**PROJECT DELIVERABLE 04**

**Group 13**

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| **Individual Contribution** | | | |
| **CWID** | **Name** | **Contribution**  **(Description)** | **Percent Contribution** |
| A20593079 | Akshada Ranalkar | Worked on the programming part, prepared the video demo. | 33.3% |
| A20563287 | Anuja Wavdhane | Worked on the programming part, prepared the video demo. | 33.3% |
| A20560966 | Suhasi Gadge | Worked on the programming part, created README file, and documentation. | 33.3% |

**Project Title:**

**ACADEMIC PUBLICATION DATABASE SYSTEM**

**(REFERENCE WEBSITE: IEEE Website**

<https://ieeexplore.ieee.org/abstract/document/344065>)

* 1. **Objectives of Deliverable # 04**

1. Develop a CRUD Application: Create an application using Python, Java, or C/C++ that performs Create, Read, Update, and Delete (CRUD) operations on a database.
2. Application Type: Build the application as a web-based, desktop, or command-line tool, ensuring it is user-friendly for CRUD tasks.
3. Use Suitable Libraries: Utilize appropriate libraries or frameworks (e.g., Streamlit for Python, JDBC for Java) for database interaction.
4. Data Integrity and Validation: Ensure reliable CRUD operations with accurate data validation to maintain data integrity.
5. Video Demonstration: Record a Loom video demonstrating each CRUD function, explaining the application’s features and testing with different scenarios.
6. Error Handling: Implement robust error handling with clear error messages and account for edge cases to make the application reliable.
7. Code Quality and Documentation: Write clean, well-organized code with comments, and provide a README file explaining how to set up and use the application.

* 1. **Application Overview**
* Programming Language: Python
* Database: MySQL
* Application Type: Web-based application using Streamlit for the frontend.
* CRUD Operations: Implementation includes adding, reading, updating, and deleting records across tables in an IEEE database (e.g., Publications, Authors).
* Libraries Used: Streamlit for frontend, MySQL Connector for database interaction, and Pandas for data handling.
  1. **CRUD Operations**

We have made sure to perform all the CRUD operations for every table present in the database. The video demonstration of these operations has been submitted along with this report.

* 1. **Features Details**

1. User Interface: The application includes a navigation guide and a table-based layout, allowing users to switch between tables easily.
2. Data Validation: Each form includes input validation for fields such as numeric IDs, dates, and required fields.
3. Error Handling: The program gracefully manages connection errors, input errors, and invalid CRUD operations with descriptive error messages to guide the user.
4. Data Security: Credentials are securely managed within the database connection function, and sensitive information is kept minimal in application files.