



B.Com Honours

Semester III

Calicut University

BUSINESS ANALYTICS TOOLS

Course Code: COM3MN209 • Module 3 Notes

Module III: Searching and Combining Data with Power Query & SQL

Covers automated Extract, Transform, Load (ETL) data pipelines using Excel Power Query and relational database manipulation using Structured Query Language (SQL).

Unit 10: Getting Started with Power Query – Environment & Toolbars

Power Query provides a non-code graphical ETL environment in Excel. User interface tabs: Query Editor ribbon, Applied Steps pane (recording reproducible transformation steps), and Data Preview grid.

Unit 11: Accessing Reports & Importing Data – Data Splitting & Aggregation

Importing heterogeneous data sources (CSV, SQL databases, Web URLs, PDF tables), unpivoting columns, splitting text delimiters, removing duplicates, and appending/merging data tables.

Unit 12: Querying Data with SQL – SELECT Statements & Filtering

1. Core Syntax:

```
SELECT column1, SUM(column2) FROM table_name WHERE condition GROUP BY column1 HAVING SUM(column2) > threshold ORDER BY column1 DESC;
```

2. Filtering: Using WHERE clauses with logical operators (AND, OR, BETWEEN, IN, LIKE).

Unit 13: Managing SQL Commands & Table Management

Data Definition Language (DDL) and Data Manipulation Language (DML) commands: CREATE TABLE, INSERT INTO, UPDATE, DELETE, and Relational JOINS (INNER, LEFT, RIGHT, FULL OUTER).

Practical Case Framework (Power Query ETL vs. SQL Database Querying Matrix): Compare functional capabilities of Excel Power Query and SQL Database Engine.

Data Extraction & Transformation Tool Matrix:

Functional Capability	Excel Power Query (GUI-Driven ETL)	Relational SQL Engine (Query-Driven DB)
Primary Interface	Visual point-and-click graphical editor UI	Text-based SQL code editor & command scripts
Data Scale Capacity	Loads & transforms millions of rows into Data Model	Handles massive Terabyte enterprise relational databases
Transformation Audit	Recorded automatically in "Applied Steps" pane	Saved in version-controlled SQL script files (.sql)
Data Joining Technique	Merge Queries (GUI selecting matching key columns)	Explicit SQL JOIN syntax (INNER / LEFT JOIN)
Automation Workflow	Auto-refreshes data source connections on click	Scheduled automated stored procedures & ETL jobs

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