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DB2 SYSTEM PROGRAMMER

COURSE CURRICULUM | THEORY + LAB

4	20 hrs	EVILT	Mainframe Basics
MODULES	TOTAL HOURS	DELIVERY METHOD	PREREQUISITES

DB2 SYSTEM PROGRAMMER CURRICULUM — MODULES 1 – 2

MODULE 1

DB2 for z/OS Architecture Overview

Theory + LAB

DB2 Overview

- Role of DB2 in the z/OS environment
- DB2 Address Spaces DBM1, IRLM, MSTR, DIST
- DB2 Start and Stop Process - Commands
- DB2 Catalog and Directory
- Workfiles Database and Default Database
- DB2 Objects Hierarchy (SG, DB, TS, Tables, …)
- DB2 subsystems (Stand alone & Data Sharing concepts)
- DDF (Distributed Data Facility) and Local connections
- Allied Connections (TSO, Batch) and Distributed Connections - Thread / Transaction
- WLM (Work Load Manager)
- DML & DDL Statements (SQL) - SPUFI
- Buffer Manager and Locking mechanisms
- **LAB:** Start and stop a DB2 subsystem and verify the address spaces (DBM1, MSTR, IRLM, DIST) using -START DB2, -STOP DB2 and -DISPLAY commands
- **LAB:** Browse the DB2 Catalog and Directory; run DDL and DML statements in SPUFI to create a database, table space and table

MODULE 2

DB2 System Components

Theory + LAB

DB2 Buffer Pools

- Buffer pool Significance, Altering Bufferpool, Bufferpool sizes and count
- Bufferpool Tuning - Monitoring and Adjusting buffer pool usage
- **LAB:** Display and alter buffer pools (-DISPLAY BUFFERPOOL, -ALTER BUFFERPOOL) and review buffer pool statistics

DB2 Logs and Recovery

- Active and Archive logs (Dual copy)
- BSDS (BootStrap Dataset)
- DB2 Backup and Recovery procedures (Image copy, Logs Apply)
- **LAB:** Print the BSDS and review active and archive logs; take an Image Copy and perform a RECOVER of a table space

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DB2 SYSTEM PROGRAMMER CURRICULUM — MODULES 2 – 4

MODULE 2

DB2 System Components (cont.)

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DB2 Locking Mechanisms

- Locking and Concurrency in DB2
- IRLM and the role of Locks to safeguard Data Integrity
- Deadlock Detection and Timeout management
- **LAB:** Create a lock contention between two threads and analyze the timeout / deadlock using -DISPLAY THREAD

VSAM Datasets, PDS, PS File and JCL

Customizing DB2 Subsystem Parameters (DSNZPARM)

- Configuration settings for the DB2 subsystem
- Discussion about Important Zparms
- Performance tuning via DSNZPARMs
- How to Update Zparm (Offline and Dynamic)
- **LAB:** Review current DSNZPARM settings and perform a dynamic update using -SET SYSPARM

MODULE 3

Data Sharing and High Availability

Theory + LAB

DB2 Data Sharing

- Understanding DB2 Data Sharing group
- Sysplex and data sharing setup
- Coupling Facility Concepts (Group Bufferpool, SCA, Locks)
- **LAB:** Display data sharing group members and Coupling Facility structures (-DISPLAY GROUP, D XCF,STR)

Benefits of Data Sharing

- Availability
- Scalability
- More Flexible and Increased Transaction rate

Disaster Recovery Concept

MODULE 4

DB2 Maintenance, Troubleshooting and Best Practices

Theory + LAB

- SMPE Concepts (RECEIVE, APPLY, ACCEPT), Ordering RSU Maint code from GSD
- What is an APAR and PTF
- DB2 Utilities
- **LAB:** Run DB2 utilities (RUNSTATS, REORG, COPY) and review the job output
- DB2 Maintenance Process and Jobs
- DB2 Function Level Activation and Jobs
- DB2 Upgrade process and Jobs
- DB2 Fallback Considerations
- **LAB:** Walk through the SMP/E RECEIVE, APPLY and ACCEPT jobs for a sample PTF in a sandbox environment
- DB2 Traces (Stats collection) and Display commands
- **LAB:** Start and stop DB2 traces and use -DISPLAY commands to collect statistics

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MODULE
4

DB2 Maintenance, Troubleshooting and Best Practices (cont.)

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- Overview of New features in the latest DB2 release

Troubleshooting Ways

- Ways of Finding an Issue or where to look for Initially
- Contacting IBM support through PMR and Providing Documentation for their Analysis - LOGREC, EREP, SYSTEM / STC LOGS, JOBLOG, SMF Data, LISTPTF, DUMP, SLIP Dump
- **LAB:** Troubleshooting exercise: analyze a sample JOBLOG / dump and prepare the documentation for a PMR