

Scope and Coverage This topic will cover: The purpose of physical design Mapping the logical database design to a physical database design Designing tables for the target DBMS Creating tables using SQL

Learning Outcomes By the end of this topic students will be able to: Understand the purpose of physical design Map a logical database design to a physical database design Design tables for the chosen database product

Recap of Phases of Database Design - 1 • Conceptual database design • Logical database design • Physical database design

Recap of Phases of Database Design - 2 • Conceptual database design • Logical database design • Physical database design Activity: give a brief definition of the purposes of each of these phases and the difference between them.

Conceptual Database Design Conceptual database design involves understanding the data in an enterprise and modeling it without regard for any physical considerations or particular data models. | Conceptual Database Design | Proposition | Propos

Logical Database Design • Logical database design involves designing a model of the data in an enterprise that is independent of a particular DBMS but does take account of the chosen data model. Broper Broads Broper Broads Logical Database Design • Logical database design involves designing a model of the data in an enterprise that is independent of a particular DBMS but does take account of the chosen data model.

Physical Database Design Physical database design involves producing a design that describes the base relations and takes into account file organization, indexes, integrity constraints and security measures.

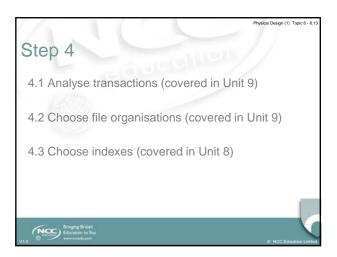
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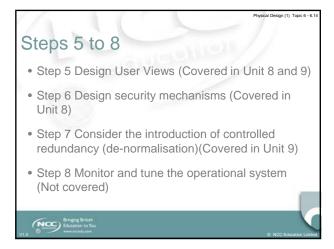
The Purpose of Physical Design Translates logical database structures (entities, attributes, relationships, and constraints) into a physical design. The physical design should be suitable for implementation by the chosen DBMS

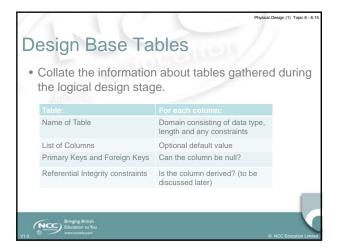
Knowledge needed of Chosen DBMS How to create base tables Does the system support the definition of primary, foreign keys and alternate keys Does the system support definition of required data (i.e. Definition of columns as NOT NULL) Does the system support domains Does the system system support relational integrity rules Does the system support the definition of business rules

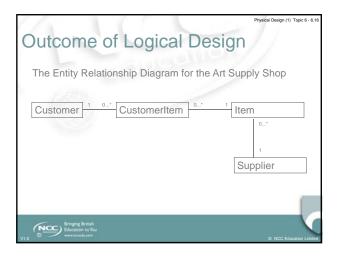
Choosing a Database Product Requirements – what suits the business Budget Compatibility with existing technology within organisaton Support available Strength of vendor

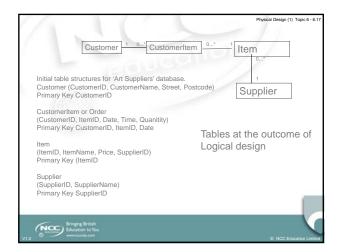
Step 3 3.1 Design Base Tables (covered in this lecture) 3.2 Design representations of derived data (covered in Unit 7) 3.3 Design remaining business rules (covered in Unit (Unit 8).

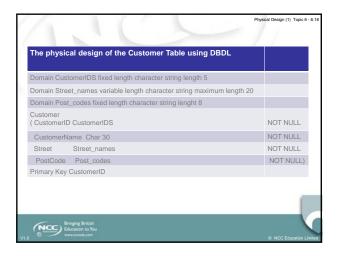


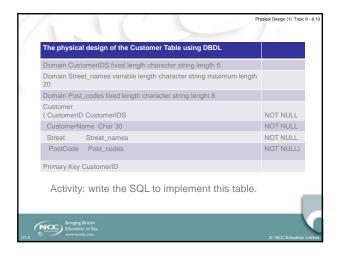


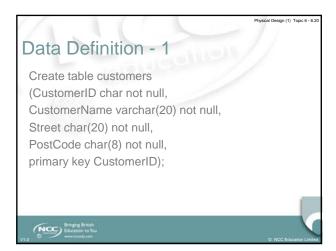


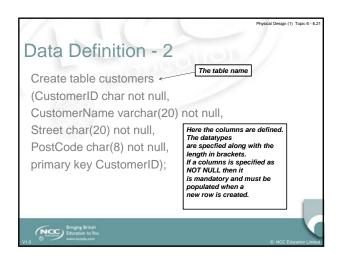


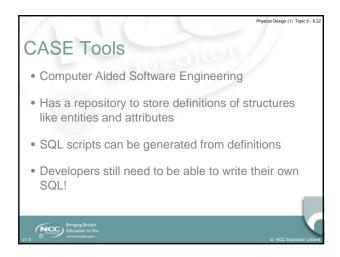


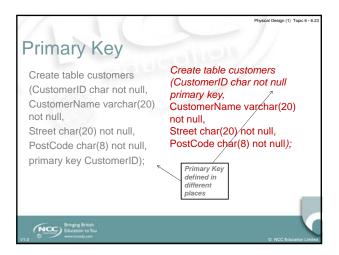




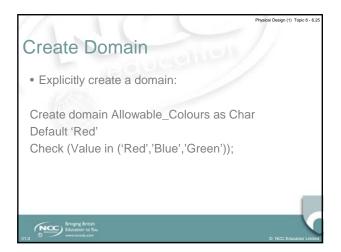




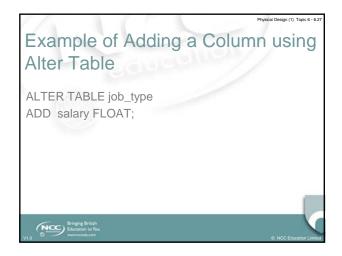












Modifying Tables using SQL Add an extra column Drop a column from a table Modify the maximum length of the table Add a new constraint Drop a constraint Set a default for a column Drop a default for a column

Example of Adding a Column using Alter Table ALTER TABLE job_type ADD salary FLOAT;

Choosing a Database Product Requirements – what suits the business Budget Compatibility with existing technology within organisaton Support available Strength of vendor

Learning Outcomes By the end of this unit students will be able to: • Understand the purpose of physical design • Map a logical database design to a physical database design • Design tables for the chosen database product Have we met them?

References Connolly, Thomas and Begg, Carolyn Database Solutions: A step-by-step guide to building database Addison-Wesley 2nd Edition 2004 Chapter 12 Choosing a database http://databases.about.com/od/administration/a/choosing a db.htm Accessed 1st June 2011 Examples of different vendor's SQL syntax http://www.1keydata.com/sql/sql-foreign-key.html Accessed 5th June 2011

