



## **ADVANCED DB2 FOR Z/OS AND OS/390 APPLICATION DEVELOPMENT (HDT625) Three Days**

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### **Prerequisite**

This course is intended for students who have at least six months experience using DB2.

### **Who Should Attend**

This class is for applications developers who wish a thorough understanding of the performance aspects of DB2 as applied to the development process. This course is not intended for database administrators.

### **Course Description**

*Advanced DB2 For Z/OS and OS/390 Application Development* broadens the skills of a DB2 applications developer by going in-depth into DB2 SQL's performance and tuning ramifications. Various access paths are discussed as well as the use of the PLAN\_TABLE to determine the access path. The students are given ample opportunity for practice in a series of exercises designed around the curriculum.

### **Course Topics**

- Review of DB2
- DB2 In-Depth
- DB2 Catalog
- The Optimizer
- Access Paths
- DB2 Performance Monitoring
- DB2 Performance Tuning



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### **I. REVIEW OF DB2**

#### **A. SQL Review**

1. Basic SELECT Operations
2. INSERT, UPDATE & DELETE
3. Subqueries
4. Joins
5. UNION
6. Functions

#### **B. PLAN and PACKAGE Review**

1. What is a PLAN
2. What is a PACKAGE
3. Advantages & Disadvantages of the two approaches

#### **C. DB2 Enhancements**

1. 128 Terabyte Tables
2. Increased Number of Tables in SELECT, INSERT, UPDATE, DELETE
3. New Scalar and Column Functions
4. User Defined Functions
5. Enhancements to Stored Procedures
6. Triggers
7. New DB2 Catalog Tables and Columns
8. BLOBs and CLOBs

### **II. DB2 IN-DEPTH**

- A.** Physical Storage of Data
- B.** Tablespace Data Pages
- C.** Index Data Pages
- D.** Record Identifiers

### **III. DB2 CATALOG**

- A.** What is the DB2 Catalog
- B.** DB2 Catalog Structure



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### IV. THE OPTIMIZER

- A. Physical Data Independence
- B. CPU Cost
- C. I/O Cost
- D. DB2 Catalog Statistics
- E. Filter Factors
- F. Access Path Strategies

### V. ACCESS PATHS

- A. Scans
- B. Sequential Prefetch
- C. Indexed Access
- D. Query Parallelism
- E. Join Methods

### VI. DB2 PERFORMANCE MONITORING

- A. The PLAN\_TABLE, DSN\_STATEMNT\_TABLE, and DSN\_FUNCTION\_TABLE
- B. Using EXPLAIN
- C. Interpreting the PLAN\_TABLE, DSN\_STATEMNT\_TABLE, and DSN\_FUNCTION\_TABLE
- D. Using the DB2 Catalog As a Tool

### VII. DB2 PERFORMANCE TUNING

- A. Analyzing Access Paths
- B. Influencing the Optimizer
- C. Guidelines for Performance
- D. General Applications Tuning