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--===============================CIS 310 ASSIGNMENT 1===============================

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/\* Fill in below section with your name, ID, and submission date. Also, update file name to reflect YOUR first and last name.

STUDENT NAME: James Cook

STUDENT ID: 5441819

SUBMISSION DATE: 01/14/2024

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1. What 2 businesses/organizations will you use for your learning examples? (10 points)  
-- You should name the businesses/organizations and write a brief summary of business, what’s its business model, what type of data is generated in its business operations, etc. Ideal summary is 2-5 sentences. It does not have to be exhaustive or perfectly correct but should demonstrate that you have an understanding of the business and some basic data they store.  
 *e.g. Tiny College. Tiny college is a non-profit higher education organization, whose main business function is offering education as a service to students. Through the college’s daily operations, we gather and store data on the college’s customers: students, their courses, schedules, grades, etc. We also keep tracks of employee data, consisting of professors who teach the classes, and administrators such as librarians, support staff and advisors. Physical building, IT support and equipment such as computers inventory are also information we need to keep track of.*  
-- Note that these are not set in stone and can be reviewed/changed as the semester progresses.  
-- Learning database theories with specific business contexts and example in mind helps deepen your understanding of these challenging concepts.  
-- In class, we will use Tiny College as our model business, therefore, colleges/higher ed **cannot** be one of your choices.

Microsoft

* Microsoft is a technology-oriented corporation whose business functions are developing software and providing various services, such as cloud storage or servers. From day to day, we collect and save data on B2B or B2C interactions. On top of that, data regarding employees, departments, equipment, and physical locations are what we regularly track. We would also have to keep track of goods and services that we sell through the online store, and the software we provide requires a license that needs management through database.

Kroger

* Kroger is an offline retail store whose core business is selling groceries and essential goods. During the store’s regular business activity, we gather customer data for membership, and the type and quantity of items sold. We also track inventory, employees, and store locations. To enhance the shopping experience, we need to monitor the condition of equipment, such as shopping carts, baskets, and plastic bags.

2. What are **4** of DBMS's advantages over traditional File System Data Storage methods? (5 points)  
--You should name the advantages and write a brief explanation, 1-2 sentences **each**, on its meaning using examples. You are encouraged to use the business/organization of your choice from 1 to walk through these explanations in context.  
--This should **NOT** be a copy and paste from textbook or any other sources.

* One of the areas where DBMS would outstand is redundancy. In traditional file systems especially on a large-scale business with each department with its database, making changes or adding values will cause inefficiency and anomalies (update, insertion, and deletion). For example, if one customer signs up for a membership in one of the Kroger locations, and if individual stores have their database, visiting another store will not transfer over the customer information. If the customer again, decides to sign up in that store, now a data redundancy is generated, causing identical data to scatter all over the place. Using DBMS and synchronizing across locations eliminates this issue.
* DBMS is known as the middleman for the database and the user. When a customer reaches out to Microsoft customer support to inquire about billing issues with the software, with a traditional file system, one would have to request each department to provide data on the customer’s basic information, the type of software purchased, and the payment method used, spending a long time waiting for their responses. Even then, the acquired data has chances of errors resulting from anomalies. With DBMS, related information can be integrated with a single query, allowing customer representatives to assist right away. Plus, DBMS can manage data integrity, assuring that provided information is up-to-date and accurate.
* Permissions are critical especially if the type of data needs certain levels of security. The company may not want random people to have access to confidential data. With traditional file systems, even though one database restricts access to unauthorized users, other databases may still have permissions open to everyone. If a cashier at Kroger has access to all the customer’s information such as history and frequency of items purchased, home address, and so on, this could lead to serious privacy concerns and such information is not necessary when handling customer membership. Only the name of the customer, membership ID number, and contact information will be more than enough for the purpose. This is where DBMS has an advantage, it allows and ensures its users to have limited or controlled access.
* Another advantage of DBMS is its ease of use. Traditional systems take time to develop and even more effort to maintain the records. On the other hand, DBMS supports optimizations and backup features, alongside providing API to allow customized access to the information. One common example is Microsoft’s OneDrive. Thanks to DBMS, it is possible to modify hundreds of files such as their name and stored location without having to access the actual file. On top of that, it is possible to see past versions of the file and revert the changes if any mistakes are made as the files and their record are constantly backed up.

3. The textbook lists of database related career opportunities. Out of these options and other analyst positions (financial/marketing etc…), which one are you most interested in? According to Google, LinkedIn or other sources, what's the salary for that position in Kentucky (or wherever you are located)? (5 points)

TABLE 1.3 
DATABASE CAREER OPPORTUNITIES 
JOB TITLE 
Database Developer 
Database Designer 
Database 
Administrator 
Database Analyst 
Database Architect 
Database Consultant 
Database Security 
Officer 
Cloud Computing 
Data Architect 
Data Scientist 
DESCRIPTION 
Create and maintain database-based 
applications 
Design and maintain databases 
Manage and maintain DBMS and databases 
Develop databases for decision support reporting 
Design and implementation of database envi- 
ronments (conceptual, logical, and physical) 
Help companies leverage database 
technologies to improve business processes 
and achieve specific goals 
Implement security policies for data 
administration 
Design and implement the infrastructure for 
next-generation cloud database systems 
Analyze large amounts of varied data 
to generate insights, relationships, and 
predictable behaviors 
SAMPLE SKILLS REQUIRED 
Programming, database fundamentals, SQL 
Systems design, database design, SQL 
Database fundamentals, SQL, vendor courses 
SQL, query optimization, data warehouses 
DBMS fundamentals, data modeling, SQL 
hardware knowledge, etc. 
Database fundamentals, data modeling, 
database design, SQL, DBMS, hardware, 
vendor-specific technologies, etc. 
DBMS fundamentals, database administration, 
SQL, data security technologies, etc. 
Internet technologies, cloud storage 
technologies, data security, performance 
tuning, large databases, etc. 
Data analysis, statistics, advanced 
mathematics, SQL, programming, data mining, 
machine learning, data visualization 

* Cloud Computing Data Architect might be relevant to my major, CIS Web Dev. According to Glassdoor, 0–1-year experience Cloud Architect salary ranges around 92k-160k. ZipRecruiter shows the average salary for data architect to be around 152k. Talent.com claims the average salary is 153k for a Cloud Architect in Louisville.

4. What does your success in CIS 310 Database Design look like? (5 points)  
-- This is entirely up to and unique to you. Ideal response are 1-2 sentences.

* This course is critical for my career as a web developer. Besides a simple webpage that does nothing, any web application that involves data and server-side computations, any form of database management is inevitable. Doing well in CIS 310 will ensure I have all the core skills and knowledge to start in this field.

5. Anything else I should know about you? (5 points)  
--This is open ended, feel free to share what you’d like. Your major, your interests, interesting facts, or anything important you’d like me to know. Most responses are 3-5 sentences, however, the length is entirely up to you.

I initially had more interest in computer hardware, and I still do, but I recently got into programming, and I started to see it as my potential career.

Some facts about myself would be that I am a CIS senior though I took all the core and electives first, so for programming, I’m basically a freshman. I work the night shift at UPS with the Metro-College program, potentially looking into CO-OP positions within UPS to maintain my MC benefits, but I’m not sure about that yet.