Scroll down and click "Respond" to post your reply to the Discussion topics. Please review the Discussion Board Participation grading rubric on your course Syllabus.

The Discussion Board Participation grading rubric contains important information that will ensure that you earn maximum points. Your postings should be qualitative and provide substantive depth that advances the discussion.

Topic 1 Discussion Topic: Database Security/Data Warehousing/Business Intelligence

Review an article from the Kaplan Library published in the last 6 months that reviews database security, data warehousing or business intelligence. Provide a 200–300 word summary and provide the reference in APA format.

The Holistic Approach	Edward Jackson		6/7/2014 4:15:36 PM

The Kaplan Library article I have selected for review is, "Five Questions That Can Help Secure Big Data." The main points of interest that the article elaborates on are big data governance, transactional data volumes, and selecting new data types associated with mobile and social technologies. The focus of the five security questions is related to database management and what data security really means from a holistic perspective. Chew (2014) states that there are a myriad of reasons why securing data is actually becoming more challenging, and they have to do with things like growing complexities in the enterprise world, increased volume of data types, extremely high growth of transactional data volumes (basically ever-expanding databases), as well as internal and external threats (Chew, 2014). The Five Questions

The first question that was posed was, "Can we trust our sources of big data?" A truly important question, because if you fill a database of untrustworthy data, the results or output (such as reports) also become untrustworthy; the data becomes a liability rather than an asset. (Chew, 2014)

The second question is, "What type of information are we collecting, and are we exposing the enterprise to legal and regulatory challenges?" If you think about this, even if the information is accurate and is highly useful, is it legal? For example, let's say I'm collecting financial or healthcare-related information about clients; these types of information have state and federal regulations that must be adhered to (such as HIPAA and SOX). (Chew, 2014)The third question is, "How do we protect our sources, our processes, and our decisions from theft and corruption? How can we improve on this?" This questions can create a complex set of solutions that have to be enforced by companies. This type of security can be achieved through physical

security, policies, procedures, and proper training. (Chew, 2014)

The fourth question is, "What policies and processes do we have in place to ensure that employees keep stakeholder information confidential during and after employment?" When it comes to databases, limiting who has access to the database is a good start. Another excellent strategy for protecting the database is auditing data access. Running audit reports provide database security officers and management with the necessary compliance information. Of course, other great protection strategies could include encrypting the database, backing up the database, and doing background checks on anyone who has access to the database. (Chew, 2014)

And finally, the last question is, "Which of our actions might create trends that can be exploited by our rivals?" This last question is interesting; trends could be something as simple as releasing [too much] information to the public, to not releasing enough product information (meaning not being innovative or agile). If the rivals can compile known data points…and then use that information against you, they will. (Chew, 2014)

Kaplan Library Reference

Chew, R. (2014). Five Questions That Can Help Secure Big Data. Baseline, 1.

Direct article Link:
http://eds.a.ebscohost.com.lib.kaplan.edu/eds/detail?vid=8&sid=0c98eae8-6ff7-47d9-9889-62879766b137%40sessionmgr4003&hid=4211&bdata=JnNpdGU9ZWRzLWxpdmU%3d#db=bth&AN=95747571

Some DB Security Countermeasures

Database Security

Countermeasures

- ✓ Apply the security patches
- ✓ block your firewall ports used by database
- ✓ validate input to the database
- ✓ remove unwanted stored procedures
- ✓ use stored procedures for repetitive works

http://securitywing.com/wp-content/uploads/2012/08/database-security-issues.png

Topic 2 Discussion Topic: Applying What You Have Learned

Identify how you would apply database security to the database that you have defined as part of your project or identify how you would design a data warehouse based on your project.

Standard   Edward Jackson   6/7/2014 4:47:51 PM

Security

I haven't designed my database yet, but I would consider many of the normal security measures associated with protecting data in general.

The first measure would be physical security. It doesn't matter how secure your database is if someone can just walk out the door with it. I would put the database on servers behind locked doors–most likely in a datacenter. I would also install cameras to monitor the servers.

A second form of security I would implement would be to limit network access to the database itself. I could do this using a role-based approach, security permissions on the servers, or building groups with proper permissions in something like Active Directory.

A third measure would be to implement auditing, meaning monitor and report who is accessing the data in the database.

A fourth security measure I would implement would be to do background checks on my database security officers and database administrators. By screening for criminal history, I will reduce the chances of my database falling into the wrong hands.

A fifth measure, and highly important, I would make sure my servers and my database have all the latest critical and security patches available. I would first test these updates in a lab environment, submit a change control request for patching, and then apply these patches to my servers. These patches will reduce the chance that a hacker exploits a known weakness on my server or in the database.

One last thing, and sometimes forgotten, is that I would make sure my staff is always up-to-date with their training and education. Employees that have not been trained can cause all types of problems in the administration and development of databases.

Reference

Osbourne, Charlie. (06/26/2013). The top ten most common database security vulnerabilities. Retrieved from
http://www.zdnet.com/the-top-ten-most-common-database-security-vulnerabilities-70000173 20/

Relational Database Security, Data Warehouses, and Business Intelligence

Advanced topics within databases include database security, data warehouses, and business intelligence. This unit will review the role of the database administrator and the steps to provide a secure database and an information security framework. The review of a data warehouse will include a review of the data warehouse architect, the steps necessary to prepare for a data warehouse, the steps to load a data warehouse from multiple relational databases and how business intelligence provides a comprehensive business decision support framework.

Outcomes

After completing this unit, you should be able to:

- Define security requirements of relational databases.
- Define the characteristics of data warehouses.
- Define the characteristics and importance of business intelligence.

Course outcome(s) practiced in this unit:

IT525-5: Analyze advanced database concepts.

What do you have to do in this unit?

- Complete the assigned Reading.
- Participate in the Seminar or complete the Alternative Assignment.
- Participate in the Discussion Board.
- Complete the unit Assignment.

Chapter 15 reviews the information security framework, the steps necessary to provide a secure database and the roles of a database administrator to provide a secure database.

Chapter 13 reviews the data warehouse framework, the benefits of a data warehouse, the characteristics of a data warehouse and the steps for building a data warehouse as well

as the steps to load data from transactional databases. A review of data mining techniques and the framework to provide business intelligence will be provided as well.

Web Reading

Kimball, Ralph. (2008). Data **Warehouse** Lifecycle Toolkit: Practical Techniques for Building Data **Warehouse** and Business Intelligence Systems. Edition: 2nd ed. Indianapolis, IN : Wiley Pub. 2008. eBook. Via Kaplan Library. **Chapter 6, sections "Making the Case for Dimensional Modeling," "Dimensional Modeling Primer," and "More on Dimensions," subsections "Date and Time" and "Slowly Changing Dimensions."**

- **Business Intelligence:** Reporting and analysis of data stored in a warehouse for the purpose of gaining a competitive advantage in the marketplace.

- **Business Process Dimensional Modeling:** A discipline that optimizes the data to deliver on both goals of business; users' ease of use and BI query performance.

- **Data Mart:** A department specific data warehouse. There are two types of data marts: independent and dependent. An independent data mart is fed data directly from the legacy environment. A dependent data mart is fed data from the enterprise data warehouse. In the long run, dependent data marts are architecturally much more stable than independent data marts.

- **Data Warehousing:** Overall process of providing a central point to obtain information that supports the business decision making process.

- **DW/BI System:** Complete end-to-end data warehouse and business intelligence system.

- **ETL:** Extraction, Transformation, and Loading. ETL is the process of drawing data from multiple different sources, modifying it to make it all consistent, and then loading it all into a common system.

- **Data integration:** Data contained within the boundaries of the warehouse. Integration manifests itself through consistency in naming convention and measurement attributes, accuracy, and common aggregation.

- **Data Mining (DM):** The set of activities used to find new, hidden, or unexpected patterns in data. A synonym for data mining techniques is knowledge data discovery (KDD).

- **Data Administrator (DA):** The person responsible for managing the data resource at an organization. The DA is broader than a DBA.

- **Database Administrator (DBA):** The person responsible for planning, organizing, controlling, creating and monitoring the centralized and federated database systems within the organization.
- **Database Security Officer (DSO):** The person responsible for the policies and processes to ensure the security and integrity of the data within the databases.
- **Security Policy:** A collection of standards, policies and procedures to ensure the security and integrity of a system.

Project 5

IT525-1: Review database design methodologies.

IT525-2: Use data modeling concepts.

IT525-3: Use entity-relation diagrams in the design of a database.

IT525-4: Construct relations in first, second and third normal form.

Project Instructions:

Submit your solution as an MS Word document containing all the required components.

Note to Students:

The requirements for the Unit 5 Assignment are below. The requirements should be clear from that, but if you have any questions, please do not hesitate to ask by e-mail.

A Unit5.Sample Assignment document has been posted to Doc Sharing.

You are invited to e-mail the Professor a preliminary design for feedback by the Sunday prior to its due date. Send a Word document via e-mail. This might help you avoid major errors.

If you are having difficulty meeting the minimum requirement of 5 tables, let the professor know by e-mail. The professor can suggest an increase in database scope/purpose.

PLEASE keep your database design simple — have no more than 10 tables, including associative entities. If you must, narrow the scope of your database design in order to meet this requirement.

Project Requirements:

You will design a database. Questions and problems from Chapters 3, 4, 5, and 6 can be used as the concept for the database you create for this project. You will start by defining the purpose of the database and the information the database is to provide. Then you will normalize your database and create an ERD. Next, you will define the purpose of each table and build a data dictionary. Finally, you will show sample data for each table.

Part 1. Database Definition

1. Define the purpose of the database.

2. Define the requirements of the application. Answer the questions of who are the users, how will the database be used,

Part 2. Database Design

3. The project must include at least 5 tables, and should have no more than 10 tables.

4. List the entities of your database.

5. Present the business rules that determine connectivity, using the format requested for the Unit 1 Assignment. Do not give rules for links to associative entities; simply give the M:N relationship rules and the name of the associative entity you will use for that relationship.

Example:

ClientFamily – Pet (Adoption)

A client family may adopt many pets.

A pet may be adopted by many client families (but only one at a time).

ClientFamily M:N Pet. Associative Entity: Adoption

6.Draw the ERD and paste the drawing into your Word project document.

*Note: You may use MS Visio or another diagrammatic software package to create your final ERD and UML diagrams, but you must copy those diagrams into MS Word for submission since you may opt to utilize software packages that are unavailable to your instructor.

7. Review ERD participation and constraints and provide the updated ERD.

8. Review the ERD and provide an updated ERD if the ERD from step 7 is not in 3NF.

Normalization:

1NF – <The three rules for 1NF should be stated and it should be asserted that these are met by all tables.>

2NF – No <state what is checked for> exist in any of the tables.

3NF – No <state what is checked for> exist in any of the relations.

Part 3. Database Documentation

9. Define the purpose of each table and provide a data dictionary. The tables are to be of your own design. You should ensure your design is in 3NF before providing this level of detail.

Data dictionary

State the table name and the purpose of the table. Then in a Word table (one Word table for each of your tables; see the Unit 3 Sample Assignment), give the fields, description of each field, data type of each field (including length for character or decimal fields), whether or not each field allows NULL values, and whether the field is a primary key (or part of a primary key) or is a foreign key. Following is a sample part of a data dictionary for a FosterHome table.

FosterHome: Describes basic information for a foster home

Field	Description	DataType	Allow Nulls	Key
FosterHomeID	Unique ID of FosterHome	INT	Does not allow nulls	Primary Key
ContactFirstName	First name of foster home contact person	VARCHAR (25)	Does not allow nulls.	Not a Key
ContactLastName	Last name of foster home contact person	VARCHAR (30)	Does not allow nulls.	Not a Key
Address	Street address of foster home	VARCHAR (40)	Does not allow nulls.	Not a Key
City	City where foster home is located	VARCHAR (30)	Does not allow nulls.	Not a Key
State	State where foster home is located	CHAR (2)	Does not allow nulls.	Not a Key
Phone	Phone number of foster contact person	VARCHAR(20)	Does not allow nulls.	Not a Key
PetType	Type of pet foster home will accept	VARCHAR (20)	Does not allow nulls.	Not a Key
Capacity	Number of pets foster home will accept	INTEGER	Does not allow nulls.	Not a Key

Note: A max length of 20 was considered adequate for formatted phone numbers because no clients or foster homes will ever be outside of the US. Zip code wasn't needed since the database isn't being used for mailing but to keep track of physical locations.

Part 4. Create Sample Data

10. Convert the schema into tables within a MS Word Document. Each table should have at least 5 tuples/rows but no more than 10 tuples/rows of example data. Take care that your sample data in each column match the data type specified for that column in your data dictionary. Please ensure that any foreign key values match an existing referenced value.

An example of a table with sample data:

FosterHome: Describes basic information for a foster home

Foster HomeID	Contact FirstName	Contact LastName	Address	City	State	Phone	PetType	Capacity
						(207) 555-9999		
1001	Laura	Martin	72 Elm St	Saco	ME	begin_of_the_skype_highlighting (207) 555-9999 FREE end_of_the_skype_highlighting	Cats	8
						(207) 555-8888		
1002	Julie	Prince	43 Oak Rd	Wells	ME	begin_of_the_skype_highlighting (207) 555-8888 FREE end_of_the_skype_highlighting	Cats	12
						(207) 555-7654		
1003	Steve	Smith	22 Maple Dr	York	ME	begin_of_the_skype_highlighting (207) 555-7654 FREE end_of_the_skype_highlighting	Dogs	2
						(207) 555-4567		
1004	Isabel	Harper	64 Rhea Ct	Saco	ME	begin_of_the_skype_highlighting (207) 555-4567 FREE end_of_the_skype_highlighting	Cats	14
						(207) 555-9876		
1005	Pat	Shawn	87 Pine Ave	Wells	ME	begin_of_the_skype_highlighting	Cats	6

Review the grading rubric below before beginning this activity.

150 point project grading rubric

Project Requirements/criterion	Points Possible	Points earned by student
1. Define the database purpose and requirements. (Project Part 1)	0–10 points	
2. Formally document your database design. The project must include at least 5 tables, and should have no more than 10 tables. (Project Part 2) • List the entities of your database.(10 points) • List the business rules relating your tables, using the format from Unit 2.(25 points) • Draw the ERD and paste the drawing into your Word project document. (25 points) • State 3NF rules and state that all tables are in 3NF. (15 points)	0-75 points	
3. Complete your database design. (Project Part 3) • Create your data dictionary identifying table names, purpose and correct attributes. (15 points) • Identify data types. (15 points) • Identify Primary Keys and Foreign Keys. (15 points)	0-45 points	
4. Show sample data to your defined tables.(Project Part 4)	0-20 points	
Total (Sum of all points)		
Points deducted for spelling, grammar, and/or APA errors.		
Adjusted total points		

Attending live Seminars is important to your academic success, and attendance is highly recommended. The Seminar allows you to review the important concepts presented in each unit, discuss work issues in your lives that pertain to these concepts, ask your instructor questions, and allow you to come together in real time with your fellow classmates. There will be a graded Seminar in Units 1 through 5 in this course. You must either attend the live Seminar or you must complete the Seminar alternative assignment in order to earn points for this part of the class.

Topics reviewed in the Seminar will include:

- Review the concept of Normalization
- Review 1st, 2nd, and 3rd Normal Forms
- Development of a Normalized a Database Design
- Define security requirements of relational databases.
- Define the characteristics of data warehouses.
- Define the characteristics and benefits of business intelligence.
- Project 5 and 6 requirements.

Option 2- Alternative Assignment:

You will benefit most from attending the graded Seminar as an active participant. However, if you are unable to attend you have the opportunity to make up the points by completing the alternative assignment.

Please review the Seminar. Provide a 200 word summary of the Seminar. Follow APA format. Include at least two references and two citations.