GURU NANAK INSTITUTE OF TECHNOLOGY
(Affiliated to JNTUH-Hyderabad)
Ranga Reddy District-501506

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

<u>CERTIFICATE</u>

This is to certify that the project entitled**"MULTI TENANCY CLOUD DATA WITH A SHARED PRIVACY PRESERVING TRUSTED KEYWORD SEARCH"** is being presented with a report by **Saurav Kumar Mandal (21831A05M1), Deekshitha Thumma (21831A05K9), Abhishek Heerekar (20831A0561)** in partial fulfillment for the **Degree of Bachelor of Technology in Computer Science and Engineering,** to **Jawaharlal Nehru Technological University, Hyderabad**.

Mr. G. LAKPATHI   **Dr. B. SANTHOSH KUMAR**
INTERNAL GUIDE   **HEAD OF DEPARTMENT**

EXTERNAL EXAMINER

PROJECT COMPLETION CERTIFICATE

This is to certify that the following students of final year B. Tech, Department of COMPUTER SCIENCE & ENGINEERING - Guru Nanak Institute of Technology (GNIT) have completed their training and project at GNIT successfully.

STUDENT NAME: **Roll No:**

1. SAURAV KUMAR MANDAL   21831A05M1

2. DEEKSHITHA THUMMA   21831A05K9

3. ABHISHEK HEEREKAR   20831A0561

The training was conducted on __JAVA FULL STACK DEVELOPMENT__ Technology for the completion of the project titled MULTI TENANCY CLOUD DATA WITH A SHARED PRIVACY PRESERVING TRUSTED KEYWORD SEARCH

in _____2024 - 2025_____. The project has been completed in all aspects.

Signature

Mini & Major IEEE Live Projects For
M.E /M.Tech, B.E / B.Tech, MCA, M.S.

DECLARATION BY STUDENTS

We hereby declare that the major project report entitled **"Multi tenancy cloud using data with a shared privacy preserving trusted keyword search "** is the work done by **Saurav kumar Mandal, Deekshitha Thumma, Abhishek Heerekar** bearing the roll no's **21831A05M1, 21831A05K9, 20831A0561** towards the fulfilment of the requirement for the award of the **Degree of Bachelor of Technology in Computer Science and Engineering**, to **Jawaharlal Nehru Technological University, Hyderabad,** is the result of the work carried out under the guidance **Mr. G. Lakpathi**, Assistant Professor – Department of Computer Science and Engineering **Guru Nanak Institute of Technology, Hyderabad.**

I confirm the following:

1. I have contributed the entire project process, from the selection of the project title to the submission of the final report.

2. The project report has been prepared as per guidelines, ensuring adherence to high standards of quality, clarity, and structure.

3. All information provided and work done is completely genuine and is not copied from any online or offline platform.

4. That I or any of my known have not submitted this project to any other University or College.

I certify that this project report has not been previously submitted in part or full for the award of any degree or diploma by any institution or university.

21831A05M1	21831A05K9	20831A0561
M. SAURAV KUMAR	**T. DEEKSHITHA**	**H. ABHISHEK**

DECLARATION BY GUIDE

I, **Mr. G. Lakpathi**, hereby declare that I have guided the major project titled "**Multi tenancy cloud data with a shared privacy preserving trusted keyword search**" Undertaken by **Saurav Kumar Mandal (21831A05M1), Deekshitha Thumma (21831A05K9), Abhishek Heerekar (20831A0561)**. This project was carried out towards the fulfillment of the requirements for the award of the Degree of Bachelor of Technology in Computer Science and Engineering, to Jawaharlal Nehru Technological University, Hyderabad.

As the guide, I confirm the following:

1. I have overseen the entire project process, from the selection of the project title to the submission of the final report.

2. I have reviewed and certified the accuracy and relevance of the results presented in the report.

3. The work carried out is original, free from plagiarism, and adheres to ethical guidelines.

4. The contributions of each student have been appropriately recognized and assessed.

5. The project report has been prepared under my supervision, ensuring adherence to high standards of quality, clarity, and structure.

I certify that this project report has not been previously submitted in part or full for the award of any degree or diploma by any institution or university.

Name of Guide: Mr. G. Lakpathi   Signature of the Guide

Date:

Place: Ibrahimpatnam, Hyderabad.

Name of HOD: Dr. B. Santhosh Kumar   Signature of the HOD

Department: Computer Science & Engineering

Date:

Place: Ibrahimpatnam, Hyderabad.

ACKNOWLEDGEMENT

"Task successful" makes everyone happy. But happiness will be gold without glitter if we don't state the people who have supported us to make it a success.

We would like to express our sincere thanks to **Dr. B. SANTHOSH KUMAR**, Professor & Head - Department of Computer Science and Engineering, Guru Nanak Institute of Technology for having guided me in developing the requisite capabilities for taking up this project.

We thank Project Coordinator **Mr. D. SRINIVAS**, Assistant Professor CSE, GNIT**,** for providing seamless support and the right suggestions that are given in the development of the project.

We specially thank our internal guide **Mr. G. Lakpathi**, Assistant Professor – Department of Computer Science and Engineering for his constant guidance in every stage of the project. We would also like to thank all our lecturers for helping me in every possible way whenever the need arises.

On a more personal note, we thank our beloved parents and friends for their moral support during our project.

CO-PO MAPPING

COs	Course Outcome	BL
CO1	Independently carry out literature survey in identified domain, and consolidate it to formulate a problem statement	4
CO2	Apply identified knowledge to solve a complex engineering problem and design a solution, implement and test the proposed solution	3
CO3	Use synthesis/Modelling to simulate and solve a problem or apply appropriate method of analysis to draw valid conclusions and present, demonstrate, execute final version of project	3
CO4	Contribute effectively as a team member or leader to manage the project timeline and incorporate the social, environmental and ethical issues effectively into solution of an engineering problem	6
CO5	Write pertinent project reports and make effective Project Presentations	3

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	–	3	–	–	–	–	–	–	–	–	–	3	3	3	3
CO2	3	–	3	–	–	–	–	–	–	–	–	–	3	3	3
CO3	–	–	–	3	3	-	-	-	–	–	–	–	3	3	3
CO4	–	–	–	–	–	3	3	3	3	–	3	–	–	3	–
CO5	–	–	–	–	–	–	–	–	–	3	–	–	–	3	–

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

VISION

To be recognized as a leading department of Computer Science and Engineering in the region by students and employers and be known for leadership, Ethics, and commitment to fostering quality teaching-learning, research, and innovation.

MISSION

- Nurture young individuals into knowledgeable, skill-full and ethical professionals in their pursuit of Computer Science and Engineering.
- Nurture the faculty to expose them to world-class infrastructure.
- Sustain high performance by excellence in teaching, research and innovations.
- Extensive partnerships and collaborations with foreign universities for technology upgradation.
- Develop Industry-Interaction for innovation and product development.

ABSTRACT

Cloud service models intrinsically cater to multiple tenants. In current multi-tenancy model, cloud service providers isolate data within a single tenant boundary with no or minimum cross-tenant interaction. With the booming of cloud applications, allowing a user to search across tenants is crucial to utilize stored data more effectively. However, conducting such a search operation is inherently risky, primarily due to privacy concerns. Moreover, existing schemes typically focus on a single tenant and are not well suited to extend support to a multi-tenancy cloud, where each tenant operates independently. In this article, to address the above issue, we provide a privacy preserving, verifiable, accountable, and parallelizable solution for "privacy-preserving keyword search problem" among multiple independent data owners. We consider a scenario in which each tenant is a data owner and a user's goal is to efficiently search for granted documents that contain the target keyword among all the data owners. We first propose a verifiable yet accountable keyword searchable encryption (VAKSE) scheme through symmetric bilinear mapping. For verifiability, a message authentication code (MAC) is computed for each associated piece of data. To maintain a consistent size of MAC, the computed MACs undergo an exclusive OR operation. For accountability, we propose a keyword-based accountable token mechanism where the client's identity is seamlessly embedded without compromising privacy. Furthermore, we introduce the parallel VAKSE scheme, in which the inverted index is partitioned into small segments and all of them can be processed synchronously. We also conduct formal security analysis and comprehensive experiments to demonstrate the data privacy preservation and efficiency of the proposed schemes, respectively.

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