- Homepage
- Syllabus
- Honesty
- Code of Conduct
- MW 400 to 530p GDC 2.216

- Course 51925
-

cs347 data management

Dr. Philip Cannata

Exercises & Homework

- Book Exercises:
- Use the following schemas for the exercises in the Book
- ap_schema for SQL Homework
  - ap Data Model

  ex_schema for SQL Homework
  - ex Data Model

  om_schema for SQL Homework
  - om Data Model
- Download a zip file with the solutions to all of the exercise at this link.

- Homework:
- SQL HW Guidelines
- The My Guitar Shop Schema for the SQL Homework is at this link.
- A picture of the My Guiitar Shop Logical Model is at this link.
- The My Guitar Shop Data Model is at this link.
- Homework 1 - Solutions
- Chapter 3 of the book, which is needed for this homework, is online at **link**.
  - AVG 9.1
    A 121
    B 11
    C 0
    D 2
    F 5
  - Homework 2 - Due February 3
    - AVG 0
      A 0
      B 0
      C 0
      D 0
      F 0

- ## Quizzes
  - Quiz 1 - Solutions

    AVG 7.9
  -

    A 17
    B 62
    C 50
    D 6
    F 4
- ## Exams
  - Midterm Exam - March 11, 2015
  -
  - Final Exam - TBD
- ## Project
  - Initial Project Reviews - April 1-3, 2015
    - Project Requirements and Suggestions
    - Register Your Project
    - Review Schedule

    FInal Project Reviews - April 27 - 30, 2015
    - Project Requirements and Suggestions
    - Project Grading Rubric
    - Review Schedule
    - Documents Tutorial
    - Selected Project Presentations
    - Requested URLs

Welcome to CS347!

Instructor: Dr. Philip Cannata, phil.cannata@oracle.com, office hours: MW 3:00 - 3:45 in GDC 5.402.

TA: Yuepeng Wang, ypwang@cs.utexas.edu, office hours: TTH 2-3pm @ GDC 1.302 TA station Desk 3

TA: Cheng Fu, chengfu16@gmail.com, office hours: TTH 1-2pm @ GDC 1.302 TA station Desk 3

Canvas link.

We will be using Piazza.

Make sure you are registered with piazza for this course and be sure to check and read your piazza email several times a

day because this will be the primary means of communication outside of class time.

Oracle scott/tiger database.

Cut and paste from this link into SQLDeveloper to load the emp and dept tables into your Oracle user account.

SQL from Class.

Types of Joins:

Inner Joins - the following 3 are essentially the same except for syntax:

```
select * from emp e, dept d where e.deptno = d.deptno

select * from emp e join dept d on e.deptno = d.deptno

select * from emp e inner join dept d on e.deptno = d.deptno
```

Outer Joins:

```
select * from emp e right outer join dept d on e.deptno = d.deptno

select * from emp e left outer join dept d on e.deptno = d.deptno

select * from emp e full outer join dept d on e.deptno = d.deptno
```

Self Join

```
SELECT e1.*, 'Manager is: ' || e2.ename
FROM EMP e1 left outer join EMP e2
on e2.empno = e1.mgr
```

See also http://stackoverflow.com/questions/38549/difference-between-inner-and-outer-joins for more details.

Group By:

```
select job, round(avg(sal), 2) from emp
where sal > 2000
group by job
having round(avg(sal), 2) > 3000
```

Views:

```
create view emp_v1 as select ename, job, mgr from emp

select * from emp_v1
```

Interesting Queries:

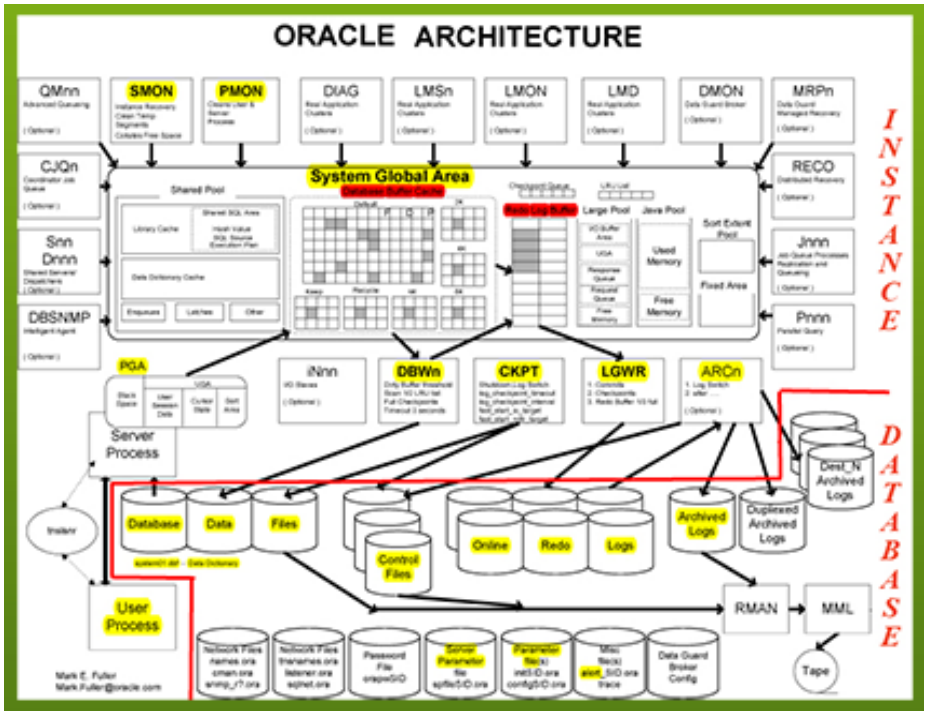
```
select e.*, nvl(sal * comm, 0) from emp e

select t.*, (select dname from dept where deptno = 10) job, "Num" * "Percent" as nump
from (select 10 "Num", 0.7 "Percent" from dual) t
where "Num" = (select deptno from dept where dname = 'ACCOUNTING')
```

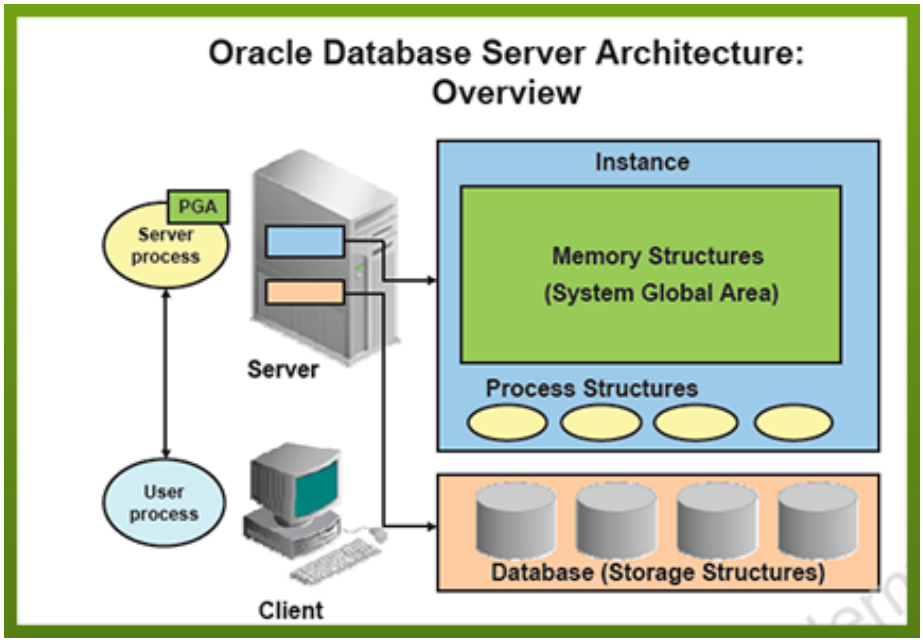
Oracle DBMS Architecture.

This is the Database Management System (DBMS) Architecture that we will be studying in this course. See the following for a detailed discussion of the Oracle Architecture

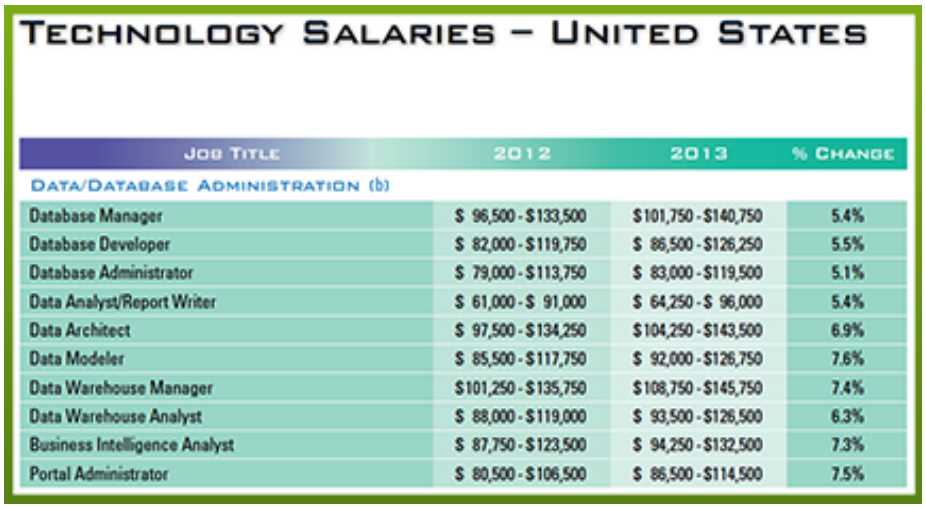
1. **See Lesson 1 of "Oracle Admin I Vol 1 D62541.pdf"**
2. **Oracle Architecture Overview**
3. **Oracle Instance Architecture**
4. **Oracle Architecture**
5. **Oracle DBMS Concepts**



Click here for a larger view.



Data Management Salaries.



TECHNOLOGY SALARIES – UNITED STATES

JOB TITLE	2012	2013	% CHANGE
DATA/DATABASE ADMINISTRATION (b)			
Database Manager	$ 96,500 - $133,500	$101,750 - $140,750	5.4%
Database Developer	$ 82,000 - $119,750	$ 86,500 - $126,250	5.5%
Database Administrator	$ 79,000 - $113,750	$ 83,000 - $119,500	5.1%
Data Analyst/Report Writer	$ 61,000 - $ 91,000	$ 64,250 - $ 96,000	5.4%
Data Architect	$ 97,500 - $134,250	$104,250 - $143,500	6.9%
Data Modeler	$ 85,500 - $117,750	$ 92,000 - $126,750	7.6%
Data Warehouse Manager	$101,250 - $135,750	$108,750 - $145,750	7.4%
Data Warehouse Analyst	$ 88,000 - $119,000	$ 93,500 - $126,500	6.3%
Business Intelligence Analyst	$ 87,750 - $123,500	$ 94,250 - $132,500	7.3%
Portal Administrator	$ 80,500 - $106,500	$ 86,500 - $114,500	7.5%

Click here to see the full report. This image comes from page 7 of the report.

- **Class Notes** **[optional items]**

January 21- Welcome and Introduction

1. **Class Notes** - Intro to Data Management Class
2. [SQLDeveloper - see Appendix E SQL Fundamentals Vol. I]
3. [SQL Fundamentals Vol. I]
4. [SQL Fundamentals Vol. II]
5. [Oracle SQL Certification - exam discounts available, ask Dr. Cannata]

January 26, 28, and February 2 - Data Modeling

1. **Class Notes - Data Models and Data Modeling**
2. [Data Modeling using Barker Notation]
3. [Hierarchical Data Models in Relation DDatabases.]
4. **[See also "Unit III - Developing a Logical Data Model" in "Oracle Data Modeling and Relational Database Design Volume 1 • Student Guide"]**
5. Generated DDL file should be passed through 2 parsers to generate 2 more DDL files:
    1. Here's how to do it.
    2. parser1
    3. parser2

4. [Unix/Linux Tutorial]
6. **Class Organization App.zip**

- **February 4, 9, 11 - Building a Simple APEX Application**
  - **Click here for an export of my APEX Airline App. that you can import into your APEX workspace.**
- **More advanced tutorials**

1. Tutorial 1
2. Tutorial 2

- **February 16 - Oracle Architecture - see documents in the middle column of this page.**
- **February 18, 23 - Transactions and Concurrency Control**

1. **Class Notes**
2. **[See Lessons 9 and 10 of "Oracle Admin I Vol 1 D62541.pdf"]**
3. **Class Notes 2**
4. An Overview of the Mechanisms of Oracle RDBMS Transactions and Logs

- **February 25 - Relational Algebra and Query Optimization Part 1**

1. **Class Notes**
2. The following schema is used in the class notes,
   1. Sporting Goods Data Model
   2. Sporting Goods Schema
3. [Reading Execution Plans]

- **March 2, 4 - B-Tree Indexing**

1. **Class Notes**

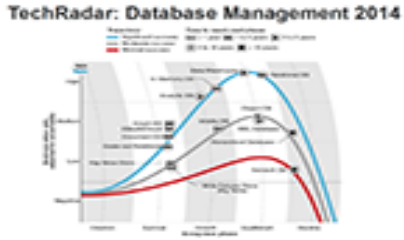
- **March 9 - Midterm Exam Reivew**

1. **Class Notes**

- **March 11 - Mid-term Exam**

1. **Solutions**

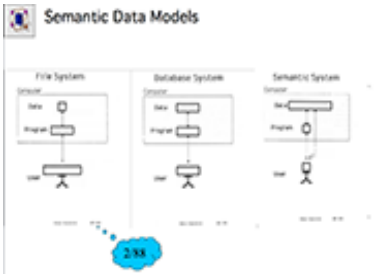
- **March 16 - Spring Break**
- **March 18 - Spring Break**
- **March 23 - Current and Future Data Management - Part 1**



- **Click here for a larger view.**

1. **Class Notes** - Triple-Store (Graph) Databases
2. [Making Sense of Graph DBMSs]
3. [MongoDB]
4. [MongoDB presentations and Videos]
5. [Summary of Graph DBMSs]

- **March 25 - Project Discussion**
- **March 30 - Current and Future Data Management Part 2**



Click here for a larger view.

1. **A Short Course on Next Generation DBMSs, 1988**
2. **[A little warning about Hadoop]**
3. **Hammer and McLeod SDM Paper**
4. **SIM**

5. My 1991 predictions

- **April 1-3 - Initial Project Reviews**
- **April 6, 8, 13 - Normalization**

1. **Normalization Class Notes**
2. **Sample Normalization Quiz**
3. [Murach pages 300 - 310]
4. [Godel's Proof]
5. [Godel without tears]

- **April 15, 20, 22 - Query Optimization Part 2**
  - **The following 3 bullet items were copied from October 6th above, which was Query Optimization Part 1**

1. **Class Notes** - in these classes, we will discuss pages 5, 7, 8, 9, 10, 12, 13, and 16 in detail
2. The following schema is used in the class notes,
   1. Sporting Goods Data Model
   2. Sporting Goods Schema
3. **Reading Execution Plans**
4. [Query Optimization Concepts]

Do *alter session set OPTIMIZER_FEATURES_ENABLE = '11.2.0.1'* for the following:

1. [Execution Plans_ Part 1 Finding plans]
2. [ExecutionPlans Part 2_ Things to see]
3. **Execution Plans Part 3_ "The Rule"**
4. [Execution Plans Part 4_ Precision and Timing]
5. [Execution Plans part 5_ First Child Variations]
6. [Execution Plans Part 6_ Pushed Subqueries]
7. [Execution Plans Part 7_ Query Blocks and Inline View]s
8. [Execution Plans Part 8_ Cost, time, etc.]
9. [Execution Plans Part 9_ Multiplication]
10. [Execution Plans Part 10_ Guesswork]

- **April 27 - 30 - Project Reviews**
- **May 4 - Selected Project Presentations**
- **May 6 - Wrap-up**

1. **Class Notes**

- **Last Semester's Selected Projects:**
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