DB2 Database Administration (5 Days)

Description: The student will learn how to normalize a relational database, and how to define DB2 objects, including Data Bases, Storage Groups, Table Spaces, Tables, Indexes, Views, and Aliases. The student will also develop a proficiency in loading, modifying, backing up, recovering, and tuning DB2 Data bases, using DB2 utilities, services aids, and catalog tables.

Audience: Experienced DB2 programmers and Data Base Analysts who will design and implement DB2 Data Bases.

Prerequisites: The student entering this course should be familiar with DB2 concepts, have a basic proficiency with SQL data manipulation verbs, have experience in using ISPF/PDF, and should be able to code JCL to run simple batch jobs.

Major Topics Include

- DB2 architecture
- Data base design
- Entity / Relationship Model
- Normalization
- Primary and foreign keys
- DB2 objects
- Creating Data Bases, Storage Groups, Table Spaces, Tables, Indexes, Views, Synonyms, and Aliases
- VSAM file allocation
- Referential integrity
- DB2 catalog tables
- Space estimates
- Loading and unloading tables
- Reorganizing table spaces
- Backup and recovery
- Data base tuning
- Application tuning
- Data Security
- Distributed processing

DB2 Data Base Administration - Topical Outline

Introduction to DB2 Data Base Design
Relational Architecture
Data Base Design Activities
Entity-relationship Model
Normalization And Normal Forms
Exercise: Designing and normalizing a Data Base

DB2 Architecture
DB2 Objects - Databases, Storage Groups, Table Spaces, Tables, Indexes, Synonymns, Aliases, Sequences
Buffer Pools
CREATE DATABASE
CREATE STOGROUP
CREATE TABLESPACE
VSAM File Allocation, Freespace, Locksize
Data Compression
Partitioned Table Spaces
CREATE TABLE
DB2 Data Types
DROP
Computer Exercise: Creating DB2 Objects - Table Spaces and Tables

Inter-table consistency
Referential Integrity
CREATE INDEX
CREATE VIEW
CREATE SYNONYM
CREATE ALIAS
CREATE SEQUENCE
CREATE SCHEMA
Computer Exercise: Creating DB2 Objects: Indexes, Keys, and Views

Loading Data into Tables - LOAD Utility
INSERT
MERGE
Computer Exercise: Loading Tables

Concurrency
Locking: Locks, Claim/Drain, and Lock Avoidance
Explicit Locking Facilities
DB2 Catalog Tables
Computer Exercise: Querying the Catalog Tables

Page Space Structures
Space Estimates
DB2 Utilities: CHECK, QUIESCE, REPORT
Exercise: Check Utility and Space Estimates

Documenting Tables and Columns - COMMENT and LABEL
Modifying Data Base Designs - ALTER, DROP and re-CREATE
DB2 Utilities: REORG
Computer Exercise: Revising DB2 Objects

Partition Independence
DB2 Utilities: RUNSTATS, MODIFY STATISTICS, STOSPACE
DB2 Commands
Computer Exercise: RUNSTATS and Commands

Backup, Recovery, and the DB2 Log
DB2 Utilities: COPY, MERGECOPY, and COPYTOCOPY
DB2 Catalog Tables - SYSCOPY
DB2 Utilities: RECOVER, REBUILD, MODIFY RECOVERY
DSN1COPY Service Aid
Computer Exercise: Backup and Recovery

Utility Control Statements
EXEC SQL
LISTDEF
OPTIONS
TEMPLATE
DB2 Utilities: UNLOAD
Computer Exercise: Utility Control Statements and UNLOAD

Tuning for Performance
Logical and Physical Design
Programming Considerations
Computer Exercise: Querying the Catalog Tables for Performance

DB2 Security
GRANT and REVOKE
Table, Column, Data Base, Plan, Use, System and Implicit Privileges
DB2 Catalog Tables for Authorization
Computer Exercise: Authorization

Exit Routines
Other Utilities
User-Defined Functions
Triggers
Materialized Query Tables