Dear CS157 B Class:

In this big data era, do we still need to study traditional databases? Please look at the article Communications of the ACM, January 2015, pp 18. (see http://xanadu.cs.sjsu.edu/~drtylin/classes/cs157B/notes/

 by Michael Stonebraker (The Turing Award Winner of 2014) : " ¼ a new DBMS, IMPLA, which runs on HDFS (Hadoop File System). Put simply, IMPLA is architected exactly like all of the share-nothing parallel SQL DBMS, serving the data warehouse (see Ch 21.2.2) market. Specifically, notice the MapReduce Layer has been removed, and for good reason"   …. "Hadoop is picking up support in the general community." "a delay for a decade." "Goole has long since abandon it."

1)   We will cover DBMS in lectures,
2)   The so-called "No-SQL" will be covered in the Project.

This green sheet is prepared for "standard course"; this semester; we will increase the weight of the project.
1) Please down load the project based on the instructions giving
    http://xanadu.cs.sjsu.edu/~drtylin/classes/cs157B/projects/
2) Please read the file Google_Big_Data_Decade.pdf in
    http://xanadu.cs.sjsu.edu/~drtylin/classes/cs157B/notes/

Dr. Lin
http://dl.acm.org/inst_page.cfm?id=60015609

About the Project:
1) You have to sign a non-disclosure form
2) The project is the core of a semantic based search engine
    Which is a project in Data Science
    Vasant Dhar**, PhD,** Editor-**in-**Chief **of** Big Data (A professor of NYU) stated:
    "Data Science is a study of generalizable extraction of knowledge from data."
3) It is the product of CS298-99, since 2005 (Albert Sutojo he computed TFIDF using database concept), Important observation by Tam Ngo in 2006: Google's latent sematic index has nothing to do with semantic.   The best version is by Jean David Hsu (an undergraduate); he tested on 3 million abstracts from Medline. Current version is by Bieu Do. A secondary storage version by
    Richard Deeley (undergraduate)

San José State University
Science/Computer Science
CS 157B Database Management Systems II

1. Course Information

Instructor: Dr. Tsau Young Lin
Department: Computer Science
College of Science, San Jose State University.
Spring Semester, 2016

Course Title:	**Database Management System II**						
Course Code:	CS 157B						
Class meeting :	Course	Section	Room	Begin Time	End Time	Day	Unit
	CS 157B	3	DH 450	10:30	11:45	TTh	3
	CS 157B	4	DH 450	12:00	13:15	TTh	3
Office Hours:	T TH 10:00-10:30(at DH 450);13:15-13:45 (at MH 214); 19:15-19:45 (at MH 214)						
Office Location:	MH 214						

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E-mail:	drtylin@cs.sjsu.edu
Department Fax:	(408)924-5062

2. Specific course information:

a. Catalog Description:

"Survey course. Object-oriented data model, definition language, query language. Object relational database systems. Database trends like active, temporal, multimedia, deductive databases. Web database topics, namely, architectures, introduction to interface languages.

However, this class (Dr. Lin's) will not follows it closely; database has been moving swiftly and the catalog has not reflected this changes.. A quote from the text ("most IT people now feel that, while object systems might well have a role to play, that role is a comparatively limited one"; pp 813). So OO system will no longer be stressed. The topic to be covered are: Technology of secondary storage, Introduced to query optimization.

As Big Data is moving in, we would like to introduce Database Management Systems from the perspective of Big Data. For this, we would ask you to experience the subject via a validating and verification of a big Data project.

b. Prerequisites:

CS157A with a grade of C- or better.

c. SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 athttp://www.sjsu.edu/senate/docs/S12-3.pdf.

University Rules

NOTE that University policy F69-24 at http://www.sjsu.edu/senate/docs/F69-24.pdf states that "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See University Policy F13-1 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

3. Textbook

Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer D. Widom. Database Systems: The Complete Book. Prentice Hall. 2nd Ed ISBN-13: 978-0131873254. 2008.

4. Supplemental reference:

MS SQL (Murach's SQL Server 2012 for Developer by B. Syverson and J. Murach)

5. Specific goals for my sections:

a. Student learning outcomes: Upon successful completion of this course, students should have overall knowledge of the following:

1. An ability to apply knowledge of computing and mathematics to solve problems
2. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
3. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
4. An ability to function effectively on teams to accomplish a common goal
5.. An ability to use current techniques, skills, and tools necessary for computing practice

b. Programming outcomes:

1. to use commercially available DBMS, such as Oracle, DB2, MS SQL Server and etc (we will use MS SQL Server)
2. to handle the interactions between DBMS and a Big Data Project
3. Ability to organize a team project (using waterfall model) to build a "real world" database system(complexity is near a

real world database system) that is based on a DBMS and a programming language

    c. Detail Requirements
1. Projects: Understand "my" Search Engine
2. Exams: 4 exams
3. Quizzes: Many unscheduled quizzes. Missing quizzes (up to 4 quizzes) can be made up by attending public technical talks sponsored by professional organizations, such as IEEE, ACM,AMS, and etc.
4. Homework: Short SQL 's to enhance the understanding of lectures
5. Class Participation: Present some interesting topics in class, give some demos of short programs, or explaining hard home works in class will be properly awarded.

6. Brief list of topics to be covered:

1) Classical database Technology.

2) Understand Big Data

3) The skill to organize a team project (using waterfall model) to build a "Big Data database system that is based on a commercially available DBMS, such as Oracle, DB2, SQL Server and etc. and a third generation programming language, such as Java and C.

7. Tentative course calendar including assignment due dates, exam dates, date of Final exam

    Course Plan

Weeks	Lectures & Assignments	
1 (1/23)	First day of class Thursday (1/26) Overview of class policies and Instructions on the Project and home work.	Syllabus
2 (1/30)	Algebraic Query Language(review, including Query Algebra(QA) in SQL Form; The Query Compiler	Ch 5, Ch16, Project installation; due 2/9
3 (2/7)	The Query Compiler;	Ch16
4 (2/13)	The Query Compiler;	Ch16
5 (2/20)	The Query Compiler; (Exam requires Laptop, DB1, DB2, DB3, QA rules in cheat sheet)	Ch 13, Exam (2/23: Laptop. Cheat Sheet:DB1, DB2, DB3; QA rules)
6 (2/27)	The Query Compiler; Secondary Storage Management	Ch 16, Ch 13
7 (3/6)	Secondary Storage Management	Ch 13
8 (3/13)	Secondary Storage Management	Ch 13
9 (3/20)	Secondary Storage Management; Query Execution	Ch 13, 15 Exam 2
10 (3/27)	Spring Recess (March 28)	
11 (4/3)	Query Execution (Overview)	Ch 15
12(4/10)	Concurrency Control;	Ch 18

13(4/17)	Concurrency Control;	Ch 18
14(4/24)	Data Mining; Data Science	Ch 22, Note
15(5/2)	Data Mining; Data Science	Ch 22, Note
16(5/9)	Data Mining; Data Science	Ch 22, Note
17(5/16)	Last Day of Class Section 3 May 12 Section 4 May 14	Exam 3
18(5/18-24)	Final Exam: Section 3: Monday, May 22 0945-1200 Section 4: Wednesday, May 24 0945-1200	

5. Grades

Projects & home works	30%
Exams	30%
Quizzes (Class average set 80 linearly)	10%
Final Exam	30%
Total	100%
90-92; 93-96;97-	A
80-82; 83-86;87-	B
70-72; 73-76;77-	C
60-62; 63-66;67-	D
<60	F

6. Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc

7. University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See University Policy S90–5 at http://www.sjsu.edu/senate/docs/S90-5.pdf. More detailed information on a variety of related topics is available in the SJSU catalog, at http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines

can be found on the current academic year calendars document on the [Academic Calendars webpage](#) at http://www.sjsu.edu/provost/services/academic_calendars/. The [Late Drop Policy](#) is available at http://www.sjsu.edu/aars/policies/latedrops/policy/. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](#) at http://www.sjsu.edu/advising/.

Consent for Recording of Class and Public Sharing of Instructor Material

[University Policy S12-7](#), http://www.sjsu.edu/senate/docs/S12-7.pdf, requires students to obtain instructor's permission to record the course and the following items to be included in the syllabus:

· "Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material."
    o It is suggested that the greensheet include the instructor's process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.
    o In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.
· "Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent."

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](#) at http://www.sjsu.edu/senate/docs/S07-2.pdf requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](#) is available at http://www.sjsu.edu/studentconduct/.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](#) at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](#) (AEC) at http://www.sjsu.edu/aec to establish a record of their disability.