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IST659 Lab 5

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1. Page 233, 5-4, 5-5, 5-6, 5-8

5-4) What are the major inputs into physical database design?

Normalized relations. Definitions of each attribute. Descriptions of where and when data are used in various ways. Expectations of requirements for response time and data security/backup, recovery, retention and integrity.

5-5) What are the key decisions in physical database design?

Choosing the storage format for each attribute from the logical data model. DBSM guidance for how to group logical model into physical records. DBSM guidance for arranging secondary memory. Selecting structures for storing and connecting files to make retrieving data more efficient. Strategies for handling queries with enhanced performance.

5-6) What decisions have to be made to develop a field specification?

Data type/storage type used to represent values of the field + data integrity controls built into the database, and the mechanisms that the DBMS uses to handles missing values of the field. Display format is also part of the specification of the information system.

5-8) What are the objectives of selecting a data type for a field?

Represent all possible values. Improve data integrity. Support all data manipulations. Minimize storage space.

1. Page 234, 5-32, 5-33

5-32)

I think I would have to work under some assumptions to assign a default age, and I might even need to set multiple default ages selecting on different variations of school within the university/degree sought. First, I would start with undergraduate programs, and potentially the schools that these belong to – hoping that they are both exclusively related to one another, otherwise I might need another constraint. But I would set the default age to 18, assuming that a majority of the students entering an undergraduate program are coming straight out of highschool. This would eliminate the number of records that must be updated. If there is a graduate program, I would probably act under the assumption that the students take 4 years to complete their undergrad and enroll directly into a graduate degree, meaning the default age would be set to 22. This would likely not be as thorough a default as the initial one. We could also consider PhD programs, or perhaps conduct analysis. One thing not taken into consideration above is potential transfers from different schools, as their default value would be 18, but their age may vary based on their progress of their degree.

5-33)

I would argue that the observation “Undecided” is not in fact a null value. A null value would be represented by a blank/empty field within a table. A null value would be more representative of a college not having the actual information required to insert it into the table, while undecided is a choice of the student. The key is to be able to differentiate between the actual null values, and the “undecided” records. That being said, I would not rely on using “undecided” as a default- I would consider, however representing the default as something just to have a character string prevalent to filter on- For example, “MajorNotChosen” to stand in for the null values until they are overridden.

Questions 2+3. SQL Command

Tested in SQL Remote Lab.

**IF EXISTS (SELECT \* FROM INFORMATION\_SCHEMA.TABLES WHERE TABLE\_NAME = ‘Product’)**

**BEGIN**

**DROP TABLE Product**

**END**

**GO**

**CREATE TABLE Product (**

**ProductID int identity primary key**

**, ProductName char(30) NOT NULL**

**, ProductDescription varchar(255)**

**,QtyOnHand int NOT NULL DEFAULT 0**

**)**

**GO**

