Business School
UNIVERSITY OF COLORADO DENVER

Information Systems Program

Database Management Essentials

Module 1: Course Introduction

Lesson 1: Course Objectives

Lesson Objectives

- Gain context for this course in the specialization
- Understand targeted learners for this course
- Understand broad course objectives and prerequisite background

Data Warehousing for Business Intelligence

Course 1	Database management essentials
Course 2	Data warehouse design and data integration
Course 3	Relational database support for data warehouses
Course 4	Business intelligence concepts, tools, and applications
Course 5	Capstone course with a comprehensive case study

Targeted Learners

University students

IT professionals

Project management

Business analysts

Broad Course Objectives

- Provide a foundation of database management background for a business intelligence career
- Explain characteristics of databases and features of database management systems
- Create tables and formulate business queries using SQL
- Create entity relationship diagrams (ERDs) to represent business requirements
- Convert an ERD to a table design
- Analyze table designs for unwanted redundancy
- Reflect on guidelines and goals for query formulation, redundancy elimination, and data modeling

Prerequisite Background

- Not an introductory computing course
- Basic computing concepts and personal computing applications
- No computer programming but detailed concepts and skills

Summary

- Basic course on database management concepts and skills
- Develop knowledge and skills for query formulation and database development
- Prerequisite background for other courses in the data architectures track
- Career opportunities for IT professionals as well as business and computer science students

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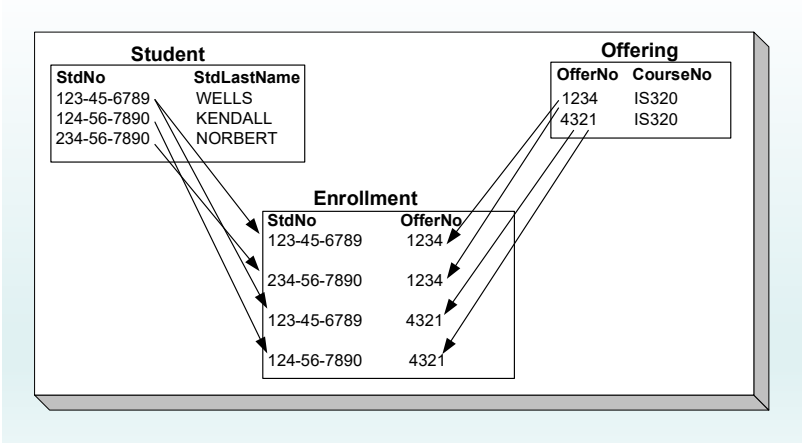
Module 1: Course Introduction

Lesson 2: Course Topics and Assignments

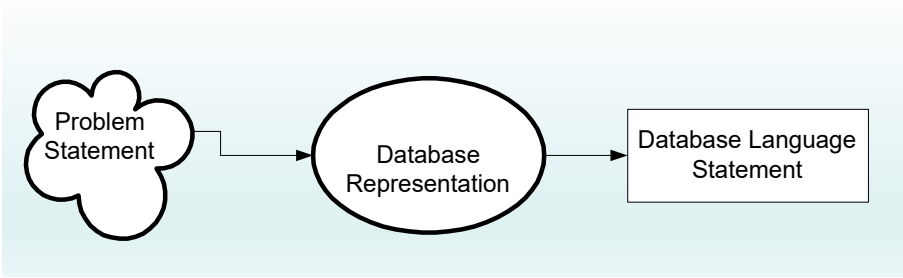
Lesson Objectives

- Understand course topics and course flow
- Understand assessments especially practice and graded problems
- Obtain software

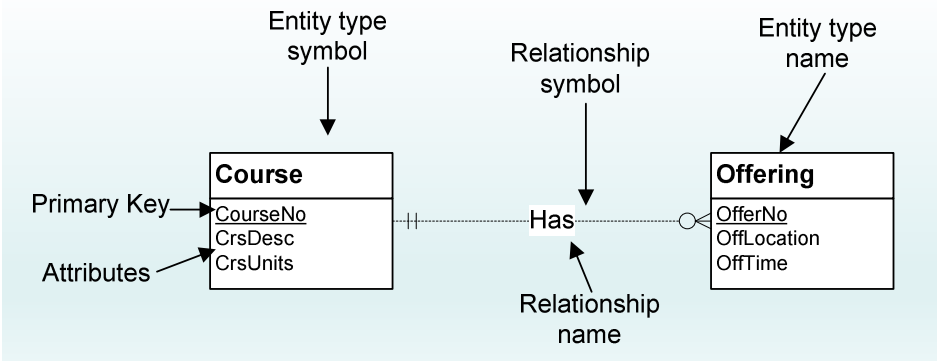
Course Topics



Integrity Rules



Query Formulation



Data Modeling

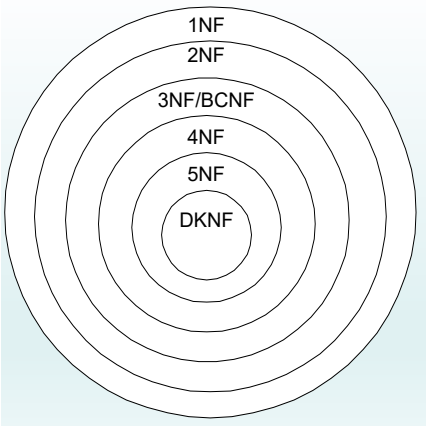


Table Design

Course Flow

Modules 1 to 3

- Course introduction
- Database characteristics
- DBMS features
- Processing environments
- Relational data model
- CREATE TABLE statement

Modules 4 and 5

- SELECT statement syntax
- Basic problems
- Guidelines
- Advanced problems

Modules 6 and 7

- Basic ERD notation
- Specialized relationships
- Diagram rules
- Detecting diagram errors

Modules 8 and 9

- Narrative problem analysis
- Transformations
- Detecting design errors

Modules 10 and 11

- Conversion rules
- FDs
- Normal forms
- Guidelines

Assessments

- Practice problem sets for most modules
  - Similar to graded problem sets
  - Solutions and detailed comments
  - Coverage of highlights in some video lectures
- Graded problem sets for most modules
  - Primary part of grading
  - Peer review for each problem set
  - Associated quizzes for some problem sets
  - Ungraded practice problems for most modules

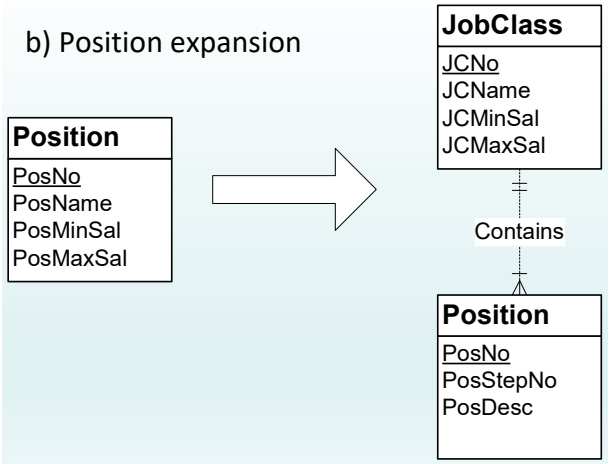
Problem Sets

```
CREATE TABLE Enrollment
(       OfferNo             INTEGER,
        StdNo               CHAR(11),
        EnrGrade            DECIMAL(3,2),
CONSTRAINT PKEnrollment PRIMARY KEY(OfferNo, StdNo),
CONSTRAINT FKOfferNo FOREIGN KEY (OfferNo)
   REFERENCES Offering,
CONSTRAINT FKStdNo FOREIGN KEY (StdNo)
   REFERENCES Student )
```

Create Tables

```
SELECT StdMajor,
       AVG(StdGPA) AS AvgGpa
 FROM Student
 WHERE StdClass IN ('JR', 'SR')
 GROUP BY StdMajor
 HAVING AVG(StdGPA) > 3.1
```

Query Formulation



Data Modeling

StdNo → StdCity, StdClass

OfferNo → OffTerm, OffYear,

CourseNo, CrsDesc

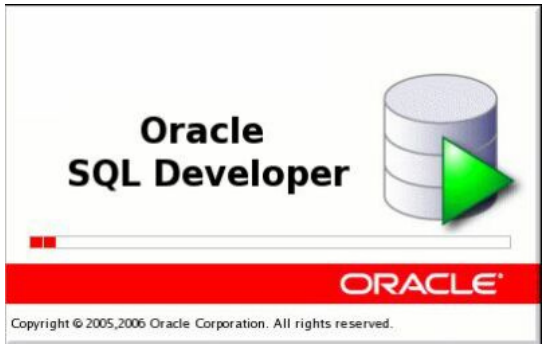
CourseNo → CrsDesc

StdNo, OfferNo → EnrGrade

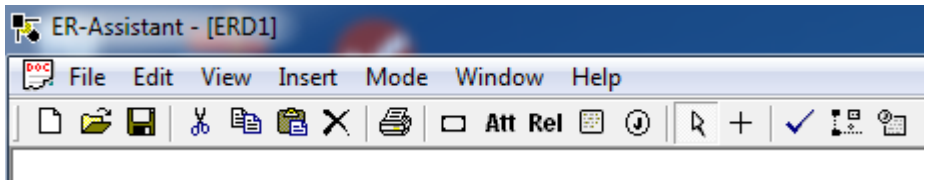
Table Design

Tools

ORACLE DATABASE



MySQL™



Summary

- Basic course on database management concepts and skills
- Detailed course topics
- Tools and assignments to develop and apply skills
- Career opportunities for information technology professionals along with business and computer science students