CSE Department of Computer Science & Engineering

Physical Design: Data Dictionary

Lecture 10

CSC 401: Database Management System

First Step before Physical Design

- After normalization we should think about Physical Design.
- We have to organize all the relations with their attributes.
- For this we need to make tables for the relations.
- These Tables are known as Data Dictionary.

Data Dictionary

- Data Dictionary keeps list of attributes for a single relation.
- You have to define Data type, Name in relation, Size and Remarks for those attributes.
- The name of the Relation should be on the top of the table.

Data Dictionary Example

STUDENT:

Name	Data Type	Size	Remark
Student ID	Text	7	This is the primary key of this relation. This contain the ID of the students. Example: '9710780'
Cgpa	Number		This contains cumulative grade point average of the students. Example: '3.92'
Date of Birth	Datetime	"dd/mm/yy"	This contains date of birth of the students. Example: 29/01/81
Dept ID	Text	5	Department ID of the student. This is a foreign key from Table DEPARTMENT. Example: 'CSE'

Data Dictionary: Relation Name Conventions

- In real life the Relations are considered as Tables.
- While we give a name for a Relation we can start with ‘tbl’ key so that we can understand this is a table.
- All the letters should be in the small case to avoid confusion.
- There should not be any space between the name of the relation.
- Example: for the student relation we can consider as ‘tblstudent’. For product supplier relation we can named it ‘tblproductsupplier’.
- You can use short version of the names but it should reflect everywhere and should have documentation. Like ‘tblprodsup’

Data Dictionary: Data Type

- Just like programming language all the attribute should have data types.
- The data types supported in MS SQL Server are given below:
  - Number – Integer or float number
  - Text – Any strings
  - Datetime – Date and time
  - Currency – Money

Data Dictionary: Name Convention

- The name of the attributes sometimes depends on the types of the attribute.
- If the attribute is ‘text’ type then you can start the name of the attributes with ‘c’, similarly ‘d’ for datetime, ‘n’ for number.
- There should not be any space in the name.
- You can select the short form of the name but need to clear it in the Data dictionary and should use the same name everywhere.

Data Dictionary: Conventional way

tblstudent:

Name	Data Type	Size	Remark
cstudentID	Text	7	This is the primary key of this relation. This contain the ID of the students. Example: '9710780'
ncgpa	Number		This contains cumulative grade point average of the students. Example: '3.92'
ddob	Datetime	"dd/mm/yy"	This contains date of birth of the students. Example: 29/01/81
cDeptID	Text	5	Department ID of the student. This is a foreign key from Table DEPARTMENT. Example: 'CSE'

Second Step of Physical Design

- Once Data dictionary is generated you are now sure about your relations and attributes of the relation.
- Next step we should think about how to create the relations.
- For this we have to arrange the relations in a sequential way so that there will be no problem while creating the relations.

2nd Step

- Select the relation that has no foreign keys first.
- Then select the relations which has foreign keys.
- You can't create a relation if the relation contains one foreign key from such relation which you haven't created yet.
- More will be discussed in the lab.

Thank You