Course Outline

Structured COBOL Workshop for Enterprise COBOL

Course Summary

Objectives

By the end of this course, students will be able to:

- Code and test programs using the "IBM Enterprise COBOL for z/OS and OS/390" compiler to process sequential files
- Describe fields, records, and files to COBOL
- Correctly use the most common COBOL verbs in their various forms
- Use the following techniques in designing or coding COBOL programs: Data editing, including use of multiple currency symbols and the Euro Loop control and switch setting and testing Move mode and locate mode processing Pseudocoding as a design tool Reference modification Some intrinsic functions
- The COBOL COPY statement
- Code COBOL programs using installation standards, with an awareness of the ANSI standard
- Define numeric data items to COBOL that are packed decimal or binary integer in format
- Use the COBOL arithmetic verbs ADD, SUBTRACT, MULTIPLY, DIVIDE, and COMPUTE
- Code and test COBOL programs to create reports, including page break processing and control breaks.
- Code and test COBOL programs to perform batch transaction processing using match-merge logic sequential processing of transaction and master files), including update in place for sequential disk files
- Use the following techniques in designing or coding COBOL programs: Top down development, Structured programming, Pseudocoding as a design tool, Modular design
- Code COBOL programs that read from and write to HFS files on systems using z/OS UNIX.

Topics

- Fundamentals
- Describing Data
- Processing Data
- /O Processing Options
- More on Data Items
- PERFORM Statements
- Program Design
- Conditional Statements
- Describing Numeric Data
- Data Alignment
- Arithmetic Instructions
- EVALUATE
- Basic String Manipulation
- Introduction to Intrinsic Functions
- Working with Print Files
- Control Breaks
- Match Merge Logic
- Miscellaneous Topics

Prerequisite

Basic familiarity with TSO/ISPF (or equivalent), working knowledge of submitting jobs with JCL and examining the output, as well as introduction to data processing concepts are required for this course (see course PT2013). Knowledge of another programming language is helpful but not required.

Duration

Five Days

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I. *Fundamentals*
A. Hardware and Software
B. Instructions and Programs
C. Compiling and Binding
D. COBOL Basics
- Computer Exercise: Starting a COBOL Program

II. *Describing Data*
A. Concepts
B. Records and Files
C. Fields
D. Structures
E. Introduction to PICTURE
F. Working-Storage
G. Tips in Defining Data
- Computer Exercise: Defining Working-Storage

III. *Processing Data*
A. File Handling
B. Record Building
C. Loop Control
D. The PROCEDURE Division
E. Qualification of names
F. OPEN, READ, WRITE, CLOSE
G. Control Flow: GO TO, EXIT PROGRAM, STOP RUN, GOBACK
H. Data Manipulation
I. MOVE and MOVE CORRESPONDING
J. Program Building Strategy
- Computer Exercise: A Complete COBOL Program

IV. *I/O Processing Options*
A. Buffers
B. Move Mode and Locate Mode Processing
C. End of File Processing
D. Data Element Naming
- Computer Exercise: Variations on a Theme

V. *More on Data Items*
A. Figurative Constants
B. Data Editing
- Computer Exercise: Editing

VI. *PERFORM Statements*
A. Un-structured Programming
B. Alternatives to "GO TO"
C. Perform Procedure
D. Perform ... Thru
E. Perform Until
- Computer Exercise: Using Perform

VII. *Program Design*
A. Program Execution Principles
B. Program Design Paradigms and Techniques
C. Pseudocode
- Computer Exercise: Using Pseudocode

VIII. *Conditional Statements*
A. More PERFORM statements
B. Conditions and Conditional Expressions
C. IF / [THEN] / ELSE
D. Scope Terminators
E. CONTINUE
F. In-Line PERFORM
G. SET ... TO TRUE
- Computer Exercise: Conditional Statements

IX. *Describing Numeric Data*
A. USAGE Clause
B. Display data
C. Packed decimal data
D. Binary integer data
- Computer Exercise: Creating Numeric Fields

X. *Data Alignment*
A. Slack Bytes and Sync
B. Numeric Data Transmission Considerations
- Computer Exercise: Ensuring Proper Alignment

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Course Outline (cont.)

XI. *Arithmetic Instructions*
- A. ADD, SUBTRACT, MULTIPLY, DIVIDE
- B. Rounding
- C. Arithmetic expressions
- D. COMPUTE
- E. Planning calculation results
- F. SIZE ERROR Condition
- • Computer Exercise: Using Arithmetic Verbs

XII. *EVALUATE*
- A. Syntax
- B. EVALUATE and conditions
- C. EVALUATE with ANY and ALSO
- D. EVALUATE and truth tables
- E. Points and Tips
- • Computer Exercise: Using EVALUATE

XIII. *Basic String Manipulation*
- A. INITIALIZE, ACCEPT / DISPLAY
- B. Conceptual Data Items (DATE [YYYYMMDD], DAY [YYYYDDD],
- C. DAY-OF-WEEK, TIME)
- D. Reference Modification
- E. Hex Notation
- • Computer Exercise: DATE, TIME, and DISPLAY

XIV. *Introduction to Intrinsic Functions*
- A. Concepts and Syntax
- B. Lists of Intrinsic Functions
- C. Date and Time Related Functions
- D. String Related Functions
- E. Arithmetic, Business, and Mathematical Functions
- • Computer Exercise: Using Functions

XV. *Working With Print Files*
- A. Carriage Control
- B. Report Dates
- C. Report Components
- D. Line Counting
- E. Page Break Logic
- F. Report Break Logic
- G. Report Design Pseudocode
- • Computer Exercise: Report Creation

XVI. *Control Breaks*
- A. Concepts
- B. Break Processing
- C. Control Break Pseudocode
- • Computer Exercise: Two-level Control Break Program

XVII. *Match Merge Logic*
- A. Update in Place (REWRITE)
- B. Match Merge Concepts
- C. Match Merge Pseudocode
- • Computer Exercise: Match Merge

XVIII. *Miscellaneous Topics*
- A. File Status
- B. Coding Styles
- C. REDEFINES and RENAMES
- D. User-defined Classes
- E. The COPY Statement
- F. Advanced Currency capabilities
- G. Line sequential files