

Db2 UDB Stored Procedures for z/OS

Course Summary

Description

Db2 Stored Procedures Workshop provides an introduction to the Db2 stored procedure environment. Upon completion of this course, the students will have the skills necessary to create stored procedures using SQL PL, Java, and other programming languages. Students also will have the skills to create the necessary code in client/calling applications to invoke the Db2 stored procedures. This course is designed to be taught in an UNIX/NT training environment, however with the proper software it can also be taught on a OS/390 host system. Regardless, the concepts learned can be applied to any platform.

Objectives

After taking this course, students will be able to:

- Describe what a Db2 stored procedure is and define when a stored procedure should be used
- Identify the client application tasks and stored procedure tasks
- Determine correct CALL statement syntax for invoking a Db2 stored procedure
- Identify the capabilities of the Db2 Stored Procedure Builder (SPB) GUI
- Use the SPB to create and execute Java and SQL PL stored procedures
- Pass parameters to/from a Db2 stored procedure
- Create result sets in a Db2 stored procedure
- Describe the structure of the Db2 SQL PL procedural language
- Code the Create Procedure syntax for an SQL PL stored procedure including process control statements within the body of an SQL PL stored procedure
- Code statements in a calling SQL PL stored procedure to process result sets returned from the called SQL PL procedure
- Perform exception handling in an SQL PL procedure
- Implement nested SQL PL stored procedures
- Define the Create Procedure syntax for external stored procedures (i.e. Java stored procedures)
- Describe the requirements for debugging using the Stored Procedure Builder

Topics

- Overview of Db2 stored procedures
- The Db2 Stored Procedure Builder GUI
- SQL PL language
- Using the SPB to create Java Stored Procedures
- Calling Db2 stored procedures
- Debugging Db2 stored procedures
- VB Client calling SQL PL procedure (Day 3)
- Stored Procedures in other host languages (Day 3)
- Comparing Db2 SQL PL with other procedural languages (Day 3)

Audience

This course is designed for data base administrators and application developers working in a Db2 for OS/390 environment, in any Db2 version through version 7.

Prerequisites

Students should have a basic understanding of Relational Database Management Systems and Structured Query Language (SQL). Also, a working knowledge of a programming language, such as 'C' language or Java is recommended, but not mandatory.

Duration

Two to three days

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Course Outline

- I. **Overview of Db2 stored procedures**
 - A. What is a Db2 stored procedure?
 - B. When to use Db2 stored procedures
 - C. Client/Stored procedure application flow
 - D. Client tasks
 - E. Stored procedure tasks
 - F. Db2 stored procedure restrictions

Lab: Using the Db2 Control Center/Command Center GUI
- II. **The Db2 Stored Procedure Builder GUI**
 - A. Overview of the SPB components
 - 1. projects, GUI structure, menu options including environment properties
 - B. Options for accessing the SPB GUI
 - C. Building an SQL procedure using the SPB – what happens behind the scenes
 - D. Running an SQL PL procedure through the SPB
 - E. SPB Demo

Lab: Using the SPB to create a simple SQL PL stored procedure
- III. **SQL PL language**
 - A. SQL PL language structure
 - B. Use of compound statements
 - C. Compound statement restrictions
 - D. SQL PL variable and condition declarations
 - E. SQL PL cursor declarations and cursor processing
 - F. SQL PL handler declarations
 - G. SQL PL procedural statements
 - 1. Assignment statement
 - 2. Control flow statements (CASE, IF, LOOP, REPEAT, WHILE, FOR, ITERATE, LEAVE)
 - H. SQL PL Exception handling

Lab: Creating SQL PL procedures
- IV. **Using the SPB to create Java Stored Procedures**
 - A. Overview of Java stored procedure
 - B. Creating a JDBC stored procedure
 - C. Creating an SQLJ stored procedure
 - D. The Create Procedure syntax for a Java stored procedure (parameter specification, language, clauses: external name, specific, type of SQL allowed, parameter style, program type)

Lab: Creating Java stored procedures using the SPB
- V. **Calling Db2 stored procedures**
 - A. How are Db2 stored procedures invoked?
 - 1. Calling client applications
 - 2. Calling SQL PL stored procedures (nested SQL PL procedures)
 - B. CALL statement syntax in calling client applications (Java, C, Cobol)
 - C. Nested SQL PL procedure syntax elements – calling procedure
 - 1. Declare RESULT_SET_LOCATOR
 - 2. Associate
 - 3. Allocate

Lab: Nested SQL PL procedures
- VI. **Debugging Db2 stored procedures**
 - A. Debugging requirements
 - B. The ROUTINE_DEBUG table
 - C. Debugging environment setup
 - D. Debugging using the SPB

Lab: Debugging using the SPB
- VII. **VB Client calling SQL PL procedure (optional - day 3)**
 - A. Requirements in a VB client to call an SQL PL procedure
 - B. VB client code example
 - C. Demo – Creating a VB client

Lab: Create a VB client to call an SQL PL procedure
- VIII. **Stored Procedures in other host languages (optional – day 3)**
 - A. Creating 'C' language stored procedures
 - B. 'C' language calling stored procedure related syntax elements
 - C. Create procedure statement for a 'C' language stored procedure
 - D. Preparing the 'C' language stored procedure for execution

Lab: Creating a 'C' language stored procedure
- IX. **Comparing DB2 SQL PL with other procedural languages (optional – day 3)**
 - A. Comparing SQL PL with Oracle's PL SQL
 - B. Comparing SQL PL with Transact SQL
 - C. Note: Unit 9 is a lecture only unit