

SQL

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OBJECTIVES

- To understand the use of ad-hoc queries in business intelligence (BI) systems
- To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
- To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
- To create SQL queries that use the SQL DISTINCT, AND, OR, NOT, BETWEEN, LIKE, and IN keywords
- To create SQL queries that use the SQL built-in functions of SUM, COUNT, MIN, MAX, and AVG with and without the use of a GROUP BY clause

AD-HOC QUERIES

- Questions that can be answered using database data
- Example: “How many customers in Portland, Oregon, bought our green baseball cap?”
- Created by the user as needed, instead of programmed into an application
- Common in business

STRUCTURED QUERY LANGUAGE

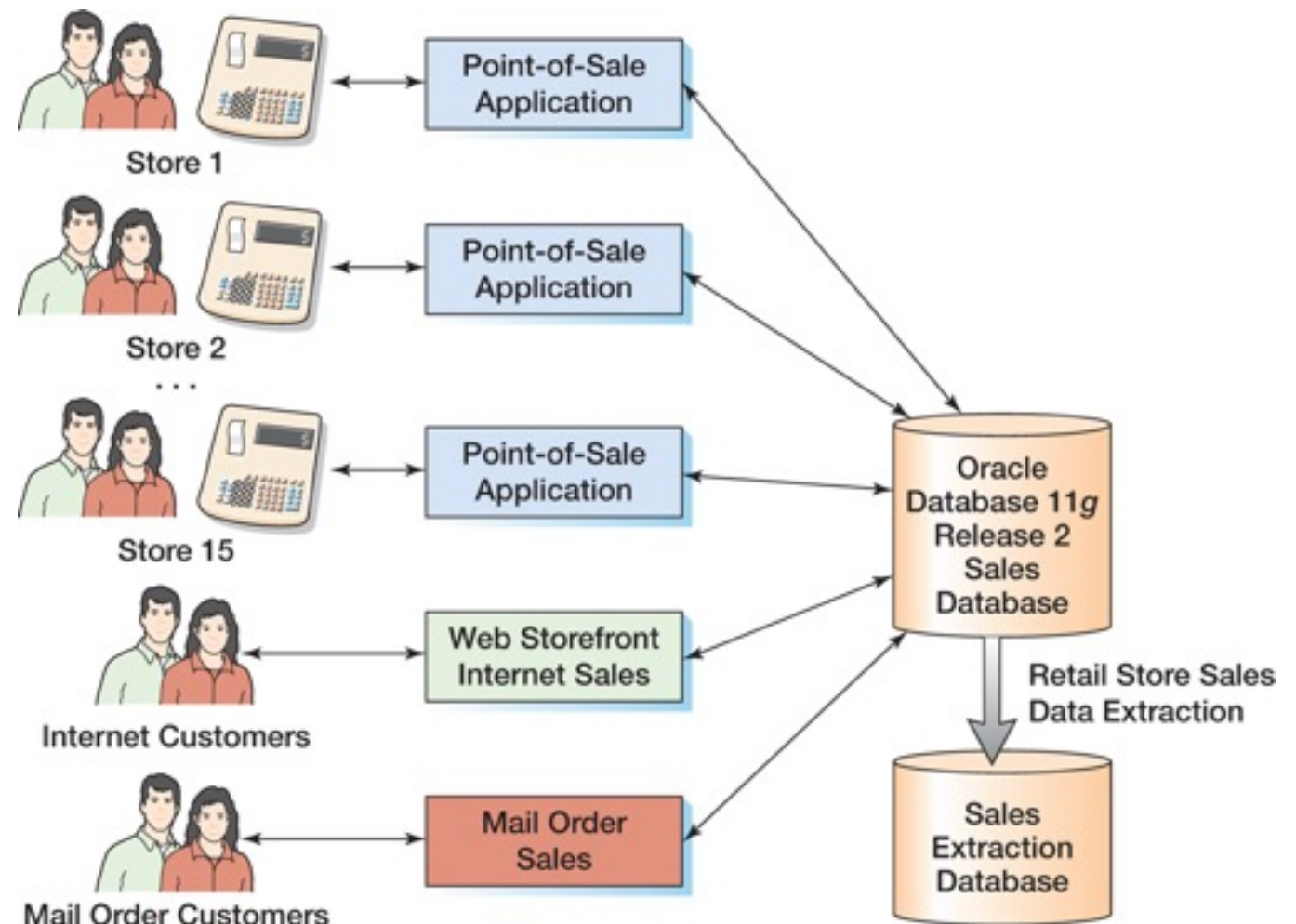
- Structured Query Language (SQL) was developed by the IBM Corporation in the late 1970's.
- SQL was endorsed as a U.S. national standard by the American National Standards Institute (ANSI) in 1992 [SQL-92].
- Newer versions exist, and they incorporate XML and some object-oriented concepts.
- SQL is not a full featured programming language.
- SQL is ubiquitous in enterprise-class DBMS products.
- SQL programming is a critical skill.

SQL DDL, DML, AND SQL/PSM

- SQL statements can be divided into three categories:
- Data manipulation language (DML) statements
 - Used for queries and data modification
 - Covered in this chapter (Chapter 2)
- Data definition language (DDL) statements
 - Used for creating tables, relationships, and other structures
 - Covered in Chapter 7
- SQL/Persistent Stored Modules (SQL/PSM) statements
 - Add procedural programming capabilities, Variables
 - Control-of-flow statements
 - Covered in Chapter 7 and 10C (MySQL 5.7)

CAPE CODD OUTDOOR SPORTS

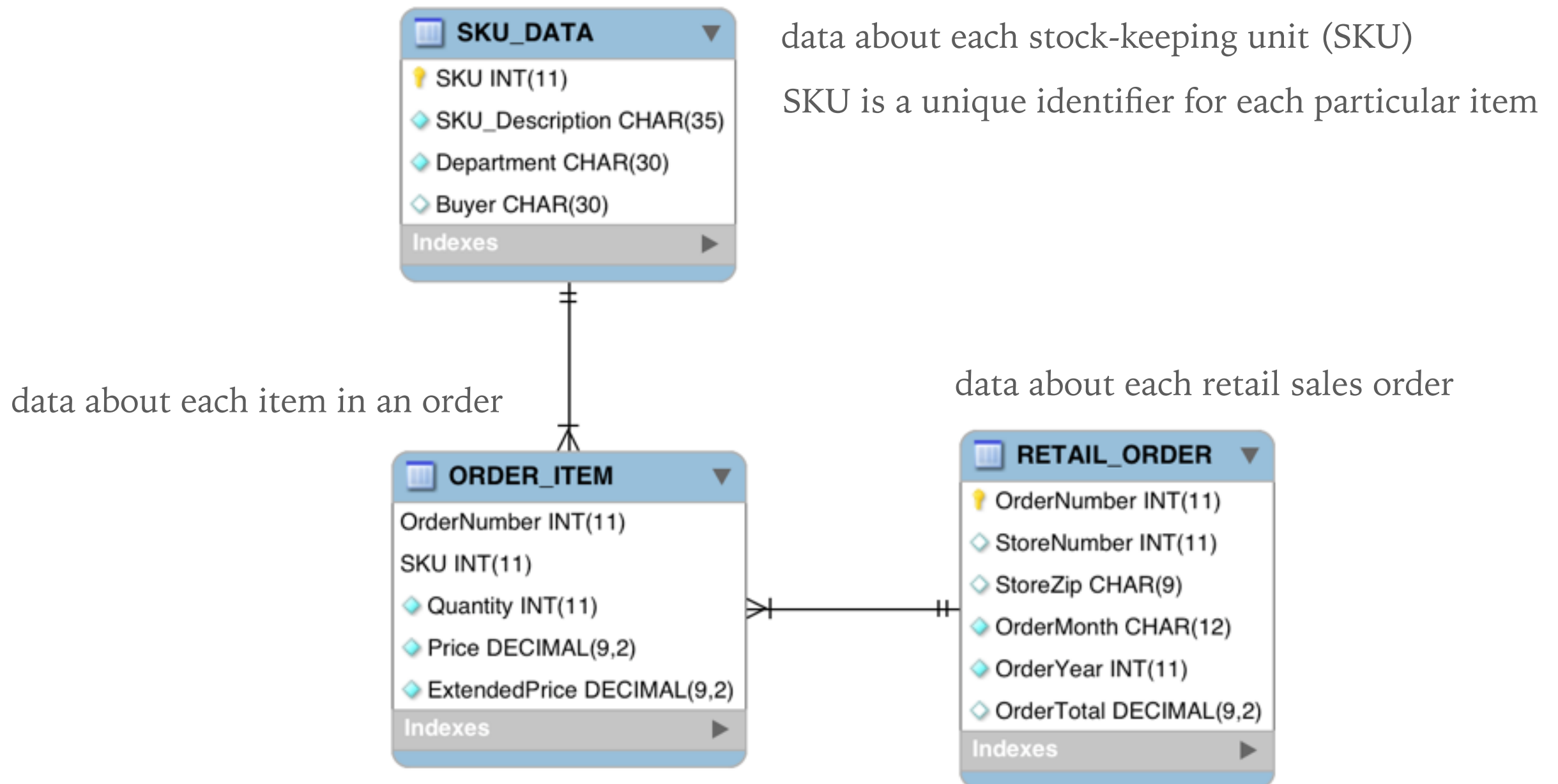
- Cape Codd Outdoor Sports is a fictitious company based on an actual outdoor retail equipment vendor.
- Cape Codd Outdoor Sports:
 - Has 15 retail stores in the United States and Canada.
 - Has an online Internet store.
 - Has a (postal) mail order department.
- All retail sales are recorded in an Oracle Database 11g database.



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ER DIAGRAM

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data about each stock-keeping unit (SKU)

SKU is a unique identifier for each particular item

data about each item in an order

data about each retail sales order

THE SQL SELECT STATEMENT

- The fundamental framework for an SQL query is the SQL SELECT statement.

```
SELECT    {ColumnName(s)}  
FROM      {TableName(s)}  
WHERE     {Condition(s)};
```

- All SQL statements end with a semi-colon (;).