DATA ANALYST

CURRICULUM

NITYA CLOUDETECH

DATA ANALYST
ROADMAP

POWERBI

SQL

ETL

DATABASE CONCEPTS

DATAWAREHOUING

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INTRODUCTION TO DATABASES AND ETL CONCEPTS

- **DATABASE BASICS:**
  - UNDERSTANDING DATABASES AND THEIR IMPORTANCE
  - KEY COMPONENTS: TABLES, FIELDS, RECORDS, KEYS
  - TYPES OF DATABASES: RELATIONAL, NON-RELATIONAL

- **ETL FUNDAMENTALS:**
  - OVERVIEW OF ETL (EXTRACT, TRANSFORM, LOAD) PROCESSES
  - TOOLS AND TECHNOLOGIES FOR ETL: INFORMATICA, TALEND, AZURE DATA FACTORY
  - COMMON CHALLENGES IN ETL

DATA WAREHOUSING

- **WHAT IS A DATA WAREHOUSE?**
  - OLTP VS. OLAP
  - DATA WAREHOUSE ARCHITECTURE: STAGING, INTEGRATION, PRESENTATION LAYERS
- **DIMENSIONAL MODELING:**
  - STAR SCHEMA VS. SNOWFLAKE SCHEMA
  - FACT AND DIMENSION TABLES
- **ETL IN DATA WAREHOUSING:**
  - DATA CLEANING AND TRANSFORMATION
  - INCREMENTAL LOADING VS. FULL LOADING

DATA MARTS

- **INTRODUCTION TO DATA MARTS:**
  - WHAT IS A DATA MART?
  - TYPES: DEPENDENT, INDEPENDENT, HYBRID
- **DESIGNING A DATA MART:**
  - IDENTIFYING BUSINESS REQUIREMENTS
  - DATA SOURCES AND ETL PROCESSES FOR DATA MARTS

ADVANCE SQL

- **CORE SQL CONCEPTS:**
  - SELECT, INSERT, UPDATE, DELETE
  - WHERE, GROUP BY, ORDER BY, HAVING
- **JOINS AND SUBQUERIES:**
  - INNER, LEFT, RIGHT, FULL OUTER, SELF JOIN
  - NESTED QUERIES AND CTES
- **ADVANCED SQL:**
  - WINDOW FUNCTIONS: ROW_NUMBER, RANK, DENSE_RANK
  - PIVOT AND UNPIVOT TABLES
  - RECURSIVE QUERIES
  - COMMON TABLE EXPRESSIONS (CTES)
  - SQL LOOPS AND ITERATIONS
  - TRANSACTIONS AND ERROR HANDLING
- **PERFORMANCE OPTIMIZATION:**
  - INDEXING, QUERY OPTIMIZATION
  - EXECUTION PLANS AND ANALYSIS
- **SQL IN PRACTICE:**
  - REAL-WORLD EXAMPLES: DATA CLEANING, TRANSFORMATION
  - IMPLEMENTING DATA INTEGRITY AND VALIDATION RULES
  - DYNAMIC SQL AND STORED PROCEDURES
  - ADVANCED INDEXING TECHNIQUES (E.G., FULL-TEXT INDEX, CLUSTERED VS NON-CLUSTERED INDEX)
  - PARTITIONING AND SHARDING

POWER BI

- **INTRODUCTION TO POWER BI:**
  - OVERVIEW AND USE CASES
  - INSTALLING AND SETTING UP POWER BI
- **DATA PREPARATION:**
  - DATA CONNECTIONS: IMPORTING DATA FROM MULTIPLE SOURCES
  - CLEANING AND SHAPING DATA WITH POWER QUERY
- **REPORT BUILDING:**
  - CREATING BASIC VISUALIZATIONS (TABLES, CHARTS, MAPS)
  - FORMATTING REPORTS FOR BETTER PRESENTATION
- **ADVANCED FEATURES:**
  - DAX BASICS: CALCULATED COLUMNS, MEASURES
  - FILTERS, SLICERS, AND DRILL-THROUGHS
  - USING BOOKMARKS FOR NAVIGATION
  - WORKING WITH HIERARCHIES AND RELATIONSHIPS
- **DASHBOARDING:**
  - DESIGNING INTERACTIVE DASHBOARDS
  - SHARING AND PUBLISHING REPORTS
  - EMBEDDING POWER BI REPORTS INTO OTHER APPLICATIONS
- **POWER BI SERVICE:**
  - SETTING UP WORKSPACES AND COLLABORATION
  - AUTOMATING DATA REFRESHES
- **REAL-WORLD USE CASE:**
  - CREATING END-TO-END REPORTS FOR BUSINESS INSIGHTS

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