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06/24/2018

Create Simple database

During last INFO 340 lecture, we have talked about database constraints, abstraction layer, ERD and Meta-Data worksheet. They are the techniques that can be used to create database in more efficient way. Each of the techniques have purposes and benefits of using such technique. The following answers explicitly explains the purposes and benefits.

1. Explain the purpose of database constraints.

Although not a sole purpose, the priority purpose of database constraints is to keep the data consistent. In other word, “The whole purpose of constraints is to maintain the **data integrity**during an update/delete/insert into a table” ( Java et al., 2018).  As we have learned in info 340 lecture, one of the most important aspect about database is trust. We need data that we can trust so that we can use data with integrity. In order to trust data, data should be consistent. And to keep the data consistent, we can use database constraints. The constraints follow entity integrity, domain integrity and referential integrity to keep the constraints effective and consistent to reserve the data trustworthy. Additionally, there are several constraints including primary key, foreign key, unique, check and nullability (Roots, 2018).

1. Explain the benefits of an abstraction layer.

### Before stating the benefits of an abstraction layer, let’s clarify what abstraction layer is. In my word, the abstraction layer is the layer that ‘abstract’ away details. Abstraction layers separates the interface which users can use and what is happening in the system. Programmers have decided to use abstraction layer because of five strong benefits. They are development period,Wider potential install-base, Future-proofing, developer testing and added database features (Wiki, 2018). Through usage of abstraction layer, the programmer only have to know the database abstraction layer instead of the database which the programmer’s application should support, which save a lot of time. Abstraction layer also allow new installation to utilize a specific database without any requirements. Amongst many benefits, the biggest benefit of an abstraction layer is that it allows for maximum flexibility and guarantees that when additional business applications need to access the database, it isn’t necessary to make significant changes to support them (WhatIs.com, 2018). Very common examples of abstraction layer are view and function.

1. Discuss the purpose and ERD and Meta-Data worksheet.

Before construction of database, there are several steps that needs to be completed to improve the quality of database and reduce error. The most common but effective techniques are ERD and Meta-Data worksheet. With my personal experience, ERD is the first step that should be considered in construction of database. The construction/programmer can visualize the database format, structure and connection between tables using ERD. Since the construction of database is very sensitive and error generating work, there is high probability of issues and error without a roadmap. And the ERD can be perfect roadmap design for database. Additionally, ERD works dramatically efficient in determining interactions between entities and cardinality of the relationships (Techopedia.com, 2018). Very similar to ERD, the Meta-Data worksheet work as a guideline to construction of table especially in the fields including data type decision and constraint decision. By using Meta-Data worksheet, one can effectively reduce mistakes and error during database design.

1. Explain the steps involved with designing a simple database.

In designing simple database, one must start with discovering entities and assigning attributes. Once designer reviewed the data and identified the entities, designer can start with developing simple ERD to provide simple guideline to design. After development of ERD, design should create a Meta-Data worksheet to determine data types and constraints for each columns in each tables to avoid making mistakes. Once designer closely reviewed entities, develop simple ERD and create Meta-Data worksheet to plan constraints to each columns in each table, design can plan a abstraction layer including views and functions. Once all the procedure stated are done, designer should review ERD and update ERD if necessary. Finally, designer should construct a database based on ERD and Meta-Data by writing actual code. (Roots, 2018)

Through this assignment, I was able to understand purpose of database constraints, ERD and Meta-Data worksheet and benefits of abstraction layers. Also, the detailed procedure of designing database provided clear guideline which I could use as a reference in the future.

Work Cite

(Roots), 2018, Module02Notes.

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