CS103P DATABASE SYSTEMS LAB
TERM I (2018-19)

GENERAL COURSE INFORMATION

Course Name	CS103P
Instructor(s)	Prof. Chandrashekar R Office No. 116 rc@iiitb.ac.in
Course credits	1

COURSE OVERVIEW

The Database Systems Lab course complements the Database Systems (Lecture) course by incorporating hands-on activities pertaining to various aspects of data management.

Outcomes

1. Understand different File I/O libraries available in C language
2. Develop applications that use File I/O libraries to manage text and binary data
3. Create conceptual database designs using UML tools
4. Apply object-relational mapping rules for transforming conceptual designs to logical designs
5. Understand the functionality of different components of SQL
6. Create databases using SQL Data Definition Language
7. Understand various database programming paradigms
8. Learn to create applications using JDBC and Hibernate
9. Learn to apply all the database management in an integrated group project

COURSE CONTENT

File I/O in C Programming

- Text file management
- Binary file management

Database Design

- Using tools to create conceptual database designs
- OR mapping rules

SQL

- SQL Data Definition Language
- SQL Data Manipulation Language

Database Programming

- Different database programming paradigms
- JDBC programming
- Hibernate programming

COURSE CALENDAR

Session #	Date	Topic	Session Description
Session #1	August 2	File I/O	Basic exercises on the use of File I/O library in C
Session #2	August 9	Indexing structures	Implementing a simple in-memory index structures for persistent data
Session #3	August 16	Indexing structures	Implementing complex persistent index structures for persistent data
Session #4	August 23	Conceptual modeling	Creating conceptual schemas using UML tools
Session #5	August 30	OR Mapping	Exercises on carrying out OR mapping
Session #6	September 6	Logical DB design	Logical DB design and implementation (paper-design of relational schema)
Session #7	September 13	Physical DB design - SQL DDL	Physical DB design and implementation using SQL DDL
Session #8	September 20	SQL DML	Exercises involving SQL DML
Mid-term exams			
Session #9	October 4	SQL DML	Exercises involving SQL DML
Session #10	October 11	SQL DML	Exercises involving SQL DML
Mid-term break			
Session #11	October 25	Project	Project definition
Session #12	November 1	JDBC	Exercises on database programming using JDBC
Session #13	November 8	JDBC	Project implementation on database programming using JDBC
Session #14	November 15	Hibernate	Exercises on database programming using Hibernate
Session #15	November 22	Hibernate	Project implementation on database programming using Hibernate

GRADING

Final grade will be based on weights given below:
40%: In-class lab exercises
20%: Project
20%: Mid-Term Exam
20%: End-Term Exam

REFERENCES

- C Programming Language (any text book)
- MySQL Reference Manual http://dev.mysql.com/doc/

CHEATING AND PLAGIARISM

This course has zero tolerance for cheating and plagiarism. Any violation may result in an F grade and further disciplinary action may be initiated as per the Institute's policies. Ignorance of what constitutes cheating and plagiarism is not an excuse! If you have any doubts, contact your instructor.

ANNEXURE

What is Plagiarism

Many people think of plagiarism as copying another's work, or borrowing someone else's original ideas. But terms like "copying" and "borrowing" can disguise the seriousness of the offense:

According to the *Merriam-Webster OnLine Dictionary*, to "plagiarize" means

1) to steal and pass off (the ideas or words of another) as one's own
2) to use (another's production) without crediting the source
3) to commit literary theft
4) to present as new and original an idea or product derived from an existing source.

In other words, plagiarism is an act of fraud. It involves both stealing someone else's work and lying about it afterward. But can words and ideas really be stolen?

According to U.S. law, the answer is yes. In the United States and many other countries, the expression of original ideas is considered intellectual property, and is protected by copyright laws, just like original inventions. Almost all forms of expression fall under copyright protection as long as they are recorded in some media (such as a book or a computer file).

All of the following are considered plagiarism:

- turning in someone else's work as your own
- copying words or ideas from someone else without giving credit
- failing to put a quotation in quotation marks
- giving incorrect information about the source of a quotation
- changing words but copying the sentence structure of a source without giving credit
- copying so many words or ideas from a source that it makes up the majority of your work, whether you give credit or not (see our section on "fair use" rules)

Attention! Changing the words of an original source is not sufficient to prevent plagiarism. If you have retained the essential idea of an original source, and have not cited it, then no matter how drastically you may have altered its context or presentation, you have still plagiarized

Most cases of plagiarism can be avoided, however, by citing sources. Simply acknowledging that certain material has been borrowed, and providing your audience with the information necessary to find that source, is usually enough to prevent plagiarism.