L01 - Lab 1 A Database Frame of Mind

Due Jan 28 at 11:59pm **Points** 40 **Questions** 17 **Available** after Jan 27 at 9am **Time Limit** None
Allowed Attempts Unlimited

Instructions

The purpose of this lab is twofold. First, I want you to think about the integration of databases into a service (purchasing) with which you are probably familiar. Second, I want to get you actually working with some basic data immediately. To that end, the second and third parts of this lab will focus on using Microsoft Access to look through some mock business records, answer basic questions, and actually do some data manipulation with your own data.

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	513 minutes	31 out of 40

ⓘ Correct answers are hidden.

Score for this attempt: **31** out of 40
Submitted Jan 27 at 5:34pm
This attempt took 513 minutes.

Exploring an Online Database

In this section of the lab, we will be looking at product listings to think about the organization of the data behind the scenes. The information analyzed in this section will be important for the "Implementation" section of the lab below.

Incorrect

Question 1

3 / 3 pts

1. Find an online store that you are familiar with and that offers products according to categories (for instance: Amazon.com and “Books”).

What website have you selected? amazon.com

What category have you selected? Mountain Bike Parts

2. Enter a search term to return a list of products.

What search term did you enter? Mountain Bike Parts

Answer 1:

amazon.com

Answer 2:

Mountain Bike Parts

Answer 3:

Mountain Bike Parts

Incorrect

Question 2

1.5 / 3 pts

Look at a few of the individual product pages and answer the following questions.

1. What five fields would be important to have in a products file for this category of products? Product, Sub-Categ

2. Are any of the fields you've selected unique to the product (like model number, ISBN, etc)? Please enter the unique field or propose a new unique field here: Company

Answer 1:

Product, Sub-Category, Inventory, Online Price, Production Price

Answer 2:

Company

Company would not be unique assuming they had more than one product.

Incorrect

Question 3

2 / 4 pts

If I was a customer using this website, what data would be **necessary** for the business to record for the following actions (please provide four potential *field names* for each prompt, you can repeat field names if applicable):

1. List four fields needed to add a product to a shopping cart. Users account infor

2. List four fields needed to complete a product purchase from the website. Subtotal, Credit Car

Answer 1:

Users account information, Different Items in Cart, Number of Items in Cart, Total Price of Cart,

Answer 2:

Subtotal, Credit Card / Payment Information, Name, Address Information, Date purchased

User account information is not a specific field, different items in cart is not a specific field. Credit card / payment information is not a specific field. Address information is not a specific field.

Question 4

0.5 / 1 pts

Explain in 2-3 sentences how the data gathered by completing a purchase could be considered an operational use of data.

Your Answer:

Operational data is produced by what is purchased in day to day operations. Customers, inventory, and purchase data are grouped into these category's. This usually leads to quicker updates, This is not based on decision making of efficient analysis of the data,

I'm not really following this explanation. There is a difference between operation data and its use in operations.

Question 5 1 / 1 pts

Explain in 2-3 sentences how the data gathered by completing a purchase could be used analytically.

Your Answer:

Analytical Data is the complex brother of Operational Data. It is used to make business decisions, off of the recorded data. This provides advanced analytics.

This can help set prices by looking at the volume of sales, or historical transactions that can include purchasing patterns to improve marketing.

Data gathered by a purchase is huge, This could help you promote items that are similar. For instance, I bought a Mountain Bike tire. The next time I go on amazon It will show Mountain Bike parts that I though I didn't need, but these promotions will catch my eye and I will consider buying them. Big companies do this all the time.

Using and Querying a Database File

In this section of the lab, we will be making use of Microsoft Access to analyze a simple database table. You will be required to open and manipulate the file, and then submit screen captures of various changes you make to the file. Additionally, there are analysis questions based on concepts from the first lecture and the textbook.

For some Microsoft Access tutorials, see: **https://support.office.com/en-us/article/access-video-training-a5ffb1ef-4cc4-4d79-a862-e2dda6ef38e6** **(https://support.office.com/en-us/article/access-video-training-a5ffb1ef-4cc4-4d79-a862-e2dda6ef38e6)** or search for Access 365 tutorials. (Another simple tutorial is here: **https://database.guide/microsoft-access-tutorial-part-1-databases-tables-fields/** **(https://database.guide/microsoft-access-tutorial-part-1-databases-tables-fields/)**, however there may be ads.)

Question 6 5 / 5 pts

Please fill in the blanks to answer the questions below:

1. There are 17 unique records in the file. Each record contains 10 fields.
2. The total sum of all project bids is $ 327317746.00
3. The project code with the longest duration is 31-7P with a duration of 409 days.

Answer 1:

17

Answer 2:

10

Answer 3:

327317746.00

Answer 4:

31-7P

Answer 5:

409

Question 7

2 / 3 pts

Describe three different data anomalies (errors) present in the file.

Your Answer:

There is **inconsistency** in the data. If you take a look at the START_DATE, and END_DATE you can see it doesn't input the current date at the time the file was opened, but it does show that the course is not completed. This could cause issues down the line when trying to process information and there are blank data fields if not handled in the code or parser.

There is also Repeated **redundancies** data that is handled very poorly. You can see that the PROJECT_MANGERS / ID / PHONE / ADRESS is repeated multiple times in different instances. This can clash badly and should be handled in a sort of way, That makes redundancy not an issue. I'm not too sure what this data spreadsheet is for but It looks like different projects with different prices, If needed these should be somewhat grouped together possibly by a user ID code and that way it would eliminate repeating groups in the individual tables. Problems arises when databases are not normalized.

There are Tasks that say completed when there are no actual end dates in the database. This could cause major issues

Project manager names are inconsistent, If you look at the names of Holly B. Parker is her name really Holly or is it Holy? haha

These issues can lead to update anomalies, because there are multiple titles associated with the employees. If I was writing a program and wanted to grab data I would have no idea which is the correct title I wanted to grab.

There are only two anomalies mentioned here. Also, your writing is very hard to follow. If you'd like to chat about this please contact me, but also re-read the answers to yourself.

Question 8

0 / 1 pts

What data redundancies exist in the file and how could they lead to data anomalies (errors)?

Your Answer:

Data redundancy can cause data inconsistency, and leads to meaningless information. Lets say you completed a job certificate in 2017, yet you need to retake these certificates every year, You may want to store these somewhere for data retrieval to save your butt, but The employer doesn't really care what happened in 2017 they want to retrieve what you have in 2021. A poorly written database would make it hard to scavenge through useless data.

It also can cause data corruption when processing or reading, Which will lead to errors which SUCK.

Your database will increase to a bigger size and lose efficiency. This matters a lot in HUGE scale companies, and even some smaller companies with not efficient code to look through the databases. This leads to a higher cost in storage which, if using a bigger company or cloud data cost your company money that doesn't need to be spent there.

None of this is related to the file in question? Also, please maintain professional discourse in lab answers, colloquial "sucking" is not appropriate here.

Question 9

2 / 2 pts

1) What problems might you run into should you wish to produce a listing of projects alphabetically by the city they are located in?

2) How might you alter the file to enable a sort by city only?

Your Answer:

Just off my head, The big issues with alphabetically looking up the city they are located in is that the addresses are started by street numbers. A simple way of fixing this of would be creating more fields that separate the street number from the actual name of the streets, along with city, state, and zip code, of course this would come at a data cost, as I was highlighting earlier. Also creating a parser might be more "cost" efficient but at more time cost to your company as software engineers are not cheap. These are options that need to be weighed out as a company.

Question 10

2 / 2 pts

What happens when you add a new record with a duplicate PROJECT_CODE and try to save the table?

What happens and why is this important for data consistency?

Your Answer:

There is a error message, the changes you requested to the table were not successful because they would create duplicate values in the index, primary key, or relationship.

This is important for data consistency because having duplicate values in the indexing would cause a searching nightmare and actually might make your application crash in most cases.

Question 11

1 / 1 pts

Construct a query in Microsoft Access that returns the project with the largest bid.

Please upload a screenshot of your query and its result.

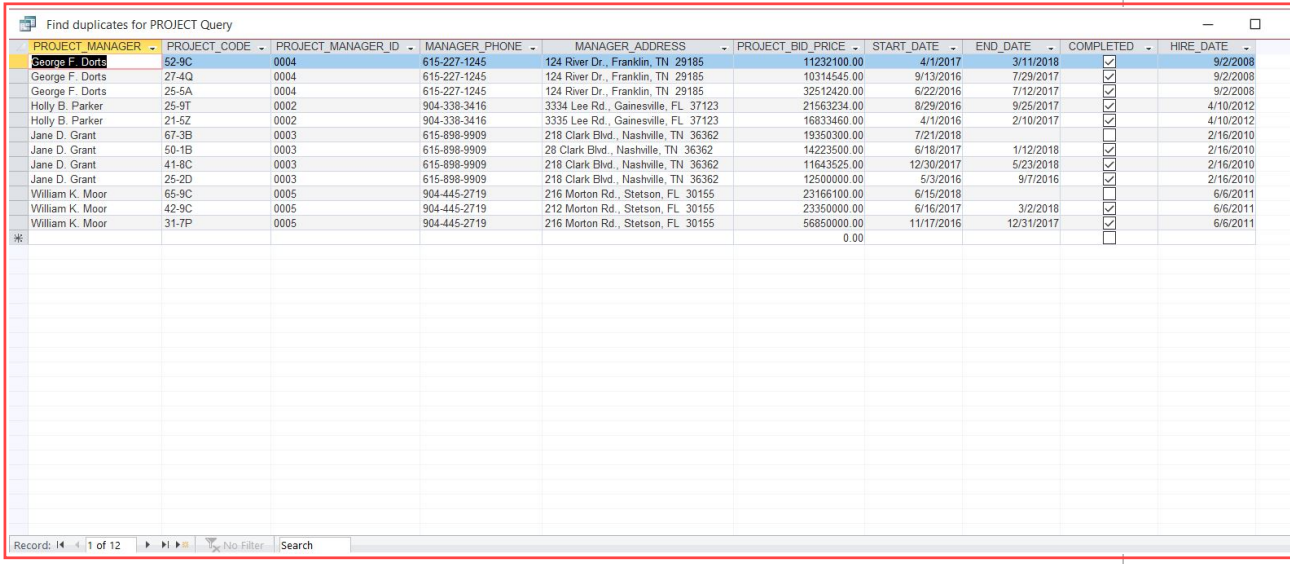
Largest Bid.JPG (https://cilearn.csuci.edu/files/2551660/download)

Question 12

1 / 1 pts

Can you query for a list of all the projects Holly Parker worked on? Why or why not?

Your Answer:



PROJECT_MANAGER	PROJECT_CODE	PROJECT_MANAGER_ID	MANAGER_PHONE	MANAGER_ADDRESS	PROJECT_BID_PRICE	START_DATE	END_DATE	COMPLETED	HIRE_DATE
George F. Dorts	52-9C	0004	615-227-1245	124 River Dr., Franklin, TN 29185	11232100.00	4/1/2017	3/11/2018	☑	9/2/2008
George F. Dorts	27-4Q	0004	615-227-1245	124 River Dr., Franklin, TN 29185	10314545.00	9/13/2016	7/29/2017	☑	9/2/2008
George F. Dorts	25-5A	0004	615-227-1245	124 River Dr., Franklin, TN 29185	32512420.00	6/22/2016	7/12/2017	☑	9/2/2008
Holly B. Parker	25-9T	0002	904-338-3416	3334 Lee Rd., Gainesville, FL 37123	21563234.00	8/29/2016	9/25/2017	☑	4/10/2012
Holly B. Parker	21-5Z	0002	904-338-3416	3335 Lee Rd., Gainesville, FL 37123	16833460.00	4/1/2016	2/10/2017	☑	4/10/2012
Jane D. Grant	67-3B	0003	615-898-9909	218 Clark Blvd., Nashville, TN 36362	19350300.00	7/21/2018		☐	2/16/2010
Jane D. Grant	50-1B	0003	615-898-9909	28 Clark Blvd., Nashville, TN 36362	14223500.00	6/18/2017	1/12/2018	☑	2/16/2010
Jane D. Grant	41-8C	0003	615-898-9909	218 Clark Blvd., Nashville, TN 36362	11643525.00	12/30/2017	5/23/2018	☑	2/16/2010
Jane D. Grant	25-2D	0003	615-898-9909	218 Clark Blvd., Nashville, TN 36362	12500000.00	5/3/2016	9/7/2016	☑	2/16/2010
William K. Moor	65-9C	0005	904-445-2719	216 Morton Rd., Stetson, FL 30155	23166100.00	6/15/2018		☐	6/6/2011
William K. Moor	42-9C	0005	904-445-2719	212 Morton Rd., Stetson, FL 30155	23350000.00	6/16/2017	3/2/2018	☑	6/6/2011
William K. Moor	31-7P	0005	904-445-2719	216 Morton Rd., Stetson, FL 30155	56850000.00	11/17/2016	12/31/2017	☑	6/6/2011
					0.00			☐	

Record: 1 of 12 No Filter Search

I could find duplicate projects of Holly Parker, But sadly her name was not entered into the database correctly, So it only shows 2 out of her 4 total projects she worked on. This causes issues if there is not a user ID or login and the user has to enter there information manually each time.

Implementation

In this section of the lab, you will create your own simple relational database in Microsoft Access based on the information from "Exploring an Online Database".

While we will discuss the relational model in more depth before the Week 2 lab, the tasks here are an introduction to the thought processes behind relational data modeling.

Question 13

3 / 4 pts

In "Exploring an Online Database 2" you compiled a list of five fields for products from your chosen online store. Please create a PRODUCTS table in Microsoft Access with your five fields and populate it with three records of actual products from your chosen website. If the unique field you identified is not included in the five fields, please add it as a sixth field.

(Microsoft Access will automatically add an "ID" field, just leave that for now.)

Please upload a screenshot of your new table.

AmazonMTBstore.JPG (https://cilearn.csuci.edu/files/2553273/download)

This table is well organized, but it does not match the answer you gave above. I'm not going to take off points, but I would probably give the lab a once over to check for consistency issues in your answers. Also, there is not a unique field present.

Question 14

4 / 4 pts

Create another table called PURCHASES to record product purchases and use the four fields you described for adding a product in "Exploring an Online Database 3" above.

Make sure to include a "unique" field as a fifth field if one is not already present.

Populate your table with two made-up purchase records.

Please upload a screenshot of your new table.

amazonMTBpurchase.JPG (https://cilearn.csuci.edu/files/2553275/download)

Same comment as question 13

Question 15

0 / 2 pts

Use the "Relationships" interface to link the "unique" field in the PRODUCTS table to the "unique" field in the PURCHASES table.

Please upload a screenshot showing the connection.

Unique Link.JPG (https://cilearn.csuci.edu/files/2553178/download)

There is not a unique field present in the meaning that we have be using.

Question 16

1 / 1 pts

Why do you think it is advantageous to link the PRODUCTS to PURCHASES through a shared “unique” ID?

Your Answer:

This will help us not repeat data by checking each unique ID (or vendor ID) and creating relationships between the PRODUCTS and the PURCHASES. This can help not repeat redundant data. This helps your database communicate within itself.

Question 17 **2 / 2 pts**

Finally, look again at the COMP420_Lab_01_Spring_2020.accdb file from Part 2.

How might you reorganize the information in the single PROJECTS table into multiple tables to avoid some of the data anomalies you listed in "Using the Database File 2"?

(You do not need to list / describe fields and data here, just potential table names and their general contents.)

Your Answer:

You could use the relations tab as explained above to help link multiple tables to help fix errors in the table.

One could link the manager ID that holds all the information about that manager, This would help greatly with organization and manage errors. Since each manager has there own unique manager ID this would be a great way to approach it,

Quiz Score: **31** out of 40