Problem Sheet on Access Database

Use NoObstacles Database to create the following **Queries (1-32)**  
You can view video clips for even number Queries by clicking on the link “Video Vlip” for the question.

Single Table – Simple and Compound Conditions

1. List the FirstName, LastName, and phone of all customers (Save the Query as Q1).
2. List the EmloyeeID, FirstNname, LastName, Department, and Salary of all employees (Save the Query as Q2).  
   [Video Clip – Question 2](https://mediaspace.minnstate.edu/media/Access+Q+-+02/0_zedr6hne)
3. List the FirstName, LastName, and City of Customers from NY. Sort the result in ascending order by City (Save the Query as Q3).
4. List the EmployeeID FirstName, LastName, and Department of employees who are making more than $88,000. Sort the result in descending Order by Department (Save the Query as Q4).   
   [Video Clip - Question 4](https://mediaspace.minnstate.edu/media/Access+Q+-+04/0_bchjff15)
5. List the FirstName, HireDate, Department, and Salary of Employees working in the Manufacturing Department making less than $25,000. Sort the result in ascending order by Salary in the data sheet view (Save the query as Q5).
6. Use the PRODUCTS Table to list the ProductID, Description, Color, and Price of Bedroom Furniture (Department is Bedroom, and Category is Furniture) costing more than $400 (Save the Query as Q6).  
   [Video Clip - Question 6](https://mediaspace.minnstate.edu/media/0_jl3h1d5k)
7. List the FirstName, Department, and Salary of employees making more than $89,000 Or less than $12,000 (Save the Query as Q7).
8. List the FirstName, LastName, StreetAddress, City, and State of Customers from NY or TX (Save the Query as Q8).  
    [Video Clip – Problem 8](https://mediaspace.minnstate.edu/media/0_fhrw80lx)
9. List First Name, Last Name, and Salary of employees with a job rating of <=2 OR making more than $88,000 (Save the Query as Q9).
10. List the FirstName, Status, and Department of employees who are either Contract (Status) employees or working in IT Department (Save the Query as Q10)  
    [Video Clip – Problem 10](https://mediaspace.minnstate.edu/media/0_nbe3xeer)
11. List first name, last name, status, of full time or hourly employees from manufacturing department (Save the Query as Q11).

Multiple Tables:

1. List FrstName, LastName, Phone, and RegionName of customers from MN or CA (Save the Query as Q12).  
   [Video Clip – Problem 12](https://mediaspace.minnstate.edu/media/0_85y414t4)
2. List the FirstName, LastNmae, and Phone Number of customers who cancelled their Orders (Save the Query as Q13).  
   13A. List the FirstName, LastNmae, and Phone Number of customers who cancelled their Furniture Orders. Furniture is a category in the Products Table
3. List the Firstname, Lastname, StreetAddress, City, and RegionName of customers whose purchase date is after October 2012 (Save the Query as Q14.  
   [Video Clip – Problem 14](https://mediaspace.minnstate.edu/media/0_2jvnmeej)
4. List the FirstName, LastName, and Phone Numbers of customers who ordered Natural Bamboo Desk. Natural Bamboo Desk is a data value in Product Description. (Save the Query as Q15)

Calculated Fields:

1. Create a query that lists the employees’ FirstName, LastName, Department, Salary, and new salary. New salary, a calculated field, is 10% more than the original salary. Display new salary column in the currency format. Display Salary field as Old Salary. Name the new salary field as Revised Salary (Save the Query as Q16).  
   [Video Clip – Problem 16](https://mediaspace.minnstate.edu/media/0_sgj8k37g)
2. Create a query that lists the ReceiptID, CustomerID, Product Category, and Value. Value is a calculated field obtained by multiplying price with quantity. Sort the records in ascending order by value. Display value field as Cost (Save the Query as Q17).
3. Create a query that lists first name, last name, date hired and years of service of employees whose years of service is less than five years. Years of service is a calculated field (Save the Query as Q18). [Video Clip – Problem 18](https://mediaspace.minnstate.edu/media/0_7aotuanj)
4. Create a query that lists employee’s first name, last name, salary, FICA, and Withholding. FICA and Withholding are calculated fields. FICA = 6.75% of Salary and Withholding = 20% of Salary. Name FICA and Withholding as FICA and Withholding (Save the Query as Q19).
5. Create a query that gives the customer’s full name (First Name and Last Name) in one column and full address (Street, City, State) in another column. Display full name field as name and full address as address (Save the Query as Q20).  
   [Video Clip \_ Problem 20](https://mediaspace.minnstate.edu/media/0_zovkkh99)

Summary Statistics

1. Create a query that displays the total, average, maximum, and minimum salary (Save the Query as Q21).
2. Modify the above query to display total number of employees, total salary, average salary, maximum salary, minimum salary by Department. Department should be the first column (Save the Query as Q22).  
   [Video Clip – Problem 22](https://mediaspace.minnstate.edu/media/0_5v9nxylm)
3. Create a query that displays number of orders, total and average values of orders by Region Name (Save the Query as Q23).
4. List the number of customers in each region (Save the Query as Q24).  
   [Video Clip – Problem 24](https://mediaspace.minnstate.edu/media/0_vuxxw4ul)

Parameter Query

1. Create a parameter query to list Customer’s FirstName, LastName, phone, and e-mail by State. Enter State at runtime (Save the Query as Q25).
2. Create a parameter query to list Customer’s FirstName, LastName, phone, and e-mail by Region Name. Region Name to be entered at runtime (Save the Query as Q26).  
   [Video Clip – Problem 26](https://mediaspace.minnstate.edu/media/0_q8ay4d14)
3. Create a parameter query to list employees’ first name, last name, salary, and date hired by Department. Department name to be entered at run time (Save the Query as Q27).

Use of Wild Card Characters (\*, ?)

1. List the first name, last name and zip code of customers where third and fourth digit are 1 and 3 (Save the Query as Q28).  
   [Video Clip – Problem 28](https://mediaspace.minnstate.edu/media/0_bgzufvo1)
2. List the first name, and last name of customers where the third character in the last name is e (Save the Query as Q29).
3. List first name, last name, and phone numbers of customers living in apartments (Save the Query as Q30).  
   [Video Clip – Problem 30](https://mediaspace.minnstate.edu/media/0_ozmc2il1)
4. List customers with last names beginning with h (Save the Query as Q31).
5. List employees with four letter last names (Save the Query as Q32).  
   [Video Clip Problem 32](https://mediaspace.minnstate.edu/media/0_odlhbagl)

Creating a Database, Tables, and Setting field properties

1. Create a database named XYZ. Save the database on your desktop. Create two Tables – SalesRep and Customer.  
     
   SalesRep Table has the following fields:  
   SlsrNo Text 4 bytes Primary Key  
   RepName Text 15 bytes  
   Date\_Hired Date  
     
   Customer Table has the following fields:  
   CustNo Number Primary Key  
   CustName Text 20 bytes  
   StreetAddress Text 30 bytes  
   City Text 30 bytes  
   State Text 2 bytes  
   Zip Text 5 bytes  
   CreditLimit Currency  
     
   Field Properties:  
   In the SalesRep table  
   SlsrNo First two are uppercase letters and last two are digits  
   Date\_Hired cannot be greater than the current date  
   In the Customer Table  
   State is uppercase letters  
   CreditLimit could be $5000, $10,000, or $15,000. Use a lookup field to select credit limits  
   Name of the customer cannot be left blank   
   Zip is 5 digits  
   Use a caption of Zip Code for Zip   
     
   Create a relationship between SALESREP and CUSTOMER tables enforcing referential integrity.  
   (A salesrep can have many customers, but a customer cannot have more than one salesrep)

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1. [Video Clip – Problem 34](https://mediaspace.minnstate.edu/media/0_msp59cct)   
   Create a database named ABC. Save the database on your desktop. Create two tables – Faculty and Class (Click to see the video).  
   Faculty Table has following fields:  
   FacID Text 6 bytes Primary Key  
   FacName Text 25 bytes  
   Department Text 10 bytes Cannot be blank  
   Salary Currency Cannot be greater than $150,000  
   Date\_hired Date Cannot be greater than current date  
     
   Class Table has following fields:  
   ClassID Text 10 bytes Primary Key  
   Enrollment Integer Min. enrollment = 10, Max. enrollment = 40  
   Location Text 12 bytes  
   MeetingTime Text 15 bytes  
     
   A faculty teaches several classes, but a class is taught by one faculty. Create a relationship between Faculty and Class Tables, enforcing referential integrity.

Conceptual Questions – To view the answers, move the cursor on the answer

1. What is a primary key? What are the consequences of not defining a primary key?   
   [Ans35:](#Ans35)
2. What are the properties of the primary key?  
   [Ans36:](#Ans36)
3. What is a foreign key? What purpose does it serve?  
   [Ans37:](#Ans37" \o "A foreign key is a field that is a primary key in another table. It is used for creating relationships between tables)
4. What is referential integrity? What are the consequences of not enforcing referential integrity?  
   [Ans38](#Ans38" \o "Referential integrity: The foreign key can be null or a value. If it is a value that value must match the value of a primary key in the parent (primary) table. If referential integrity is not enforced, it will be possible to add records in the related table for which there are no records in the primary table):
5. What is an entity, attributes, and records, and tables?  
     
     
     
   [Ans39:](#Ans39" \o " Entity: Anything about which you wish store information. Example: customers, students, workers.Attributes:  Information or characteristics (fields) stored about the entity. Example: employee name, student warrior id, student major, student name, customer addressRecords: An instance of an entity. Table: is a two-dimensional structure. Columns are attributes and rows are records. Each cell represents a data value. Entities are represented by tables in a relational database )
6. How is data stored in a database?  
   [Ans40](#Ans40" \o "Data is stored in a table that represents an entity. Columns are attributes. Rows are records. Cells are data values.)
7. What is the difference between a database and a DBMS?

[Ans41](#Ans41" \o "A database is a repository or container that stores data in the form of tables. A Database Management System is a software that enables one to create, maintain, and modify a database)

1. What is a relational database?  
   [Ans42](#Ans42)

Answers to Q35 – Q42 on Review Sheet

1. **What is a primary key? What are the consequences of not defining a primary key?**   
   Primary key is a single field or a combination of two or more fields that uniquely identifies a record. If the primary key is not defined, the table or file can have duplicate records.
2. **What are the properties of the primary key?**  
   1) It cannot have duplicate values  
   2) It cannot be null
3. **What is a foreign key? What purpose does it serve?**  
   A foreign key is a field that is a primary key in another table. It is used for creating relationships between tables
4. **What is referential integrity? What are the consequences of not enforcing referential integrity?**  
   Referential integrity: The value of a foreign key must match the value of a primary key in the parent (primary) table. If referential integrity is not enforced, it will be possible to add records in the related table for which there are no records in the parent (primary) table.
5. **What is an entity, attributes, and records, and tables?**   
   Entity: Anything about which you wish store information. Example: customers, students, workers.  
   Attributes: Information or characteristics (fields) stored about the entity. Example: employee name, student warrior id, student major, student name, customer address  
   Records: An instance of an entity.   
   Table: is a two-dimensional structure. Columns are attributes and rows are records. Each cell represents a data value. Entities are represented by tables in a relational database
6. **How is data stored in a database?**  
   Data is stored in a table that represents an entity. Columns are attributes. Rows are records. Cells are data values.
7. **What is the difference between a database and a DBMS?**  
   A database is a repository that stores data in the form of tables. A Database Management System is a software that enables one to create, maintain, and modify a database
8. **What is a relational database?**  
   A relational database is a collection of related tables

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