Stored Procedures

IT703
Database
Design and
Implementation

Advanced SQL-2

Stored Procedures

- Named collection of procedural and SQL statements
- Advantages
  - Reduce network traffic and increase performance

  - Stored at the server (no transmission of individual SQL statements over the network
  - Reduce code duplication by means of code isolation and code sharing

  - Are called by application programs (minimizing the chance of errors and the cost of application development and maintenance)

Stored Procedures

- Basic Syntax

```
CREATE [OR ALTER] PROCEURE [OR PROC] procedure_name
AS
BEGIN
PL/SQL instructions;
END
```

- EXEC *procedure_name;* command ◦ Execute a stored procedure

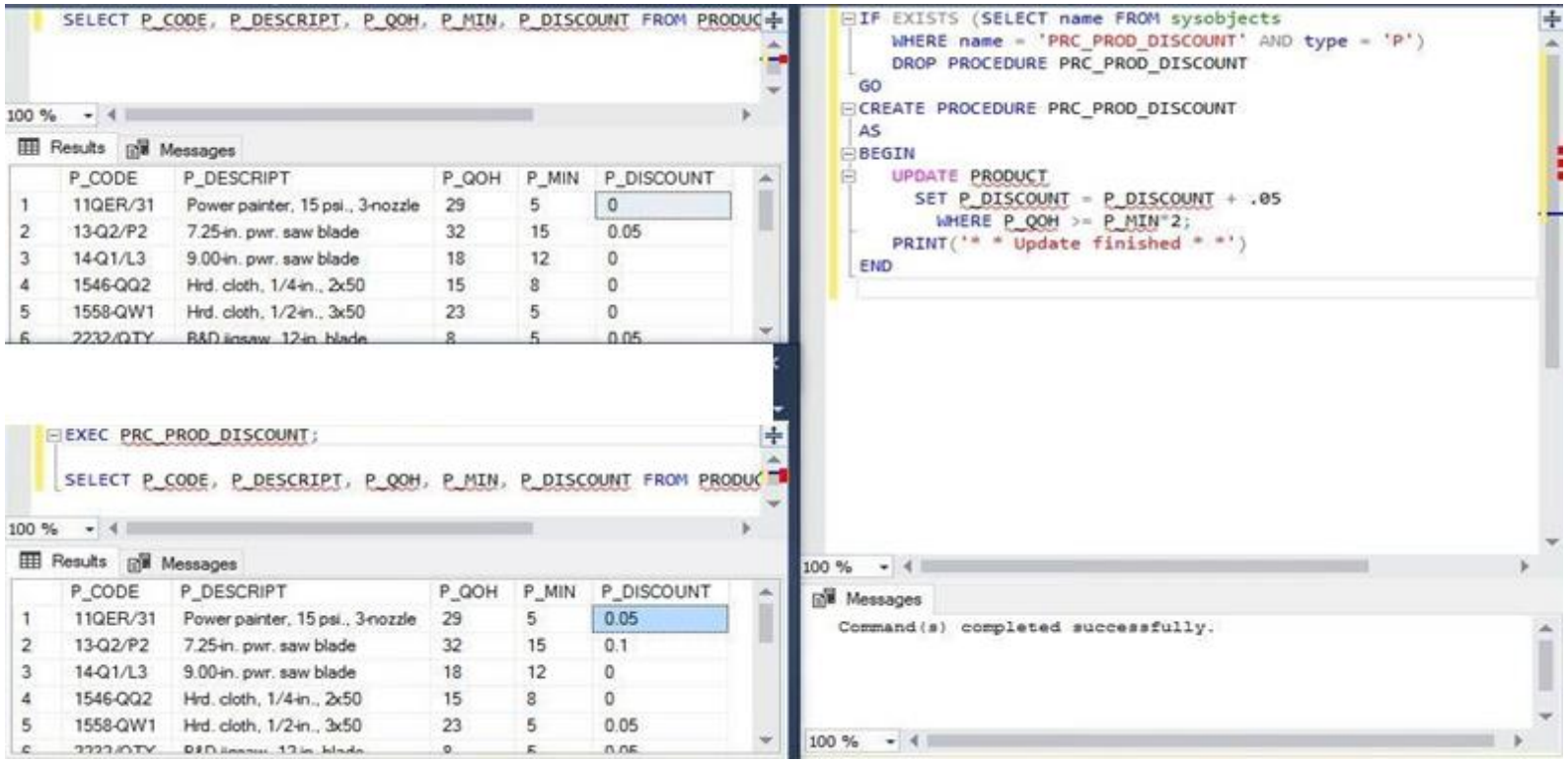
  DROP *procedure_name* command ◦ Delete a stored procedure

Stored Procedures

- Use the sql file from BB (IT703Lec7_SQLSCRIPT)
- Example:
  - Create a stored procedure to assign an additional 5 percent discount for all products when the quantity on hand is more than or equal to twice the minimum quantity.
  - Revise the stored procedure to adjust the discount rate with input values
  - Create a stored procedure to add a customer

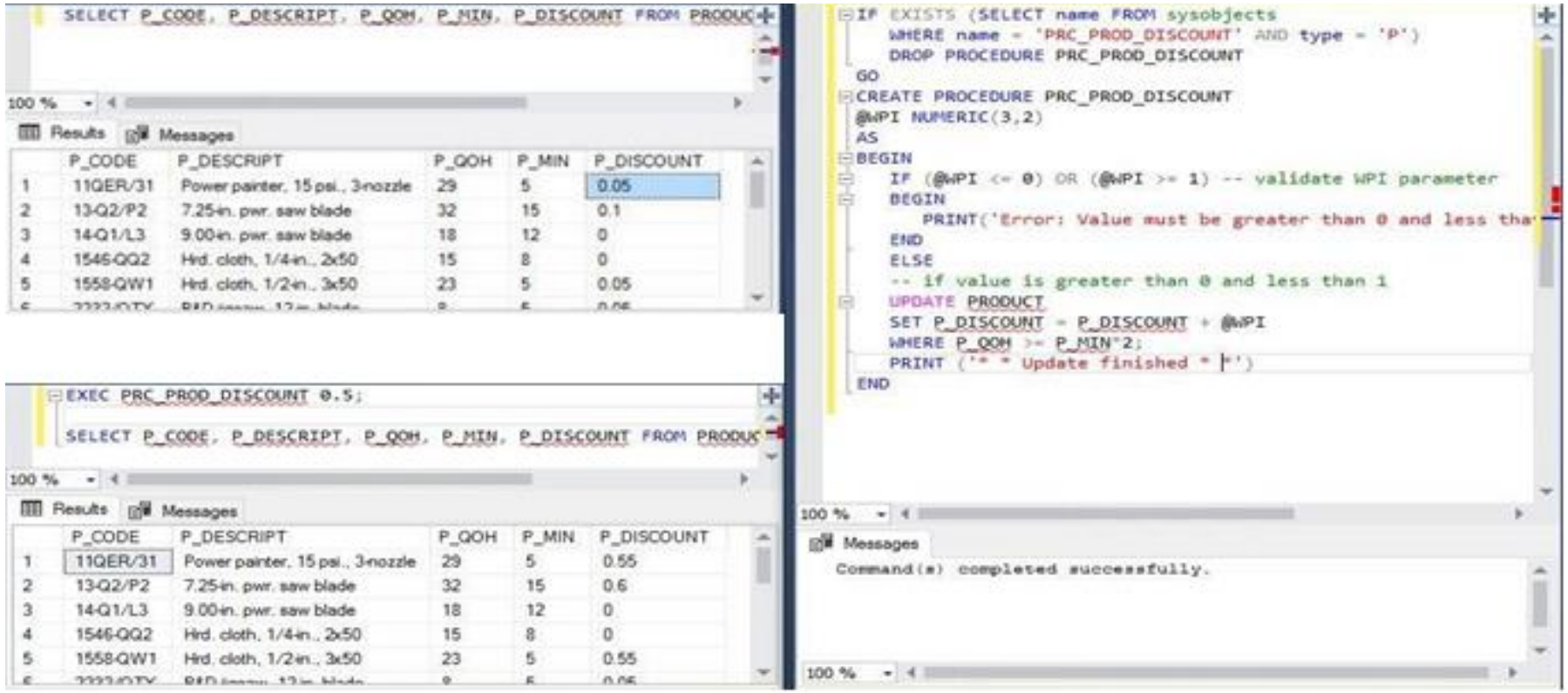
Stored Procedures

- Create a stored procedure to add 5 % discount for products (P_QOH >= P_MIN*2)



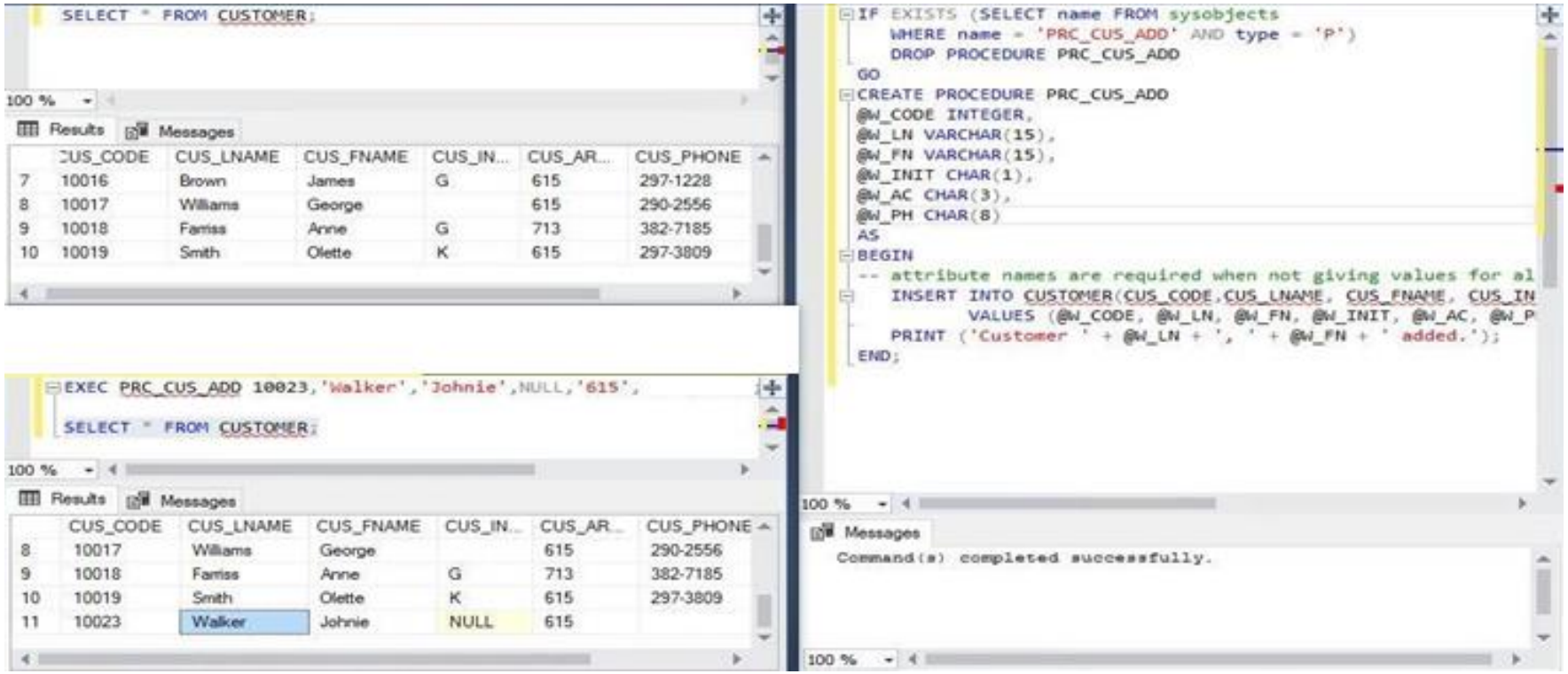
Stored Procedures

- Revise the stored procedure to adjust the rate with inputs (P_QOH >= P_MIN*2)



Stored Procedures

- Create a stored procedure to add a customer



Embedded SQL

- SQL statements contained within an application programming language
- Host language: Any language that contains embedded SQL statements
- Differences between SQL and procedural languages
  - Run-time mismatch
    - SQL is executed one instruction at a time, executed at the server side
    - Host language runs at client side in its own memory space

Embedded SQL

- Processing mismatch
  - Conventional programming languages process one data element at a time
  - Newer programming environments (Visual Studio, .Net) manipulate data sets in a cohesive manner

- Data type mismatch
  - Data types provided by SQL might not match data types used in different host languages

- To bridge the differences, the Embedded SQL standard defines a framework to integrate SQL within several programming languages

Embedded SQL

- Embedded SQL framework defines:
  - Standard syntax to identify embedded SQL code within the host language (EXEC SQL / END-EXEC)
  - Standard syntax to identify host variables which are preceded by a colon (:)
  - Communication area used to exchange status and error information between SQL and host language

END OF SESSION