Salesforce Object Query Language

Q) What is SOQL?
- SOQL stand for salesforce object query language which is used to search or retrieve data from the salesforce database.
- SOQL is used to retrieve data from any object like a standard or custom object.
- We can use the clause to filter or limit the data.
- SOQL is case insensitive like an apex code.

Q) What is the feature of SOQL?
- We can retrieve data from single or multiple objects.
- We can retrieve data from the object which are related to each other.
- There are many clauses we can use in SOQL queries.
- Retrieve the data from a string, number, date and checkbox fields.

Q) Why do we use the 'Where' clause in SOQL?
- The 'Where' clause is used to apply any filter after the query to limit the data or get the specific data that you really want.
  Ex. Select Id,Name From Account Where Name='JON'.
- We can use the **comparison operators** with the 'Where' clause
- Comparison operator is
  - ➔ =
  - ➔ !=
  - ➔ <
  - ➔ <=
  - ➔ >
  - ➔ >=
  - ➔ LIKE
  - ➔ IN
  - ➔ NOT IN
  - ➔ INCLUDES
  - ➔ EXCLUDES

Q) Example of Where clause with a comparison operator

- Equal ('=')
  Ex. Select Id, Name from Account Where Name = 'JON'

- Not Equal ('!=')
  Ex. Select Id, Name from Account Where Name != 'JON'

- Less than ('<')
  Ex. Select Id, Name, Amount from Account Where Amount < 2000

- Less or equal ('<=')
  Ex. Select Id,Name, Amount from Account Where Amount <= 2000

- Greater than ('>')
  Ex. Select Id,Name, Amount from Account Where Amount > 2000

- Greater or equal ('>=')
  Ex. Select Id, Name, Amount from Account Where Amount >= 2000

- LIKE
    1) To get the Name from the font alphabet
       Ex. Select Id, Name from Account Where Name LIKE 'app%'
       O/P => Apple, Appleton

    2) To get the Name from the last alphabet
       Ex. Select Id,Name from Account Where Name LIKE '%app'
       O/P => opapp, aoapp

    3) To get the exact string
       Ex. Select Id, Name from Account Where Name LIKE '%app%'
       O/P=> app

- IN

  Ex. Select Id, Name, BillingState from Account Where BillingState IN ('Califonia', 'New York')

- NOT IN

  Ex. Select Id, Name, BillingState from Account Where BillingState NOT IN ('Califonia', 'New York')

- INCLUDES

  Ex. Select Id, Name, BillingState from Account Where BillingState INCLUDES ('Califonia')

- EXCLUDES

  Ex. Select Id, Name, BillingState from Account Where BillingState EXCLUDES('Califonia')

Q) What is GROUP BY clause in the SOQL query?

- The 'GROUP By' clause is used to avoid iteration through an individual query result.
- By using this clause we can group the query result with some fields.
- The 'GROUP BY' clause is used with aggregate functions
- Ex. **Select Id, Name, LeadSource, COUNT(Name) from Lead GROUP BY LeadSource**

Q) What is the 'GROUP BY ROLLUP' clause in the SOQL query?

- 'GROUP BY ROLLUP' is used to group the data and can be used with the aggregate query with an extra variable.
- That extra variable is used to store the aggregate query result.
- Ex. **Select Id, LeadSource, COUNT(Name) cnt From Lead GROUP BY ROLLUP(LeadSource)**
- So the 'cnt' will store the count
- Ex. **Select Id, LeadSource, Status, COUNT(Name) cnt From Lead GROUP BY ROLLUP(LeadSource, Status)**

LeadSource	cnt
Web	7
Phone Inquiry	4
Partner Referral	4
Purchased List	7
null	22

Q) What is the 'GROUP BY CUBE' clause in the SOQL query?
- The 'GROUP BY CUBE' is used to add the subtotal for all the combinations of the grouped fields in the query result.
- Ex.

Select Id, Type, BillingCountry, GROUPING(Type) grpType, GROUPING(BillingCountry) grpCty, Count(Id) accts From Account GROUP BY CUBE(Type, BillingCountry) ORDER BY GROUPING(Type), GROUPING(BillingCountry)

Type	BillingCountry	grpType	grpCty	accts	Comment
Customer - Direct	null	0	0	6	Six accounts with Type = Customer - Direct with BillingCountry = null
Customer - Channel	USA	0	0	1	One account with Type = Customer - Channel with BillingCountry = USA
Customer - Channel	null	0	0	2	Two accounts with Type = Customer - Channel with BillingCountry = null
Customer - Direct	USA	0	0	1	One account with Type = Customer - Direct with BillingCountry = USA
Customer - Channel	France	0	0	1	One account with Type = Customer - Channel with BillingCountry = France

Q) Use Aliases with GROUP BY

- We can use an alias for any field or aggregated field in a SELECT statement in a SOQL query.
- Ex.

Select Id, Name, MAX(Amount), MIN(Amount) From Opportunity GROUP BY Name

Q) What is the 'HAVING' Clause in SOQL?

- The 'HAVING' clause is the optional clause and it can be used with aggregate functions
- HAVING is similar to the WHERE clause and it can be supported by all the comparison operator
- The HAVING clause is also used by Group By clause.
- Ex.

Select Id,Name Count(Id) from Account GROUP BY Name HAVING Count(Id) > 1

- Ex.
- Select LeadSource, COUNT(Name) from Lead GROUP BY LeadSource HAVING COUNT(Name) > 100 and City Like 'San%'

Q) What is the 'ORDER BY' clause in SOQL?

- The ORDER BY clause is the optional clause and its is used to control the order of retrieving data.
- The data can be ordered by alphabet or by field as ascending or descending
- Example
    1) Select Id, Name, Industry from Account ORDER BY Industry.
    2) Select Id, Name, Industry from Account ORDER BY Industry, Id
    3) Select Id, Name from Account ORDER BY Name ASC
    4) Select Id, Name from Account ORDER BY Name DESC

- You can specify the NULL value as first or last as well.
  Example:
    - Select Id, Name from Account ORDER BY Name NULLS FIRST
    - Select Id, Name from Account ORDER By Name NULLS LAST

Q) What is the 'LIMIT' clause in SOQL?
- The LIMIT clause is the optional clause which is used to get data of a specific number
- Example:
    - Select Id, Name from Account LIMIT 5
    - Select Id, Name, Industry from Account Where Industry ='Banking' LIMIT 10

Q) What is the 'OFFSET' clause in SOQL?
- The OFFSET clause is used to show a defined number record.
- When we have multiple pages and need to show data of a fixed number on each page in such case we use the OFFSET clause
- OFFSET is used to skip the data from the query
- Example:
  Select Id, Name from Account LIMIT 10 OFFSET 5
  So this query skips the first 5 record and gives the next 10 records

Q) What is 'FOR VIEW' and 'FOR REFERENCE' in SOQL?

- FOR VIEW
  - The FOR VIEW is an optional clause and is used to update the record with the last viewed
  - When we use FOR VIEW there are 2 things happen
    1) The LastViewedDate field is Updated.
    2) The record is added to the RecentlyViewed Object.

  Example:
  Select Id, Name from Account LIMIT 1 FOR VIEW

- FOR REFERENCE
  - The FOR REFERENCE is the optional clause and it is used to notify salesforce when a record is referenced from a custom interface.
  - When we use FOR REFERENCE cause, two things happen.
    1) The LastReferenceDate is Update
    2) A Record is added to the RecentlyViewed Object to reflect the recently referenced data for each retrieved record.

  Example:
  Select Id, Name from Account LIMIT 1 FOR VIEW

REFERENCE: SOQL Select Example

Q) What are the Aggregate function in SOQL?
- Aggregate functions are used to aggregate the data which are retrieved from the SOQL
- There are several aggregate functions present for the SOQL queries like AVG(), COUNT(), MIN(), MAX(), SUM() and more.

Examples:
- AVG()
  Select CampaignId, AVG(Amount) from Account Group by CampaignId

- COUNT()
  Select COUNT() From Account Where Name Like 'a%'

- COUNT(fieldName)
  Select COUNT(Id) from Account Where Name Like 'a%'

- MIN()
  Select FirstName, LastName, MIN(CreatedDate) From Contact GROUP BY FirstName , LastName

- MAX()
  Select FirstName, LastName, MAX(Amount) from Contact GROUP BY FirstName, LastName

- SUM()
  Select SUM(Amount) From Opportunity

NOTE: You can't use a LIMIT clause that uses an aggregate function
Ex. Select Id, Name , MAX(CreatedDate) from Account LIMIT 1

Q) What is the DATE function in SOQL Query?

- The date function in SOQL query allows us to group or filter date by date periods such as day, calendar month or fiscal year
- Example:
  Select CALENDER_YEAR(CreatedDate), SUM(Amount) from Opportunity

- There are several date functions such as

- CALENDER_MONTH()
  Return the month of the date
  Ex. Select Id, CALENDER_MONTH(CreateaDate) from Account

- CALENDER_QUARTER
  Return the number based on quarter

Ex. Select Id, Name, CALENDER_QUARTER(CreatedDate) from Account
- DAY_IN_MONTH()
- DAY_IN_WEEK()
- DAY_IN_YEAR()
- DAY_ONLY()
- FISCAL_MONTH()
- FISCAL_QUARTER()
- HOUR_IN_DAY()
- WEEK_IN_MONTH()
- WEEK_IN_YEAR()

Q) What is GROUPING(fieldName) in SOQL query?

- Use the GROUPING(*fieldName*) function to determine whether a row is a subtotal or field when you use GROUP BY ROLLUP or GROUP BY CUBE in SOQL queries.
- Ex.
  SELECT LeadSource, Rating,GROUPING(LeadSource) grpLS, GROUPING(Rating) grpRating, COUNT(Name) cnt FROM Lead GROUP BY ROLLUP(LeadSource, Rating)