Database Concepts Assignment Set 1

Instructions:

1. Please type the answers below the questions directly. You may insert tables or figures. Scans of handwritten papers are not acceptable.
2. When it is done, rename the file to firstname-lastname.docx and submit it to Canvas by the deadline.
3. Academic integrity is strictly reinforced. Detected plagiarized works will receive zero point and potentially a failure of the whole course.

Problem description:

Garden Glory is a partnership that provides gardening and yard maintenance services to individuals and organizations. Garden Glory is owned by two partners. They employ two office administrators and a number of full- and part-time gardeners. Garden Glory will provide one-time garden services, but it specializes in ongoing service and maintenance. Many of its customers have multiple buildings, apartments, and rental houses that require gardening and lawn maintenance services.

Problems:

A. *Create a sample list of owners and properties. Your list will be similar in structure to that in the tables presented in the class, but it will concern owners and properties rather than students and advisors. Your list should include, at the minimum, owner name, phone, and billing address, as well as property name, type, and address. One example is provided below, you can list up to 4 examples.*

PropertyName	PropertyType	Address	OwnerName	OwnerPhone	BillingAddress
Jones Home	Residence	Elm St	E.J. Jones	223-1111	2nd Street

Answer:

PropertyName	PropertyType	Address	OwnerName	OwnerPhone	BillingAddress
Bodhi	Residence	Alson Dr.	Prashant	9136055136	5510, 102C
Nareepol	Commercial	Magnolia	Tomar	5712014247	1055, 49th St.
Larchmont	Residence	Buckingham Ave	Shivansh	9134052397	1106, 56B
Yazd	Commercial	Bolling St.	Sharma	7574196401	1505, 931D
Ginko	Residence	Walton St.	Swati	7577857134	581, 21st St.

B. *Describe modification problems that are likely to occur if Garden Glory attempts to maintain the list in a spreadsheet.*

Answer:

If Garden Glory tries to keep track of everything in a spreadsheet and uses a single row to store information about multiple themes, it could create problems. Deleting just one row could unintentionally remove important details about several themes. To keep everything consistent, they'd also likely have to update a lot of rows, which could be error-prone.
If the owner's phone number gets updated, we'll have to change it in multiple places on the spreadsheet. If we make a mistake during this process, we could end up with conflicting information in different rows. Also, typos in phone numbers can easily happen. Plus, if the owner doesn't have any property, there's no straightforward way to note that in the spreadsheet.

C. *Split the list into tables such that each has only one theme. Create appropriate ID columns. Use a linking column to represent the **general** relationship between a property and an owner. Demonstrate that the modification problems you identified in part B have been eliminated.*

Answer:

LANDLORDTABLE:

LandlordID	Owner	OwnerPhone	BillingAddress
500	Bodhi	5712014247	1106, 56B
1000	Larchmont	9134052397	581, 21st St.

PROPERTY TABLE:

Name	Type	Address	*LandlordID*
Bodhi	Commercial	Magnolia	500
Nareepol	Residence	Buckingham Ave	500
Larchmont	Commercial	Bolling St.	1000
Ginko	Residence	Walton St.	1000

D. *Create a sample list of owners, properties, and services. Your list will be similar to that in part A. Your list should include the data items from part A as well as the date, description, and amount charged for each service. For the sake of space, you can use 1-2 words in the description field. An example is provided below.*

Answer:

PropertyName	Type	Address	OwnerName	OwnerPhone	BillingAddress	Date	Desc	Charge
Bodhi	Residence	Alson Dr.	Prashant	9136055136	5510, 102C	7/7/2023	new floor	125.00
Nareepol	Commercial	Magnolia	Tomar	5712014247	1055, 49th St.	8/18/2023	Carpet	80.00
Larchmont	Residence	Buckingham Ave	Shivansh	9134052397	1106, 56B	1/21/2023	Pest	40.00
Yazd	Commercial	Bolling St.	Sharma	7574196401	1505, 931D	3/1/2023	Pest	45.00
Ginko	Residence	Walton St.	Swati	7577857134	581, 21st St.	5/22/2023	Roofing	200.00

E. Split the list from part D into tables such that each has only one theme. Create appropriate ID columns. Use the concise notation. Highlight linking columns using Italic font.

Answer:

OWNER (*LandlordID*, Owner, OwnerPhone, BillingAddress)

PROPERTY (*PropertyID*, Name, Type, Address, *LandlordID*)

SERVICE (*WorkID*, Date, Desc, Charge, *LandlordID*, *PropertyID*)

LANDLORD TABLE

LandlordID	Owner	OwnerPhone	BillingAddress
500	Bodhi	9136055136	1505, 931D
1000	Larchmont	9134052397	581, 21st St.

PROPERTY TABLE

PropertyID	Name	Type	Address	*LandlordID*
1	Bodhi	Commercial	Magnolia	500
2	Nareepol	Residence	Buckingham Ave	500
3	Larchmont	Commercial	Bolling St.	1000
4	Yazd	Residence	Walton St.	1000

WORK TABLE

WorkID	Date	Desc	Charge	LandlordID	PropertyID
1	7/7/2023	New floor	125.00	500	1
2	8/18/2023	Carpet	80.00	500	2
3	1/21/2023	Pest	40.00	1000	3
4	3/1/2023	Pest	45.00	1000	2
5	5/22/2023	Roofing	200.00	500	1