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education

course description

pathway application programming I (C language) U4189S

course overview

Acquire the information you need to develop Pathway applications quickly and efficiently using the C language. Through classroom discussion and hands-on programming exercises on an HP NonStop™ server, you will advance your application programming skills in the Pathway environment. You have the choice of performing lab exercises with either an Enscribe or a NonStop SQL/MP database. After completing this 4-day course, you will understand how Pathway applications utilize the features of the system architecture and operating system; and you will be able to apply what you have learned.

audience

C language application programmers who will be developing applications using the Pathway product.

benefits to you

- Components of the Pathway environment
- C requester programs with PATHSEND
- Context-free C server programs that access Enscribe and NonStop SQL/MP databases
- Using NonStop Transaction Monitor/MP (TM/MP) to ensure database consistency and integrity in the Pathway application environment
- Debugging requester and server programs using the Inspect facility
- Pathway system administration including configuration, starting, stopping, and monitoring components

prerequisites

- Knowledge of ANSI-standard SQL, if you plan to perform the NonStop SQL labs
- C Programming on NonStop Systems course

next steps

Pathway Application Programming II course

to order

You can order this course online at <http://education.hp.com>. At the site, select a country, then choose "registration" or "Book a course" and fill out the online registration form.

why hp education?

- Experienced and best-in-the-field HP instructors
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module	key topics
Pathway introduction	<ul style="list-style-type: none">• Online transaction processing (OLTP) in the NonStop server environment• The requester-server approach to online transaction processing• Pathway application and its role in online transaction processing• Components of a Pathway environment• Starting PATHMON and PATHCOM• Client/server options available in the Pathway environment
Pathway configuration and operation	<ul style="list-style-type: none">• Difference between global and object-specific configuration parameters• Configuring global and object-specific parameters• Cold starting and cool starting a Pathway system• Starting the Pathway objects individually• Monitoring and maintaining a Pathway system• Shutting down a Pathway system• Capturing the current Pathway environment <p>Lab Exercise (30 minutes): Starting a Pathway System</p> <ul style="list-style-type: none">• Establish your individual lab environment• Start and stop a Pathway application environment <p>Lab Exercise (1 hour): Configuring a Pathway System—leads you through the series of commands to create, start, and exit from a Pathway application environment</p> <ul style="list-style-type: none">• Configure Pathway TCP, TERM, PROGRAM, and SERVER objects• Display Pathway object attributes and information• Shut down a Pathway application environment <p>Lab Exercise (1 hour): Managing and Monitoring a Pathway System</p> <ul style="list-style-type: none">• Use a series of commands to manage and monitor a Pathway application environment• Practice the steps to capture the current configuration
server fundamentals	<ul style="list-style-type: none">• Requester-server model• Basic function of a server• Function of \$RECEIVE in interprocess communication• Steps that make up the basic structure of a server program• Why servers should be context-free• Recognizing and addressing the problems with concurrent database access by servers• Coding the Guardian procedures for server message processing• Differences between application messages and system messages
inspect debugging	<ul style="list-style-type: none">• Basic syntax and use of the more common Inspect commands for debugging C programs• Components of the Inspect debugging environment• Steps required to debug a stand-alone process• Steps necessary to debug a Pathway server
Enscribe database access	<ul style="list-style-type: none">• Enscribe file types• Coding the Guardian procedures to create and access Enscribe files• Coding the Guardian procedures to perform record positioning for Enscribe files• Appropriate error checking <p>Lab Exercise (1.5 hours): Server Fundamentals (Enscribe and SQL)</p> <ul style="list-style-type: none">• Gain hands-on experience in coding the Guardian procedure calls to use \$RECEIVE properly• Code a server to respond to incoming requests <p>Lab Exercise (1 hour): Inspect Debugging</p> <ul style="list-style-type: none">• Establish an Inspect session in a Pathway environment• Use the Inspect debugging tool to examine the message passing that occurs between a requester and a server• Become familiar with common Inspect tool commands <p>Enscribe Database Access (second segment)</p> <ul style="list-style-type: none">• Alternate key access to Enscribe files• Identifying and addressing simultaneous update issues• File and record locking procedures• Modifying Enscribe file characteristics
NonStop SQL database access	<ul style="list-style-type: none">• Use of NonStop SQL statements to insert, update, and delete rows in an SQL database• Identifying and defining host variables• Operation of a cursor• Writing statements to report SQL run-time errors• Process involved in building a C program with embedded SQL statements <p>Lab Exercise (2 hours): Locate Vehicle (Enscribe and SQL)</p> <ul style="list-style-type: none">• Code a server to access either an Enscribe or an SQL database to fetch records• Use Guardian procedures to access an Enscribe database

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- Use SQL statements for cursor handling in SQL database access
- Lab Exercise (2 hours): New Vehicle (Enscribe and SQL)
- Code a server to access either an Enscribe or an SQL database to perform updates
- Use Guardian procedures to perform record positioning and insertion in an Enscribe database
- Use SQL statements to fetch and insert rows in an SQL database

NonStop Transaction
Services/MP (TS/MP)
programming

- Major components that make up the NonStop TS/MP environment
- Pathsend environment and the capabilities of a Pathsend requester
- Coding the Pathsend procedures
- Coding nowait Pathsend operations
- Design considerations in using the Pathsend facility
- NonStop TS/MP server design considerations

data integrity and application
availability threats to data
integrity

- Guardian procedure calls that ensure database integrity through the TM/MP subsystem
- Writing Guardian procedure calls to invoke services from the TM/MP subsystem
- Use of the TS/MP subsystem to provide for continuous availability of processes
- Lab Exercise (1 hour): Pathsend Lab
- Code the Pathsend procedure to submit a request to a Pathway server class
- Code the Pathsend procedure to perform error handling

**for more
information**

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