OF ENGINEERING**

***in***

**COMPUTER SCIENCE AND ENGINEERING**



**B.M.S. COLLEGE OF ENGINEERING**

**(Autonomous Institution under VTU)**

**BENGALURU-560019**

**Feb-2024 to July-2024**

**B. M. S. College of Engineering,**

**Bull Temple Road, Bangalore 560019**

(Affiliated To Visvesvaraya Technological University, Belgaum)

**Department of Computer Science and Engineering**



**CERTIFICATE**

This is to certify that the Lab work entitled “LAB COURSE **TITLE**” carried out by **NAME (USN),** who is bonafide student of **B. M. S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the year 2024. The Lab report has been approved as it satisfies the academic requirements in respect of a **Course Title - (Course code)** work prescribed for the said degree.

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**1 Perform the following DB operations using Cassandra.**

1. Create a keyspace by name Employee

**CREATE KEYSPACE Employee WITH replication = {'class': 'SimpleStrategy', 'replication\_factor' : 3};**

2.Create a column family by name

Employee-Info with attributes

Emp\_Id Primary Key, Emp\_Name,

Designation, Date\_of\_Joining, Salary, Dept\_Name

**USE Employee;**

**CREATE TABLE Employee\_Info (**

**Emp\_Id INT PRIMARY KEY,**

**Emp\_Name TEXT,**

**Designation TEXT,**

**Date\_of\_Joining DATE,**

**Salary DECIMAL,**

**Dept\_Name TEXT**

**);**

1. Insert the values into the table in batch

**BEGIN BATCH**

**INSERT INTO Employee\_Info (Emp\_Id, Emp\_Name, Designation, Date\_of\_Joining, Salary, Dept\_Name) VALUES (121, 'John Doe', 'Manager', '2020-01-15', 75000, 'HR');**

**INSERT INTO Employee\_Info (Emp\_Id, Emp\_Name, Designation, Date\_of\_Joining, Salary, Dept\_Name) VALUES (122, 'Jane Smith', 'Developer', '2019-03-22', 60000, 'IT');**

**INSERT INTO Employee\_Info (Emp\_Id, Emp\_Name, Designation, Date\_of\_Joining, Salary, Dept\_Name) VALUES (123, 'Alice Johnson', 'Analyst', '2021-06-11', 55000, 'Finance');APPLY BATCH;**

1. Update Employee name and Department of Emp-Id 121

**UPDATE Employee\_Info SET Emp\_Name = 'John A. Doe', Dept\_Name = 'Marketing' WHERE Emp\_Id = 121;**

5. Sort the details of Employee records based on salary

**SELECT \* FROM Employee\_Info;**

6.Alter the schema of the table Employee\_Info to add a column Projects which stores a set of Projects done by the corresponding Employee.

**ALTER TABLE Employee\_Info ADD Projects SET<TEXT>;**

7. Update the altered table to add project names.

**UPDATE Employee\_Info SET Projects = Projects + {'Project X', 'Project Y'} WHERE Emp\_Id = 121;**

8.Create a TTL of 15 seconds to display the values of Employees.

**INSERT INTO Employee\_Info (Emp\_Id, Emp\_Name, Designation, Date\_of\_Joining, Salary, Dept\_Name)**

**VALUES (124, 'Bob Brown', 'Consultant', '2023-02-01', 70000, 'Consulting') USING TTL 15;**

**2 Perform the following DB operations using Cassandra.**

1.Create a keyspace by name Library

**CREATE KEYSPACE Library WITH replication = {'class': 'SimpleStrategy', 'replication\_factor' : 3};**

2. Create a column family by name Library-Info with attributes

Stud\_Id Primary Key, Counter\_value of type Counter,

Stud\_Name, Book-Name, Book-Id, Date\_of\_issue

**USE Library;**

**CREATE TABLE Library\_Info (**

**Stud\_Id INT PRIMARY KEY,**

**Counter\_value COUNTER,**

**Stud\_Name TEXT,**

**Book\_Name TEXT,**

**Book\_Id INT,**

**Date\_of\_issue DATE**

**);**

1. Insert the values into the table in batch

**BEGIN BATCH**

**UPDATE Library\_Info SET Stud\_Name = 'Alice', Book\_Name = 'Cassandra Basics', Book\_Id = 101, Date\_of\_issue = '2023-06-01' WHERE Stud\_Id = 111;**

**UPDATE Library\_Info SET Stud\_Name = 'Bob', Book\_Name = 'BDA', Book\_Id = 102, Date\_of\_issue = '2023-06-02' WHERE Stud\_Id = 112;**

**UPDATE Library\_Info SET Stud\_Name = 'Charlie', Book\_Name = 'Advanced Cassandra', Book\_Id = 103, Date\_of\_issue = '2023-06-03' WHERE Stud\_Id = 113;**

**APPLY BATCH;**

1. Display the details of the table created and increase the value of the counter

**SELECT \* FROM Library\_Info;**

**UPDATE Library\_Info SET Counter\_value = Counter\_value + 1 WHERE Stud\_Id = 112;**

1. Write a query to show that a student with id 112 has taken a book “BDA” 2 times.

**UPDATE Library\_Info SET Counter\_value = Counter\_value + 1 WHERE Stud\_Id = 112;**

**SELECT Stud\_Id, Stud\_Name, Book\_Name, Counter\_value FROM Library\_Info WHERE Stud\_Id = 112;**

1. Export the created column to a csv file

**COPY Library\_Info TO 'library\_info.csv' WITH HEADER = TRUE;**

1. Import a given csv dataset from local file system into Cassandra column family

**COPY Library\_Info (Stud\_Id, Counter\_value, Stud\_Name, Book\_Name, Book\_Id, Date\_of\_issue) FROM 'new\_library\_info.csv' WITH HEADER = TRUE;**

**3 MongoDB- CRUD Demonstration**

**// Step 1: Connect to MongoDB and Create Database**

**use Library**

**// Step 2: Create Collection**

**db.createCollection("LibraryInfo")**

**// Step 3: Insert Documents**

**db.LibraryInfo.insertMany([**

**{**

**Stud\_Id: 111,**

**Counter\_value: 0,**

**Stud\_Name: "Alice",**

**Book\_Name: "Cassandra Basics",**

**Book\_Id: 101,**

**Date\_of\_issue: new Date("2023-06-01")**

**},**

**{**

**Stud\_Id: 112,**

**Counter\_value: 0,**

**Stud\_Name: "Bob",**

**Book\_Name: "BDA",**

**Book\_Id: 102,**

**Date\_of\_issue: new Date("2023-06-02")**

**},**

**{**

**Stud\_Id: 113,**

**Counter\_value: 0,**

**Stud\_Name: "Charlie",**

**Book\_Name: "Advanced Cassandra",**

**Book\_Id: 103,**

**Date\_of\_issue: new Date("2023-06-03")**

**}**

**])**

**// Step 4: Read Documents**

**db.LibraryInfo.find().pretty()**

**db.LibraryInfo.find({ Stud\_Id: 112 }).pretty()**

**// Step 5: Update Documents**

**db.LibraryInfo.updateOne(**

**{ Stud\_Id: 112 },**

**{ $inc: { Counter\_value: 1 } }**

**)**

**// Increment counter again**

**db.LibraryInfo.updateOne(**

**{ Stud\_Id: 112 },**

**{ $inc: { Counter\_value: 1 } }**

**)**

**// Step 6: Delete Document**

**db.LibraryInfo.deleteOne({ Stud\_Id: 113 })**

**Course Outcome**

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