

# NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES



## Lab Exercise 01

For

## ***CL2005- Database Systems Lab***

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# Lab Task 1 – Student Database Management System in C++

Write a C++ program that simulates basic file handling and database operations. You'll implement methods for inserting data into a file, retrieving data from the file, deleting data, joining tables, and displaying data.

## 1. File Handling:

- Implement a class `FileHandler` to manage file operations.
- Implement methods `openFile`, `closeFile`, `writeData`, and `readData`.

## 2. Database Management:

- Implement a class `Database` to manage the database operations using files.
- Implement methods `insertRecord`, `retrieveRecord`, `deleteRecord`, `joinTables`, and `displayData`.

## 3. Main Program:

- Create an instance of the `Database` class in the main program.
- Perform the following operations:
  - a. Create two tables **Student.txt** and **Courses.txt**. Each table should have **StudentID** col.
  - b. Insert at least 5 records into each table.
  - c. Display the contents of a both tables.
  - d. Retrieve record no 3 from any table.
  - e. Delete record no 2 from any table.
  - f. Join both tables and display the joined data.

## Expected Output:

### Student Table:

Student ID | Student Name

1 | Alice

2 | Bob

3 | Carol

4 | David

5 | Eve

### Course Table:

Student ID | Course Name

1 | Math

2 | History

3 | Science

4 | Literature

5 | Art

### Joined Tables:

1 | Alice | Math

2 | Bob | History

3 | Carol | Science

4 | David | Literature

5 | Eve | Art

Retrieved Record from Student Table: 3 | Carol

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- **Submission Guidelines**

1. File names = = **.cpp & .doc** and name as “**FXX\_XXXX**” (Replace the ‘X’ with your roll no.).
2. Submit the files on **Google Classroom** before the deadline.
3. **No** submissions will be **accepted after the deadline**.

**GOOD LUCK**