**1. Table Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| Name | String | Table Name |
| Alias | String | Table Alias |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| as | Alias: String | Save Table alias |

**2. Column Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| Name | String | Column Name |
| Type | Integer | Column Database Type |
| Function | Function Enum | Count/Sum/Min/Max/  Avg/distinct/…. |
| Name In Query | String | Name Considered In Query |
| Alias | String | Column Alias |
| Table Alias | String | Alias of Table of Column |
| Parameters | Map<Integer, Object> | Parameters with current column |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| plusYear | Value: Integer | Increment Year of Date  /Timestamp |
| minusYear | Value: Integer | decrement Year of Date  /Timestamp |
| plusMonth | Value: Integer | Increment Month of Date  /Timestamp |
| minusMonth | Value: Integer | decrement Month of Date  /Timestamp |
| plusDay | Value: Integer | Increment Day of Date  /Timestamp |
| minusDay | Value: Integer | decrement Day of Date  /Timestamp |
| plusHour | Value: Integer | Increment Hour of  Timestamp/Time |
| minusHour | Value: Integer | decrement Hour of  Timestamp/Time |
| plusMinute | Value: Integer | Increment Minute of  Timestamp/Time |
| minusMinute | Value: Integer | decrement Minute of  Timestamp/Time |
| plus | Column: Column | Increment Column with another Column |
| plus | Value: Integer | Increment Column with Number |
| minus | Column: Column | Decrement Column with another Column |
| minus | Value: Integer | Decrement Column with Number |
| multiply | Column: Column | Multiply Column with another Column |
| multiply | Value: Integer | Multiply Column with Number |
| divide | Column: Column | Divide Column with another Column |
| divide | Value: Integer | Divide Column with Number |
| equal | Column: Column  Return Restriction | Give Restriction with current Column and Parameter Column and = criteria |
| equal | Value: Object  Return Restriction | Give Restriction with current Column and Parameter Value and = criteria |
| notEqual | Column: Column  Return Restriction | Give Restriction with current Column and Parameter Column and <> criteria |
| notEqual | Value: Object  Return Restriction | Give Restriction with current Column and Parameter Value and <> criteria |
| greater | Column: Column  Return Restriction | Give Restriction with current Column and Parameter Column and > criteria |
| greater | Value: Object  Return Restriction | Give Restriction with current Column and Parameter Value and > criteria |
| greaterEqual | Column: Column  Return Restriction | Give Restriction with current Column and Parameter Column and >= criteria |
| greaterEqual | Value: Object  Return Restriction | Give Restriction with current Column and Parameter Value and >= criteria |
| less | Column: Column  Return Restriction | Give Restriction with current Column and Parameter Column and < criteria |
| less | Value: Object  Return Restriction | Give Restriction with current Column and Parameter Value and < criteria |
| lessEqual | Column: Column  Return Restriction | Give Restriction with current Column and Parameter Column and <= criteria |
| lessEqual | Value: Object  Return Restriction | Give Restriction with current Column and Parameter Value and <= criteria |
| between | Column: Column  Column2: Column  Return Restriction | Give Restriction with current Column and Parameter Two Columns and between criteria |
| between | Value: Object  To: Object  Return Restriction | Give Restriction with current Column and Parameter Two Values and between criteria |
| isNull | Return Restriction | Give Restriction with is null criteria |
| isNotNull | Return Restriction | Give Restriction with is not null criteria |
| in | Values: Variable Objects  Return Restriction | Give Restriction with Parameter values and in criteria |
| notIn | Values: Variable Objects  Return Restriction | Give Restriction with Parameter values and not in criteria |
| in | Query: Query  Return Restriction | Give Restriction with Parameter Query and in criteria |
| notIn | Query: Query  Return Restriction | Give Restriction with Parameter Query and not in criteria |
| asc |  | Give Entry of current column and ascending order |
| desc |  | Give Entry of current column and descending order |

**3. Relation Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| Join | Join Enumeration | Join/Inner Join/Left Join  Full Join |
| Table | Table | Join Table |
| Query | Query | Query in join clause |
| Restriction | Restriction | Restriction in on clause |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| as | String | Save Join Query Alias |
| on | Restriction: Restriction | Save Restriction |

**4. Restriction Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| Operator | Operator | AND/OR |
| Column | Column | Column in Restriction |
| Criteria | Criteria Enum | =/<>/>/>=/</<=/between/in/not in/is null/is not null/exists/not exists |
| Value | Object | =/<>/>/>=/</<=/between Value |
| Values | Array of Object | In/not In values |
| To | Object | Between To value |
| Column2 | Column | Between From Column |
| Column3 | Column | Between To Column |
| Query | Query | Exists/Not Exists/In/Not In Query |
| Restrictions | List<Restriction> | Sibling Restrictions in same level |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| and | Restriction: Restriction | Add Restriction into Sibling Restrictions with AND operator |
| or | Restriction: Restriction | Add Restriction into Sibling Restrictions with OR operator |

**5. Case Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| Restriction | Restriction | Save Case Restriction in case clause |
| ThenColumn | Column | Save Case Then Clause Column |
| ThenValue | Object | Save Case Then clause value |
| WhenValue | Object | Save Case value in case clause |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| then | Column: Column | Save Column in then clause |
| then | Value: Object | Save value in then clause |

**6. RowNumber Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| Partitions | List<Column> | Row Number Partitions |
| Orders | Map<Column, Order> | Row Number Orders |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| partitionBy | Column: Column | Save Column in then clause |
| orderBy | Columns: Variable Column Array | Add Columns in orders with Order Ascending |
| orderByDesc | Columns: Variable Column Array | Add Columns in orders with Order Descending |
| orderBy | Orders: Variable Entries with Column/Order | Add Entries in orders |

**7. Query Class**

|  |  |  |
| --- | --- | --- |
| **Instance Variable** | **Data Type** | **Use** |
| \_1 | Column | Integer Column with name 1 |
| Current Date | Column | Date Column with name CURRENT\_DATE |
| Current Timestamp | Column | Timestamp Column with name CURRENT\_TIMESTAMP |
| Current Time | Column | Time Column with name CURRENT\_TIME |
| Columns | List<Columns> | List of Columns in select clause |
| Table | Table | Table in from clause |
| From Query | Query | Query in from clause |
| Relations | List<Relation> | List of Joins in from clause |
| Restrictions | List<Restriction> | List of restriction in where clause |
| Orders | Map<Column, Order> | Save Columns and their order in order by clause |
| Groups | List<Column> | Save Columns in group by clause |
| Limit | Integer | Limit clause value |
| Offset | Integer | Offset clause value |
| Combine Queries | List<Entry<CombineQuery, Query>> | Save Combined Queries with UNION(ALL)  INTERSECTION(ALL)  EXCEPT(ALL) |
| Alias | String | Current Query Alias |

| **Method** | **Parameters/Return** | **Use** |
| --- | --- | --- |
| select | Columns: Variable Column Array | Save Select clause columns |
| min | Column: Column | Give Column with min function |
| max | Column: Column | Give Column with max function |
| sum | Column: Column | Give Column with sum function |
| count | Column: Column | Give Column with count function |
| max | Column: Column | Give Column with max function |
| average | Column: Column | Give Column with average function |
| distinct | Column: Column | Give Column with distinct function |
| coelsce | Column: Column | Give Column with coelsce function |
| case | Cases: Variable Case Array | Give Column with case function |
| case | Column: Column  Cases: Variable Case Array | Give Column with case function |
| when | Restriction: Restriction | Give Case with Restriction Parameter |
| when | Value: Object | Give Case with Value Parameter |
| row\_number |  | Give Column with row\_number() name |
| row\_number | Partitions: List<Partition>  Return RowNumber | Give RowNumber with partitions parameters |
| from | Table: Table | Save Table in from clause |
| from | From Query: Query | Save Query in from clause |
| join | Table: Table  Return Relation | Give Relation with parameter table and Join type |
| innerJoin | Table: Table  Return Relation | Give Relation with parameter table and Innter Join type |
| leftJoin | Table: Table  Return Relation | Give Relation with parameter table and Left Join type |
| fullJoin | Table: Table  Return Relation | Give Relation with parameter table and Full Join type |
| exists | Query: Query  Return Restriction | Give Restriction with Parameter Query and exist criteria |
| notExists | Query: Query  Return Restriction | Give Restriction with Parameter Query and not exist criteria |
| where | Restriction | Add Restriction into Restrictions with AND operator |
| and | Restriction | Add Restriction into Restrictions with AND operator |
| or | Restriction | Add Restriction into Restrictions with OR operator |
| orderBy | Columns: Variable Column Array | Add Columns in orders with Order Ascending |
| orderByDesc | Columns: Variable Column Array | Add Columns in orders with Order Descending |
| orderBy | Orders: Variable Entries with Column/Order | Add Entries in orders |
| groupBy | Columns: Variable Column Array | Add Columns in groups |
| limit | Integer | Save Limit value |
| offset | Integer | Save Offset value |
| union | Query | Save Parameter Query into combine Queries with Union type |
| unionAll | Query | Save Parameter Query into combine Queries with Union All type |
| intersect | Query | Save Parameter Query into combine Queries with intersect type |
| intersectAll | Query | Save Parameter Query into combine Queries with intersect All type |
| except | Query | Save Parameter Query into combine Queries with except type |
| exceptAll | Query | Save Parameter Query into combine Queries with except All type |