

QMF™ for Application Developers

Course No.

1035

Description

This course is designed to improve the productivity of application developers by enabling them to exploit features of the Query Management Facility. Participants will learn the basics of developing applications with QMF™ including: sending variables to queries and procs, writing linear procedures, and calling QMF™ from JCL or application programs. Also, participants will learn how to use SQL to retrieve, update, create and delete data from DB2™ and how to use the form panels to produce a variety of reports.

Audience

This course is suggested for application developers

Prerequisites

It is strongly recommended that participants have prior programming experience and experience using TSO and ISPF.

Objectives

- Write SQL SELECT statements to: retrieve data from relational tables
- Use QMF™ FORM panels to format reports: Control Breaks, summarization, heading and footing text and free-form reports
- Be familiar with Prompted Query and the Table Editor
- Manage QMF™ objects: save, list, and retrieve queries and forms
- Create QMF™ applications including queries with variables and “linear” procedures and “procedures with logic” (REXX procedures)

Major Topics

- QMF™ Formatting
- Basic SQL SELECT statements
- Scalar Functions
- SQL Searching and Sorting
- Dates, Times, and Timestamps
- QMF™ Control Breaks
- QMF™ Object Management
- QMF™ Formatting: FORM.DETAIL, Specify new columns, Modifying forms
- SQL Joins and Unions
- SQL Subqueries

Duration

4 days



Table of Contents

1. Introduction

- The Environment
- The Major Components
- Starting a QMF Session
- The Home Panel
- Function Keys
- Running a Query
- The Form
- Tabular report with text variables
- Report with control breaks
- A free-form report
- An “across” or “matrix” report
- FORM Panels
- The Profile
- QM™ Commands
- Interrupting a Query
- Variables in Queries
- Procedures (Procs)
- Getting Help
- Ending a Session
- Workshop

2. QMF™ Formatting

- Query and Report
- FORM.MAIN
- Column Headings, Edit Codes
- Edit Codes
- Text
- Text Variables
- Width, Sequence
- Usage Codes
- FORM Panels

3. Basic SQL SELECT statements

- Column Types; Syntax
- Select & From
- Arithmetic Expressions
- Literals
- DISTINCT
- Concatenation
- Scalar Functions
- Column Types

4. SQL Searching and Sorting

- WHERE Clause
- Numeric Tests
- Character Tests; AND, OR
- Negative Expressions
- Nulls, Not Null
- Between
- In
- Like
- Order By

5. SQL Dates, Times, and Timestamps

- How Dates Are Stored and Displayed
- Date Formatting
- Date Arithmetic
- Date Functions
- Labeled Durations
- How Times Are Stored and Displayed
- Times
- How Timestamps Are Stored and Displayed
- Timestamps

6. QMF™ Control Breaks

- Form Panels
- Control Break Concepts
- Creating a Control Break
- Nested Control Breaks
- Control Break Rules
- Control Break Text
- Breaking on Omitted Column
- FORM.OPTIONS

7. QMF™ Object Management

- RESETing QMF Objects
- DRAW
- SAVE
- LIST
- EXPORT and IMPORT
- QMF™ Profile
- Invoking TSO and CMS Facilities
- Invoking TSO, CICS, or CMS Facilities
- Summary of QMF™ Commands



8. QMF™ Formatting: FORM.DETAIL Specifying New Columns, Modifying Forms

- FORM Panels
- Introduction to FORM.DETAIL
- Detail Heading
- Detail Block Text
- Modifying Forms: Problem
- Modifying Forms: Solution
- Specifying New Column Values
- Specifying New Column Alignment
- The LAYOUT Command
- FORM.OPTIONS

9. SQL Joins

- Terminology
- Intersection: Joining Tables
- Joining a Table to Itself
- Creating Views

10. SQL Subqueries

- Terminology
- Intersection: Subquery
- Difference: Subquery
- "Quantified" Predicates
- Intersection: EXISTS
- Difference: NOT EXISTS
- Other Correlated Subqueries

11. SQL Summarization

- Min & Max
- Sum & Avg
- Count
- Nulls
- Group By
- Group By & Having
- Having, with Subquery
- Tips

12. QMF™ Summarization

- FORM Panels
- Usage Codes
- Text Aggregates
- Usage Codes and Control Breaks
- Usage Codes
- QMF Grouping
- SQL vs. QMF Grouping

- QMF™ Across Reports
- Formatting Options for Grouped Reports

13. Advanced QMF Formatting FORM.CALC, FORM.CONDITIONS

- FORM Panels
- FORM.CALC: Calculations
- FORM.CALC: Calculations Using REXX
- Conditional Formatting: FORM.CONDITIONS
- FORM.CALC & CONDITIONS

14. Updating TablesFORM Panels

- Update
- Insert
- Inserting form Another Table
- Insert
- Delete
- Referential Integrity

15. QMF™ Table Editor

- Potential Uses
- Add & Change Modes
- Add Mode
- Getting Help
- Long Fields
- Searching & Changing Data

16. Prompted Query

- Overview
- The Prompted Query Panels
- Specifying Columns
- Row Conditions
- Sorting
- Recap
- Handling Duplicates
- Expressions
- Multiple Row Conditions
- Summarizing, Grouping
- Using Multiple Tables
- Listing Table Names
- Fixing a Query
- Using SQL
- Strengths and Weaknesses

17. QMF™ Procedures

- Imbedded Variables
- Linear Procedures
- Procedures with Logic



- Creating a Proc
- Variables in Procs
- Batch Reporting
- Global Variables
- The INTERACT Command
- The MESSAGE Command

18. SSA Callable Interface

- Overview
- Assembler
- C
- COBOL
- Fortran
- PL/I
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- Starting a QMF Session
- Batch Considerations
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- Debugging
- “Command Interface”

Appendices

- A. QMF™ Applications Using the Command Interface
- B. QMF™ Customization
- C. QMF™ Command Summary

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