COBOL Programming

Introduction to COBOL

- History and evolution of COBOL
- Importance of COBOL in business applications
- COBOL syntax and structure

COBOL Environment Setup

- Installing COBOL compiler and development environment (e.g., GNU COBOL, Micro Focus COBOL)
- Configuring IDEs (Integrated Development Environments) for COBOL development

COBOL Data Types and Data Structures

- COBOL data types (Numeric, Alphanumeric, Packed Decimal, etc.)
- Working with variables and constants
- Arrays and tables in COBOL

COBOL Program Structure

- Structure of a COBOL program (Identification Division, Environment Division, Data Division, Procedure Division)

- Program control flow (Sequential, Conditional, Iterative)

COBOL Data Manipulation

- Input and Output operations (READ, WRITE, REWRITE, etc.)
- File handling in COBOL (Sequential, Indexed, Relative)
- Working with COBOL data files (FD Statements, File Handling Verbs)

COBOL Procedures and Functions

- Subroutines and Functions in COBOL
- Passing parameters (BY REFERENCE, BY VALUE)
- Scope and visibility of variables

COBOL Conditional Statements

- IF-ELSE statements
- EVALUATE statement
- CASE statement

COBOL Loops and Iteration

- PERFORM statements (PERFORM UNTIL, PERFORM VARYING, etc.)
- Nested loops in COBOL

COBOL Data Validation and Error Handling

- Validating data in COBOL programs
- Error handling techniques (CONTINUE, STOP RUN, etc.)
- Using EXCEPTION and ON clauses

COBOL Reporting and Printing

- Report generation in COBOL
- Using Report Writer facilities

- Formatting output in COBOL programs

COBOL Database Connectivity

- Working with databases in COBOL programs (SQL integration)
- Embedded SQL in COBOL
- COBOL and relational database management systems (RDBMS)

COBOL Debugging and Testing

- Techniques for debugging COBOL programs
- Unit testing COBOL applications
- Performance tuning and optimization

COBOL File Handling and Access Modes

- Sequential file handling (OPEN, CLOSE, READ, WRITE)
- Indexed file handling (OPEN, CLOSE, READ, WRITE)
- Relative file handling (OPEN, CLOSE, READ, WRITE)

COBOL Advanced Topics

- Object-oriented features in COBOL (OO-COBOL)
- Web services integration in COBOL
- COBOL in modern enterprise environments

COBOL Maintenance and Modernization

- Refactoring legacy COBOL code
- Integration with modern architectures (Microservices, Cloud)
- COBOL migration strategies

Case Studies and Real-world Applications

- Implementing COBOL in specific business domains (banking, insurance, etc.)
- Case studies of successful COBOL applications

Hands-on Labs and Projects

- Practical exercises and labs to reinforce COBOL programming concepts
- Building and debugging COBOL programs

Additional Resources