UNIQUE FEATURES OF VINAY TECH HOUSE:

- COMPLETELY PRACTICAL, REAL TIME AND PROJECT ORIENTED
- RICH THEORY WITH OPTIMIZATION TECHNIQUES
- CERTIFICATION BASED TRAINING***
- VIEW POINT BASED EXPLANATION ***
- TERADATA PROJECT ENVIRONMENT, EXPLAINING MULTIPLE PROJECTS
- RESUME GUIDANCE AND MOCK INTERVIEWS
- TOP NOTCH COMPANIES, MULTIPLE CMM LEVEL COMPANIES DIRECT RECRUITMENT.

ADDITIONAL SESSIONS ALONG WITH TERADATA MAIN COURSE:

- DATAWAREHOUSE FUNDAMENTALS
- DATA MODEL FUNDAMENTALS
- DWH & BI PROJECT ENVIRONMENT EXPLANATION
- TERADATA TESTING APPROACH
- TERADATA PROJECT EXPLANATION

SOFTWARE AND MATERIALS (FREE)

- DEMO SOFTWARE FOR PRACTICE
- PRACTICAL MATERIAL CHAPTER WISE
- SOFTCOPY MATERIAL WITH EACH TOPIC WISE THEORY, DIAGRAMS AND OPTIMIZATIONS
- PDFS AND PPTS WITH DIAGRAMETIC PRESENTATIONS.
- VIDEOS FOR MISSING CLASSES ***

BLOGS

- WWW.TERADATASTUDENTS.BLOGSPOT.IN

PROJECTS

- BANKING PROJECT WITH GALAXY & SNOW FLAKE SCHEMA MODELS
- RETAIL PROJECT WITH STAR SCHEMA & MIXED SCHEMA MODELS
- TELECOM PROJECT WITH 3RD NORMAL MODEL
TERADATA DEMO, DATA WAREHOUSE AND DATA MODEL FUNDAMENTALS

**IT Data Fundamentals & TERADATA Existence**
- Data, Data Availability in IT
- IT data storage areas
- Data warehouse, BI definitions and layers
- Teradata existence in IT, Product services
- Teradata Definition
- Teradata Tools and Components
- Teradata Opportunities

Creative visualization through screen shots

**TERADATA and Competitiveness**
- What are BI, OLAP, and OLTP? Importance in the current Enterprise? Competitive advantages
- TERADATA vs Other DATABASES
- SQL History, SQL Extensions and Teradata detailed history
- Hardware, Software requirements
- Nodes and installation methods

**Teradata practical components explanation**
- Bynet Driver, Teradata Database
- Teradata Express tools
- Teradata Load, Unload & Admin Tools
- Teradata Viewpoint and other tools

**Data warehousing fundamentals**
- Data definitions
  - (Data, Information, BI, Mining, ODS, DSS, Analysis, OLTP, OLAP, OLCP)
- Dwh Characteristics, Principles
- Dwh approaches (Top down/Bottom up)
- Dwh Life Cycle steps
- Data Mart & Types
- Data Processing Types (OLAP)
- Granularity and various granularities
- Diff between OLTP and OLAP

Creative visualization through screen shots

**Dimensional Modeling Fundamentals**
- Dimension, Dimension Table & types
- Fact, Fact Table & measures types
- Fact less fact table
- Various schemas (Star, Snow Flake, Galaxy & Hybrid)
- Surrogate key and usages in real time
- Model, Business, Conceptual, Logical, Physical Data Models

Real time project tables, models and design

Huge discussion on Project Data Designs
TERADATA COURSE CONTENT

(TERADATA PART-1: DATABASE & SYSTEMS)

1) Teradata Warehouse and Competitiveness
   - Opportunities of Teradata in the enterprise.
   - What is Teradata-RDBMS/DWH & BI?
   - Teradata 15 & Other versions (14,13.10,13,12)
   - Teradata History and Real time running versions.
   - Teradata View Point Features (Web based management tool)***.
   - Descriptions on Golden Gate and Data Mover***
   - Teradata competitiveness’ and differences with other RDBMS

   Discussion on Interview and Certification questions

2) Teradata Single ,Multi and Cloud System
   - Node Architecture (Shared Nothing)
   - SMP Architecture
   - MPP Architecture
   - Cloud Architecture (Teradata 14)
   - Discussion on real time no of AMPs and Nodes

   Real time Project Configurations

3) Teradata Components and Explanation
   - PDE(Parallel Data Extension),
   - Vprocs (Virtual Processors)
   - TPA (Trusted Parallel Application)
   - PE(Parsing Engine)
   - AMP(Access Module Processing)
   - BYNETs (Board less, Board Oriented)
   - TDP (Teradata Directory Program)
   - CLI(Call Level Interface),
   - VSS (Virtual Storage System)***

   Discussion on Certification & Interview questions

4) Teradata Storage and Retrieval Architecture
   - Request Processing
     - a. Syntaxer b. Resolver
     - c. Security Module d. Optimizer
     - e. Step Generator f. GNC Apply g. Dispatcher

     Hashing approach
     - Hash algorithm, Row Hash, Row ID
     - DSW, Hash Map , Hash Bucket, Reaching Vdisk

5) Teradata Indexes (Primary, Secondary)
   - Primary Index
     - Unique Primary Index (UPI)
     - Non Unique Primary Index (NUPI)
     - Partitioned Primary Index (PPI) (Range_N, Case_N, Multi Valued PPI ***)
     - NOPI (No Primary Index)***
     - Full Uniform Distribution vs Skewed distribution.
     - Skewness and Skewfactor

   Secondary Index
     - Unique Secondary Index (USI)
     - Non Unique Secondary Index (NUSI)
     - Value Ordered Secondary Index (VOSI)
     - Hash Index (HI)
     - Join Index (JI) and Types

   Full Table Scan (FTS) - Execution process
   - Diagrammatic explanation, syntaxes and practical
   - Performance improvement indexes and tuning them
### TERADATA COURSE CONTENT

#### (TERADATA PART-2: TERADATA-SQL)

1) **Teradata Server, Client and Pre-requisites**
   - Server start, stop, pause in Linux & Windows
   - Client tools to operate [GUI, Wizard, CUI]
   - Teradata Sql-Assistant, BTEQ, Query Studio
   - Open Database Connectivity (ODBC), OLEDB
   - Working with Sql-Assistant, BTEQ
   - Transaction Modes [BTET, ANSI]
   - Single, Multi Statement request operations
   - Command, Query and Request Processing

**Practical on this with case studies**

2) **Teradata DBA concepts**
   - Databases creation, manipulation and removal
   - Users creation, manipulation and removal
   - Memory management (Spool, Perm and Temp)
   - Privileges management
   - Working with other memory areas
   - Working on DDL commands to implement
   - Working with Teradata Administrator tool
   - Working on ViewPoint Portal (Optional)

3) **Teradata SQL Languages**
   - Data Definition Language (DDL)
   - Data Manipulation Language (DML)
   - Data Control Language (DCL)
   - Stored Procedure Language (SPL)
   - ANSI commands (COMMIT, ROLLBACK, ABORT)
   - Teradata Extensions a. HELP b. SHOW c. EXPLAIN d. COLLECT STATISTICS

4) **Data Manipulation Language (DML)**
   - Retrieval of data from objects (SELECT)
   - Manipulation of data from objects (Insert, Update, Delete, Merge, Upsert)

5) **Data Definition Language (CREATE, ALTER, DROP)**
   - Create/alter table with all possible options (Free space, Data Block Size)
   - Create different types of tables

   **Real time usages and detailed practices**

6) **Data Control Language (DBA Related Concepts)**
   - GRANTing privileges (GRANT)
   - REVOKEing privileges (REVOKE)
   - GIVEing Privileges (GIVE)

**Real time usages and detailed practices**

7) **Locks, Data Recovery and Protection**
   - Object Locks - Access, Read, Write, Exclusive
   - Hut, NO Wait, Pseudo table lock
   - HSA, HSN (Hot Stand By AMP,NODE)
   - RAID1, RAID5, Disk Arrays
   - Fall Back, AMP Clustering
   - Clique
   - Images (Single, Dual, Before, After)
   - Journals (Recovery, Transient and Permanent Journals, Write ahead logging)
### 8) Other Components of table
- Data Types (ANSI, Teradata)
- Data Type Attributes
- Column Storage Attributes (COMPRESS)
- COMPRESS (Block, Row, Column)
- Constraints
  - Primary / Unique / References / Check
- Soft Referential Integrity (SOFT RI)
- COLUMNAR FEATURE

**Real time practices and performance improvements**

### 9) Teradata Transactions
- Implicit & Explicit Transaction
- Interactive & Batch Modes

**Semantic Modes**
- a. BTET
- b. ANSI

### 10) Conditional Expressions and Operators
- Conditional Expressions (IN, NOT IN, LIKE, EXISTS, BETWEEN AND, IS NULL etc.)
- Arithmetic Operators and order of precedence
- Logical Operators and order of precedence
- Conditional Operators and order of precedence

### 11) Teradata Other Objects
- Sub Queries: Simple, Nested & Correlated
- Set Operations: Union, Union All, Intersect, Except
- Joins: Cross, Inner, Left, Right and Full Joins

**Detailed discussion on Real Time Queries and Tips**

- Views
- Macros
- Stored Procedures
- Triggers
- Cursors

**Detailed discussion on Real Time Queries and Tips**

### 12) Teradata Functions
- a) Niladic Functions
- b) Table Functions
- c) Scalar Functions
- d) Aggregate Functions
- e) Oracle functions in Teradata

 #### ETL (Normal) Functions:
- Format, Cast, Coalesce, Nullif, Trim, Substr, Position, Length, Chars, Upper, Lower, Sample, Random, Rank, Type, Named, Title, Index, Trim, Add_Months etc...

#### Advanced OLAP Functions (Ordered Analytical)
- Moving SUM/AVG/DIFF
- Cumulative SUM/AVG/DIFF
- With, With By
- Rank, Quality
- Row_Number, Qualify
- Format
- Extract
- Top
- Csum

**Detailed discussion on Real Time Queries and Tips**

### 13) Teradata Performance Tuning
- Explain Request Modifier (EXPLAIN PLAN)
- Collecting Statistics, Confidence Levels (High, Low, NO, JOIN), DIAGNOSTICS HELP STATS
- Tuning SQL Queries & Utilities
- Usage of PMON, Index & Statistics wizards
- Various Indexes (Hash, Join),
- Teradata Join Strategies (Merge, Product, Nested, Row hash)
- Skew Factor, Skewness and remedies
- Spool space Issues
- System Level Bottlenecks identification
# Teradata Course Content

## 6) Teradata FASTEXPORT
- Features, Process, Limitations
- Exporting data to Single, Multiple tables
- Passing Parameters (Internal, External)

Real time usages & scripts.

## 7) TPT (Teradata Parallel Transporter) & API
- Load, Export, Update, Stream Operators
- TPT Streaming Process
- TPT Wizard Implementation
- Implementing LOAD operator with multiple examples
- Implementing UPDATE operator with multiple examples
- Implementing STREAM operator with multiple examples
- Implementing FILTER operator with multiple examples
- Implementing STANDALONE operator with multiple examples
- Implementing Data Connector Operator
- Sessions and Instances

Real time usages, scripts and recommendations

## 8) Teradata OLELOAD
Moving data between Heterogeneous Sources
(Flat Files, Excel Files and Databases)

## 9) Teradata other utilities and tools (overview)
- Backup Archive and Recovery Solutions
- Teradata Performance Monitor (PMON)
- TERADATA Administrator
- TERADATA Index WIZARD
- TERADATA statistics wizard
- Teradata System Emulation tool (TSET)
- Teradata Viewpoint (portals and portlets)

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<thead>
<tr>
<th>TERADATA PART-3: UTILITIES [ETL &amp; ADMIN]</th>
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<tbody>
<tr>
<td><strong>1) Teradata SQL ASSISTANT (SQLA)</strong></td>
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<tr>
<td>- Import and Export data</td>
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<tr>
<td>- Working on various Data &amp; Formation options</td>
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<tr>
<td><strong>2) Teradata BTEQ</strong></td>
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<tr>
<td>- Features, Command Sets, Modes, Formats</td>
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<td>- Scripts with Fixed, Vartext and Report.</td>
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<td>- Branching and Looping</td>
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<td>- Load/Un Load with ETL operations</td>
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<td>- Multi Statement Requests **</td>
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<td>- Table –Table data loading</td>
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<td>- Exception handling and examples</td>
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<td>- Questions and error handling</td>
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<td><strong>3) Teradata FASTLOAD</strong></td>
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<tr>
<td>- Features, Phases and Limitations of Fast Load</td>
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<td>- Advantages , Process, Error tables</td>
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<tr>
<td>- Working with Fixed and Variable text scripts</td>
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<td>- Real time Issues and resolving it.</td>
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<td><strong>4) Teradata MULTILOAD</strong></td>
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<tr>
<td>- Features, Phases ,Limitations of Multi Load</td>
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<td>- Tables and Tasks in Multi Load</td>
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<tr>
<td>- INSERT/UPDATE/DELETE/UPSERT/RELEASE</td>
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<tr>
<td>- SCDs implementation(Type1, Type2, Type3)</td>
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<td>- Multi file and Multi table loading</td>
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<tr>
<td>- Features, Limitations, Process of TPump</td>
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<tr>
<td>- Diff between MLOAD and Tpump</td>
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Real time & Sample scripts, Issues Resolution.
Vinay Tech House