# DO Query Language Training

The “Declarative Objectivity (DO) Language” web pages on <https://support.objectivity.com> is pretty good and could serve as the basis for a DO Language training session.

We need to have a controlled dataset and examples that students can walk through.

1. Getting Started With DO
   1. What is DO?
   2. How to Run a DO Query
   3. A Quick Tour
      1. Creating a Federated Database
      2. Starting an Interactive DO Runner Session
      3. Adding Class Descriptions
      4. Creating Objects
      5. Querying for Objects
      6. SQL vs. DO Statement Styles
      7. Modifying Objects
      8. Deleting Objects
      9. Deleting a Federated Database.
2. Querying for Data
   1. Querying by Value
      1. Data Stored as Objects
         1. Table vs. Object Model
         2. Relationships Between Objects
         3. Schema
   2. Sample Schema and Data Set
   3. Finding the Objects of a Class
      1. Statement Styles
      2. Casting Rules
      3. Viewing the Result Set
   4. Specifying the Query Source
   5. Returning Objects and Their Values
      1. Returning Whole Objects
      2. Returning a Subset of Values
      3. Returning Collection Values
      4. Returning Reachable Values
      5. Returning Transformed Values
      6. Types of Returned Values
      7. Returning Values Under an Alias
   6. Filtering the Values to be Returned
      1. Some Common Filters
      2. Combining Filters
   7. A Closer Look at Expressions
      1. Reachable attributes and elements
      2. Finding Out About Supported Operators
   8. Aggregating Values
      1. Aggregating Values Through Collections
      2. Grouping Source Objects Based on Shared Values
   9. Managing the Results
      1. Ordering
      2. Pagination
3. Performing Graph Queries
   1. Data Stored as Graphs
      1. Anatomy of a Graph
      2. Paths in a Graph
      3. When Edges Need Values
   2. A First Look at a Graph Query
   3. Patterns for Describing Vertices
      1. Specifying the Type of a Vertex
      2. Assigning a Variable to a Vertex
      3. Specifying Conditions on the Values of a Vertex
   4. Patterns for Describing Edges
      1. Specifying Edge Direction
      2. Identifying an Edge by Type
      3. Assigning a Variable to an Edge
      4. Specifying a Number of Consecutive Edges
   5. Composing Path Patterns
      1. A Simple Path Pattern
      2. Alternative Path Descriptions
      3. Finding Vertices With an Optional WHERE Clause
      4. Including Vertices of the Same Type
   6. Returning Values From a Graph Query
      1. Returning Whole Vertices
      2. Returning Values from a Vertex
      3. Returning Values from Multiple Vertices
      4. Returning Values Under an Alias
      5. Returning All Variables
   7. Example: Predicting Movie Preference
4. Navigating a Graph
   1. Sample Schema and Data Set
   2. Data Stored as a Graph
      1. Paths, Trails, and Walks
   3. Returning Individual Vertices
      1. Examining an Edge Projection
      2. Learning from the Results
   4. Returning Walks from a DO Graph Query
   5. Assigning a Variable to a Walk
   6. Returning Walks that are Paths
      1. Viewing the Result Set
      2. Examining a Walk Projection for a Path
      3. Learning from the Results
   7. Returning Walks that are Trails
      1. Examining a Walk Projection for a Trail
      2. Getting Useful Results
   8. Limiting the Number of Returned Walks
5. Creating and Deleting Data
   1. A Word about Persistent Data
   2. Data Creation Begins with Schema
      1. Sample Schema
      2. Discovering Schema Classes
   3. Creating Referenceable Objects
      1. Creating an Object with Default Attribute Values
      2. Creating an Object with Specified Attribute Values
      3. Creation Objects with Specified Strings
      4. Creation Objects with Specified Collections
   4. Stylistic Hint: Simplify Statements with LET
   5. Deleting Referenceable Objects
      1. Deleting Objects with Qualifying Values
      2. Deleting a Particular Object of a Schema Class
      3. Deleting All Objects of a Schema Class
   6. A Closer Look at Relationships
      1. Unidirectional Relationships
      2. Bidirectional Relationships
      3. To-One and To-Many Relationships
      4. Relationships in SHOW CLASS Output
   7. Creating and Deleting Related Objects
      1. Creating a Pair of Related Referenceable Objects
      2. Creating a Group of Related Referenceable Objects
      3. Creating an Object that References One or More Existing Objects
      4. Deleting Related Objects
   8. Creating and Deleting Embedded Objects
      1. Creating an Embedded Object
      2. Deleting an Embedded Object
6. Data Statements
   1. RETURN and SELECT Statements
   2. MATCH Statement
   3. CREATE Statement
   4. DELETE Statement
   5. UPDATE Statement
   6. LET Statement
   7. SHOW Statement
   8. SHOW PARAMETERS Statement
7. Data Clauses
8. Expressions
9. Operator Expressions
10. Schema Statements
    1. About Schemas
    2. Schema Evolution
    3. SHOW CLASS Statement
    4. SHOW CLASSES Statement
    5. SHOW SCHEMA Statement
    6. UPDATE SCHEMA Statement
11. Schema Clauses
    1. ALTER CLASS Statement
    2. CREATE CLASS Statement
    3. DROP CLASS Statement
    4. RENAME CLASS Statement
12. Attribute Structures
    1. About Attribute Structures
    2. Basic Data Attributes
    3. String Attributes
    4. Date-Time Attributes
    5. Reference Attributes
    6. Embedded-Object Attributes
    7. Collection Attributes
       1. List Attributes
       2. Set Attributes
       3. Map Attributes
       4. About To-Many Relationships