**MIS 310 Week 3 Homework (30 points)** Name: Megan Leonard

You will not be given credit for answers that are copies or near verbatim transcripts – please use your own words and document sources where appropriate using proper APA guidelines. Apply the principles learned in this chapter (chapter 3) or previous chapters to answer the questions for this assignment.

**Chapter 3 Learning Outcomes**

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| * Identify and briefly describe the members of the hierarchy of data. * Identify the advantages of the database approach to data management. * Identify the key factors that must be considered when designing a database. * Identify the various types of data models and explain how they are useful in planning a database. * Describe the relational database model and its fundamental characteristics. * Define the role of the database schema, data definition language, and data manipulation language. * Discuss the role of a database administrator and data administrator. * Identify the common functions performed by all database management systems. * Define the term big data and identify its basic characteristics. * Explain why big data represents both a challenge and an opportunity. * Define the term data management and state its overall goal. * Define the terms data warehouse, data mart, and data lakes and explain how they are different. * Outline the extract, transform, load process. * Explain how a NoSQL database is different from an SQL database. * Discuss the whole Hadoop computing environment and its various components. * Define the term in-memory database and explain its advantages in processing big data. |

**Week 3 Review Questions (10 points)**

Answer the following questions in one or more paragraphs using proper APA format as required**:**

1. [2 points] In the hierarchy of data, what is the difference between a data attribute and a data item? What is the domain of an attribute?

Data attributes are the characteristics that are assigned to an entity such as name or number, while the data item is the specific value of the attribute. The domain of an attribute is the range that the value of the attribute must fall on else it can not be added correctly. For example, we have an entity named Bob, his attribute would be the phone number he gave, the data item is the number itself being 555-875-9652, and the range would be the amount of positions in play meaning there has to be 10 numbers, filling 10 positions as it is a phone number.

1. [2 points] What is database as a service (DaaS)? What are the advantages and disadvantages of using the DaaS approach?

Database as a service is when the database is stored on a server that the provider lets people subscribe to online letting the database administration be handled by the providers. Some advantages of this are that the subscriber does not have to put a lot of work into the administration, they can focus on other projects, and their database is automatically backed up. The disadvantages are that the subscriber does not get to work in the database administration so they must rely on the outside source and if something happens to the provider the data stored in their database could be lost and the backups would be based on the user-defined retention period. This means that they only keep more up to date back ups and in the chance, something happens to them, the subscriber will have to find a new provider and hope their work can transfer and will not need changed.

1. [2 points] What is concurrency control? Why is it important?

Concurrency control is the plan of how to deal with two or more people needing to access the same record at the same time. This is important because changes in the record could not change for both and cause a mix of shown and updated data leading to the record to be incorrect.

1. [2 points] What is big data? Identify three characteristics associated with big data.

Bit data is when a data collection is too big and complex for traditional data management to deal with them. The three characteristics are volume, velocity, and variety. The volume for data in the digital universe is 4.4 zettabytes. The velocity sends the data out at 5 billion bits per second. Variety shows that there are so many different types of data from audio to video that the list goes on. Trying to use traditional data management methods for these characteristics would end with a headache and the loss of some brain cells. This is why big data is in play for these large characteristics and has its own way of management.

1. [2 points] What is a data lake, and how is it different from a data warehouse?

A data lake is a space that stores all data in its raw and unaltered form as its approach to big data. The data warehouse will extract the data, discard some, modify the extracted part, then it will load in the data in an altered form.

**Week 3 Critical Thinking Exercise (10 points)**

Read the following and answer the questions in one or more paragraphs using proper APA format as required**:**

***Walgreens Data Assimilation***

*As of this writing, Walgreens plans to acquire Rite Aide in a move that would combine the nation’s second- and third-largest drugstore chains by market share, behind only fierce rival CVS Health. If this acquisition is approved, Rite Aide customer data will need to be assimilated into Walgreens’ information systems. For pharmacy customers, this includes sensitive information, such as personal data, details of medications prescribed, health insurance identification codes, and doctors used. Walgreens will need this data to provide smooth and uninterrupted service to the old Rite Aide customers. In addition, Walgreen has in place a system that automatically checks each new medication prescribed against other medications the customer is taking to ensure there will be no adverse drug interactions. The data must be captured in such a way that ensures its accuracy and completeness.*

1. [2 points] Identify specific federal regulations that apply to the use and management of Walgreens and Rite Aide data.  
   Specific federal regulations for the regulation of the data the Rite Aide have would include acts like the food drug and cosmetic act and tamper-resistant prescription law of 2007. The FDCA led to making sure that each drug they had and gave to the patients was safe to consume if it was an oral medicine and that it is safe to use with proper testing behind it so it will not poison people. The tamper-resistant prescription law makes it so that the prescriptions should not be able to be altered once it is given to the patient. This means that the doctor can send an electronic version to the pharmacy or give a written prescription that is unable to be changed. Walgreens needs to be careful with the data transfer as a breach could lead to the leak of personal data.
2. [2 points] Would it make sense for Walgreen to appoint a data governance team to oversee the Rite Aide data assimilation process? What might the responsibilities of such a team be?

This would make sense as they are transferring very personal data that done wrong would affect them as a whole. The team might be responsible to make sure that the data they plan to assimilate is set up in a way similar to their other data so that they do not end up loosing any necessary parts during the transfer. They may also need to be overseeing the progress of the data being transferred and how it is set up in the new system.

1. [3 points] Do you think that Walgreens should attempt to automate the process of assimilating Rite Aide customer, insurance, and medication data into its systems? Or, should Walgreens design an efficient manual process for former Rite Aide customers to provide the necessary data prior to or on their initial visit to a Walgreens pharmacy? What are the pros and cons of each approach? Which approach would you recommend?  
   I would recommend a mixture of manual and automated. A manual process means that a person will be looking at each part and can interpret the data given and know how it would transfer. They could copy over the data into its correct areas as they would type up a new customer. The con for this is that humans are not perfect and could make mistakes whether it is switching a number or a letter and that could lead to problems especially if it involves the number of refills a person has. An automated system would be able to run faster and could avoid small human errors with switching letters and numbers. The downside is that the code could have problems that are not caught until it has already altered the database. This could be it accidentally replacing previous data changing the patient Linda Jones into Doug Castle causing Linda to be unable to get her medication. This is why I think it is best to have a mixture of the two. This would most likely be having the program that can add the data while having a person look over the data that is to be added and make sure the process runs without any mistakes with checking the data once it is entered as well.
2. [3 points] Identify several potential negative consequences resulting from poor execution of the data assimilation process.

Potential negative consequences for poor execution could be the loss of patient data whether it is a newly acquired one or a previous Walgreens patient. This loss would lead to problems when a person needs to get their medication especially if it is medication that could cause them harm if they do not take it such as heart medicine and blood thinners. There could also be leaks in the data causing people to get others personal information that the patient trusted the pharmacy with. This could lead to taking another person’s medicine to lawsuits against Walgreens.

**Week 3 Case Study (10 points)**

Read the following and answer the questions in one or more paragraphs using proper APA format as required**:**

***WholeWorldBand: Digital Recording Studio***

*WholeWorldBand is a collaborative online music and video platform that enables anyone to collaborate with others to create music videos. The service was founded by Kevin Godley, a musician and music video director, and is accessible via a Web-based app available on the iPhone and iPad and on Windows and MacOS computers. Anyone can contribute to WholeWorldBand using just the camera and microphone in their computer or mobile device. The service enables users—whatever their level of musical ability—to record and perform with music legends and friends. Using WholeWorldBand, you can start a video-recording session that others may join, create your own personal video mix with up to six performers, and then share the results with your friends and fans via Facebook, Twitter, or YouTube. Users can also pay to collaborate with other musicians who**have posted their own content. Collaborating on a project might mean providing new audio or video components or remixing existing ones.*

*WholeWorldBand uses a sophisticated digital rights management system to ensure that artists earn revenue for the work they contribute—if your work gets used, you get paid. WholeWorldBand provides users the opportunity to perform and record with popular artists. A number of major recording artists have already uploaded tracks including The Edge (U2), Ronnie Wood (Rolling Stones), Taylor Hawkins (Foo Fighters), Stewart Copeland (The Police), Liam Ó Maonlaí (Hot House Flowers), Michael Bublé, Phil Manzanera (Roxy Music), Dave Stewart (Eurythmics), and Danny O’Reilly (The Coronas).*

*The platform generates revenue from registered users who purchase subscriptions (or sessions) and from royalties paid by third parties in situations where users have shared and distributed content using the app or the Web site. Each session artist is entitled to receive a share of the revenue generated when other registered users purchase sessions for the purpose of creating contributions and/or mixes in relation to their original track. Keeping track of contributing artists, royalty payments, and the necessary revenue splits among artists, third parties, and WholeWorldBand can become quite detailed and tedious.*

1. Identify some of the challenges associated with building an information system infrastructure to support this new service. Would cloud computing be an appropriate solution to address these challenges? Why or why not?  
   Some challenges include problems like storing the music from the artists and setting up a means of paying them royalties whenever someone uses their music. There is also the information of the third parties and the subscribers. The subscribers can purchase sessions of the music so the system would need to store which subscriber paid for what music and if the royalties for this has been paid to the artist. Cloud computing could help as the different focuses of the systems would be able to be managed by multiple people at a time. There are various parts that need to be taken into account when creating the system so multiple people managing the parts would help.
2. Would WholeWorldBand be likely to employ SQL, NoSQL, or a mix of both kinds of databases? Explain your answer.

It is likely that they would use a mix of SQL and NoSQL as there are many different parts. The NoSQL could be used with a key-value to mark the music from artists and how much the royalty is for the music given. The royalties per music would vary as one song could be five minutes while another is twenty seconds. They could also use the NoSQL to track which music is most popular with the subscribers so they can obtain similar music. The SQL could be used to track the user information such as their name, email, type of music, and any music they pay for so they do not need to buy the same song multiple times.

1. Go to the Web site at https://www.idaireland.com/newsroom/whole-world-band-takes-world, and find its Terms of Use. Summarize the measures outlined to protect the unauthorized use of copyrighted material. Do you think these measures are adequate? Why or why not?

The app has patents for the music from the artists that it acquires. It uses Amazon cloud to secure the data and mange the rights. The app focuses more on making sure the users can create and collaborate with others. The measures are not adequate as if the person knows the song they can still use it without payment as the app does not seem to keep track of every section and the use of songs they do not have the royalties to.

SOURCES: “WholeWorldBand” YouTube video, 0:33, www.youtube.com/user/WholeWorldBand, accessed October 7, 2015; “EnterpriseDB’sPostgres Plus Cloud Database Strikes a Chord with WholeWorldBand,” EntrepriseDB, www.enterprisedb.com/success-stories/enterprisedb-s-postgres-plus-cloud-database-strikes-chord-wholeworldband, accessed October 7, 2015; John, “WholeWorldBand Wins “Buma Music Meets Tech” Award at EurosonicNoorsderslag in Holland,” Irish Tech News, January 18, 2014, http://irishtechnews.net/ITN3/wholeworldband-wins-buma-music-meets-tech-award-at-eurosonic-noorsderslag-in-holland; “WholeWorldBand Terms of Use,” WholeWorldBand, www.wholeworldband.com/about, accessed October 7, 2015.