

THE FUTURE TRACK

COMPUTER EDUCATION

DATA

Analysts Course



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Introduction to Power BI

- Overview of Power BI
- Importance and Use Cases
- Power BI Components (Desktop, Service, Mobile)
- Connecting to Data Sources
- Data Visualization Overview

Downloading MySQL Workbench

- Introduction to MySQL Workbench
- Installation Process
- Setting up a Connection to a Database

MySQL Workbench Overview

- Interface Walkthrough
- Tools and Utilities
- Managing Databases and Tables
- SQL Query Editor Overview

What is DDL and DML

- Definition of Data Definition Language (DDL)
- Definition of Data Manipulation Language (DML)
- Examples of DDL (CREATE, ALTER, DROP)
- Examples of DML (SELECT, INSERT, UPDATE, DELETE)

Creating Tables in MySQL

- Syntax for Creating Tables
- Data Types and Constraints
- Primary Key, Foreign Key, and Indexes
- Practical Example of Creating a Table

Inserting Data in MySQL

- Syntax for INSERT Statements
- Inserting Single and Multiple Rows

POWER BI

- Error Handling while Inserting Data

SELECT, FROM, and WHERE Statements in MySQL

- Basic Syntax of SELECT and FROM Clauses
- Filtering Data using WHERE
- Using DISTINCT, LIKE, and ORDER BY
- Practical Examples

Inner Join in Power BI

- Understanding Joins in Power BI
- Syntax and Use of Inner Join
- Practical Example with Power BI Data Model

Left and Right Join in Power BI

- Differences Between Left Join and Right Join
- Use Cases in Power BI
- Examples of Implementing Joins in Power BI

SUM, ROUND, GROUP BY, and HAVING in MySQL

- Using SUM and ROUND Functions
- GROUP BY Clause: Aggregating Data
- Filtering with HAVING Clause
- Practical Examples with Complex Queries

COUNT Function in MySQL

- Syntax and Usage of COUNT
- Counting Rows, Distinct Values, and More
- Examples of COUNT Function in Queries

Date Functions in MySQL

- Overview of Common Date Functions (NOW(), CURDATE(), etc.)
- Formatting and Manipulating Dates
- Practical Examples

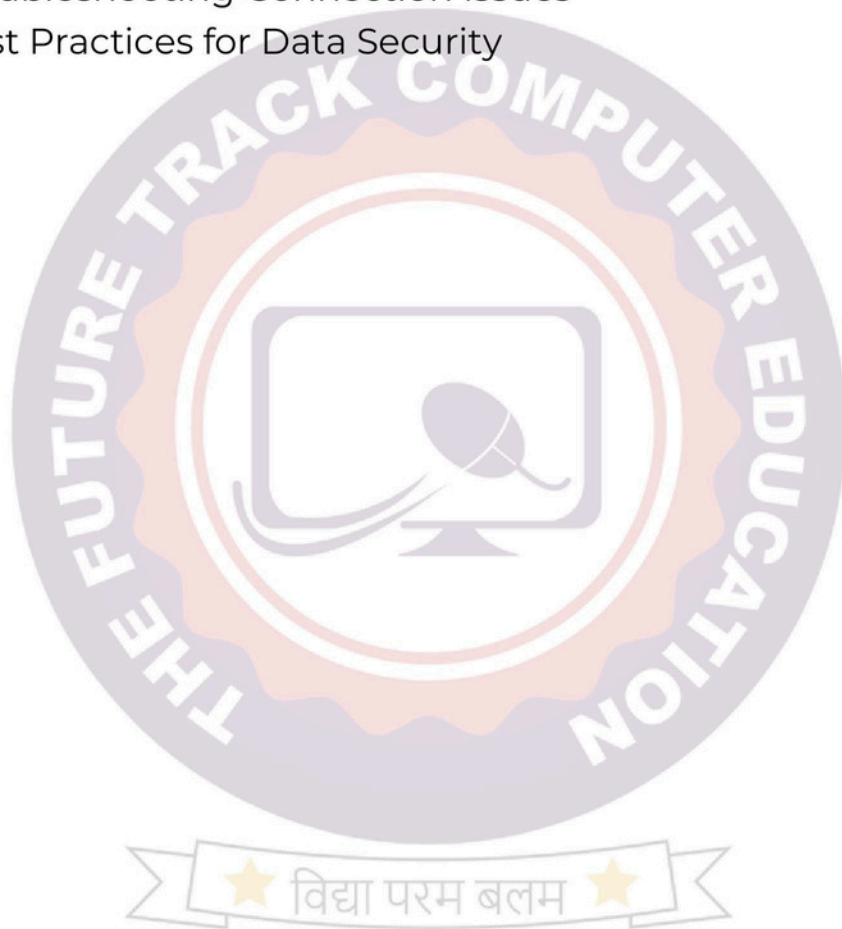
POWER BI

MySQL Connection with Power BI

- Establishing a Connection from Power BI to MySQL
- Data Import and Export Options
- Data Refreshing and Scheduling

Connector Installation

- Installing and Configuring MySQL Connectors for Power BI
- Troubleshooting Connection Issues
- Best Practices for Data Security



EXCEL POWER BI

Split Text to Columns

- How to Split Columns in Power BI
- Using Delimiters and Fixed Width
- Practical Examples of Data Transformation

Trim & Separate Data

- Using TRIM Function to Remove Unwanted Spaces
- Separating Data in Power BI (Split Columns by Delimiters)
- Practical Examples for Data Cleaning

Sort and Filter Data

- Sorting Data in Power BI Visuals
- Filtering Data using Basic and Advanced Filters
- Practical Examples with Data Sets

Common Calculations in Power BI

- Adding Custom Columns
- Basic Mathematical Operations (Addition, Subtraction, Multiplication, Division)
- Examples with Business Data

IF Function in Power BI

- Syntax of the IF Function in DAX
- Implementing Conditional Logic
- Nested IF Functions for Complex Conditions
- Practical Examples with Business Scenarios

Data Cleaning

- Handling Missing Values
- Removing Duplicates and Irrelevant Data
- Best Practices for Preparing Data for Analysis

EXCEL POWER BI

SUMIF and COUNTIF in Power BI

- Overview of SUMIF and COUNTIF in DAX
- Applying Conditional Aggregation
- Practical Examples with Data Sets

Importing Excel Files into Power BI

- Step-by-Step Guide for Importing Excel Data
- Managing Excel Workbooks and Sheets in Power BI
- Handling Linked and Dynamic Data Updates

Importing CSV Files into Power BI

- CSV Import Process in Power BI
- Handling Delimiters and File Formatting Issues
- Practical Examples of Working with CSV Data

Renaming Columns in Power BI

- How to Rename Columns in Power BI
- Best Practices for Column Naming
- Practical Use Cases

Data Cleaning

- Overview of Data Cleaning in Power BI
- Handling Null Values, Duplicates, and Outliers
- Transforming Data for Better Analysis

Data Merge in Power BI

- Merging Queries in Power BI
- Combining Data from Multiple Sources
- Practical Example of Data Consolidation

Data Split in Power BI

- Splitting Data into Separate Columns
- Using Delimiters and Fixed Width Options

EXCEL POWER BI

- Examples of Data Splitting for Reports

Find and Replace in Data

- Using Find and Replace in Power BI
- Using Find and Replace in Power BI
- Best Practices for Consistency in Data

Transform Data

- Overview of Data Transformation in Power BI
- Key Transformation Tools (Pivot, Unpivot, Transpose, etc.)
- Practical Examples of Data Reshaping

Group By in Power BI

- Grouping Data for Aggregation
- Using Group By for Summarizing Data
- Practical Examples with Visuals

Data Types in Power BI

- Understanding Different Data Types (Text, Number, Date, etc.)
- Converting and Managing Data Types
- Best Practices for Ensuring Data Consistency

Quick Measures in Power BI

- Introduction to Quick Measures
- Creating Calculations without DAX Knowledge
- Practical Use Cases for Quick Measures

New Measure in Power BI

- Understanding and Creating New Measures in DAX
- Syntax and Use Cases of Measures
- Practical Examples of Custom Calculations in Reports

PYTHON POWER BI

Creating a New DataFrame

- Introduction to DataFrames
- Creating DataFrames from Scratch or Existing Data
- Best Practices for DataFrame Structure and Management

Inserting DataFrame in Power BI

- Steps to Insert DataFrames into Power BI
- Integrating Python Scripts and DataFrames with Power BI
- Practical Examples of Using DataFrames for Data Analysis

Working with DataFrames

- Accessing and Manipulating DataFrame Rows and Columns
- Filtering and Sorting Data within DataFrames
- Practical Examples of DataFrame Operations

Data Cleaning in Power BI

- Cleaning Data in DataFrames with Power BI
- Handling Missing Values, Outliers, and Duplicates
- Practical Data Cleaning Techniques

Manipulating DataFrames

- Applying Functions to DataFrames
- Adding, Modifying, and Deleting Columns
- Grouping and Aggregating Data in DataFrames

Visualizing Data in DataFrames

- Creating Basic Visualizations with DataFrames in Power BI
- Practical Examples of Data Representation

Using Visualizations with Matplotlib

- Introduction to Matplotlib for Data Visualization
- Creating and Customizing Visualizations (Line, Bar, Scatter, etc.)
- Practical Examples for Reporting and Insights

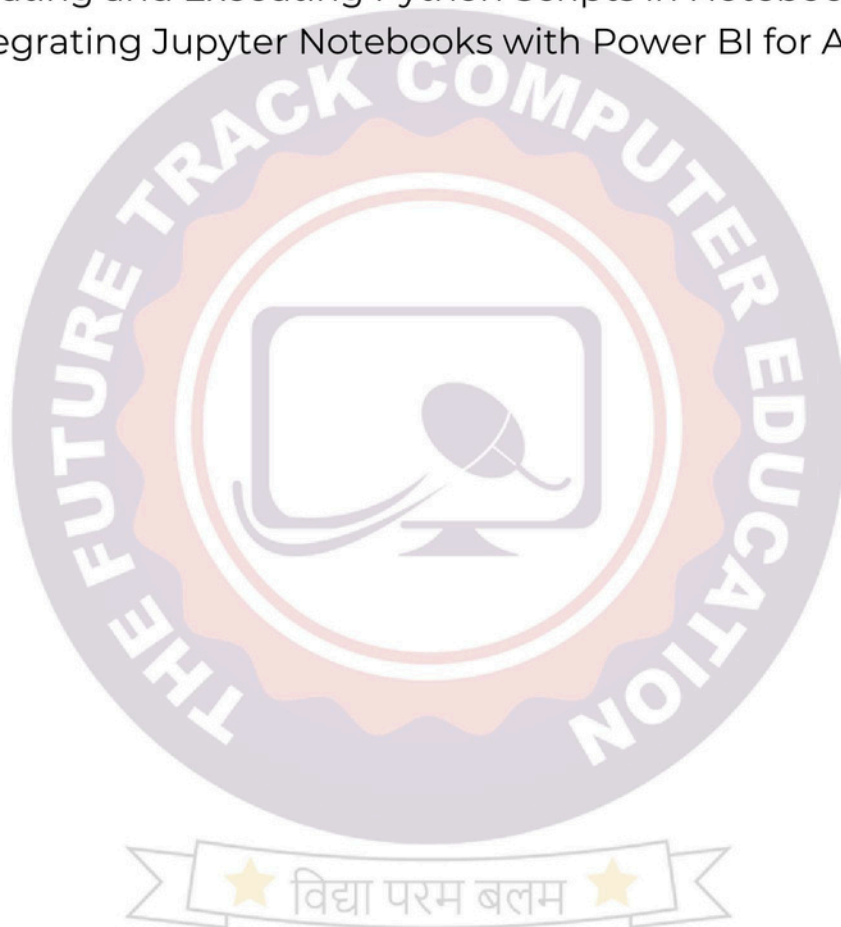
PYTHON POWER BI

Visualizing Data with Seaborn

- Overview of Seaborn for Advanced Visualizations
- Creating Statistical Plots (Heatmaps, Pair Plots, etc.)
- Customizing and Improving Data Visualizations

Using Jupyter Notebooks

- Overview of Jupyter Notebooks for Data Analysis
- Creating and Executing Python Scripts in Notebooks
- Integrating Jupyter Notebooks with Power BI for Analysis



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VISUALIZATION

Visualization: Stacked Bar Chart

- Creating and Formatting Stacked Bar Charts
- Use Cases and Practical Examples
- Customizing Labels and Colors

Visualization: Stacked Column Chart

- Differences Between Stacked Bar and Column Charts
- Creating Stacked Column Charts
- Best Practices for Presenting Data

Visualization: Clustered Bar Chart

- Overview of Clustered Bar Charts
- Setting Up and Customizing Clustered Bar Charts
- Practical Examples with Business Data

Visualization: Clustered Column Chart

- How to Create Clustered Column Charts
- Customizing the Appearance and Layout
- Use Cases for Clustered Data Representation

Visualization: Line Chart

- Creating Line Charts for Trend Analysis
- Customizing Axes, Labels, and Data Points
- Practical Examples of Time-Series Data

Visualization: Area Chart

- Overview of Area Charts and Their Usage
- Creating and Customizing Area Charts in Power BI
- Examples of Comparing Data Over Time

Visualization: Stacked Area Chart

- How to Create Stacked Area Charts
- Differences Between Stacked Area and Line Charts
- Practical Applications for Layered Data

VISUALIZATION

Additional Visualizations in Power BI

- Overview of Additional Chart Types (Waterfall, Funnel, Pie, etc.)
- Selecting the Right Visualization for Your Data
- Customizing and Using Advanced Features

Adding Action Buttons and Creating Text

- Using Action Buttons for Navigation and Interaction
- Creating and Formatting Text Boxes
- Practical Use Cases for Interactive Reports

Creating Scatter, Column, and Donut Charts

- Overview and Comparison of Scatter, Column, and Donut Charts
- Steps for Creating and Customizing Each Chart
- Best Practices for Presenting Data Visually

Creating a Decomposition Tree

- Introduction to Decomposition Tree Visual
- Setting Up and Customizing a Decomposition Tree
- Practical Examples of Hierarchical Data Analysis

Adding Conditional Titles to Charts

- Using DAX to Add Conditional Titles
- Customizing Titles Based on Data Values
- Practical Examples for Dynamic Reporting

Connecting Power BI to Source Data

- Steps for Establishing Connections to Different Data Sources
- Managing Data Refresh and Scheduling
- Practical Examples of Connecting to Excel, SQL, and Web Data

Creating Maps in Power BI

- Overview of Map Visualizations
- Setting Up and Customizing Maps with Geographical Data
- Practical Examples for Spatial Data Visualization

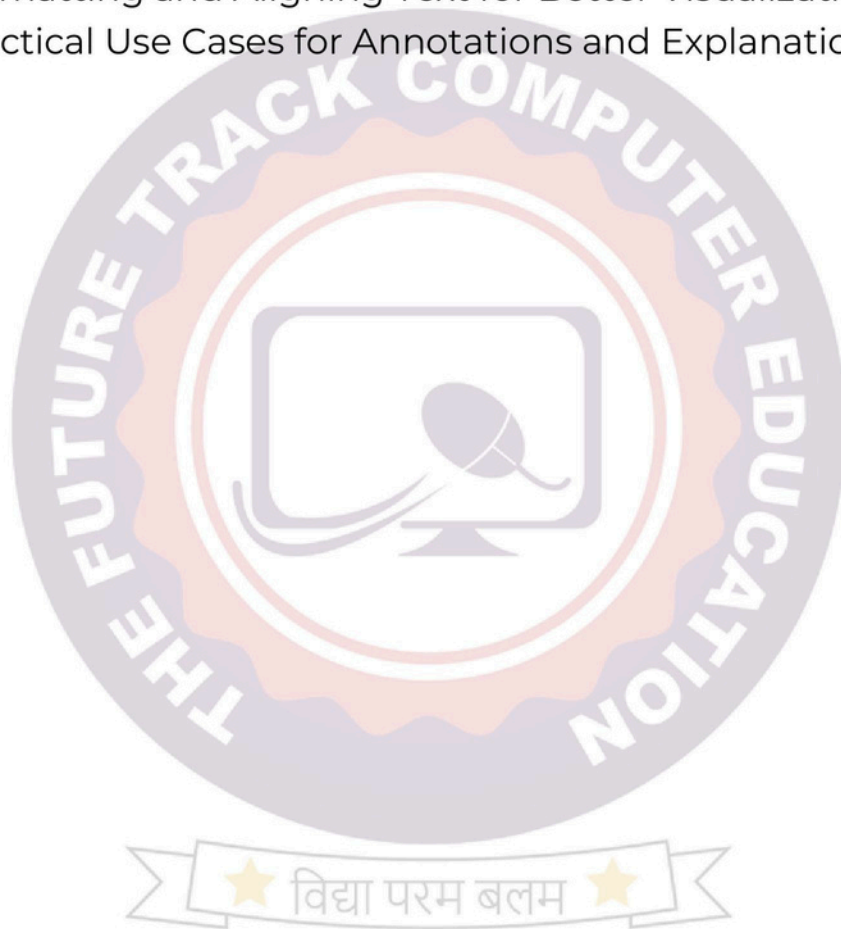
VISUALIZATION

Adding Ratings in Power BI

- Creating Rating Systems with Stars and Icons
- Customizing Ratings for Interactive Reports
- Practical Examples for Business Scenarios

Using Text Boxes in Power BI

- How to Add and Customize Text Boxes
- Formatting and Aligning Text for Better Visualization
- Practical Use Cases for Annotations and Explanations



INTRODUCTION TO MYSQL

- Overview of Databases
- Introduction to MySQL
- Installation and Configuration of MySQL
- MySQL Workbench Overview

MYSQL ARCHITECTURE

- MySQL Storage Engines
- InnoDB Architecture
- Memory and Performance Tuning

MYSQL BASICS

- Database, Tables, and Relationships
- Data Types in MySQL
- Creating, Modifying, and Dropping Databases and Tables
- MySQL Constraints (Primary Key, Foreign Key, Unique, Default, Check)
- Inserting Data into Tables
- Retrieving Data with SELECT Queries
- Basic SQL Operations (SELECT, INSERT, UPDATE, DELETE)

ADVANCED SQL OPERATIONS

- WHERE Clause
- Logical Operators (AND, OR, NOT)
- Sorting Results (ORDER BY)
- Aggregate Functions (COUNT, SUM, AVG, MIN, MAX)
- Grouping Data (GROUP BY, HAVING)
- Joins (INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL OUTER JOIN)
- Subqueries and Nested Queries
- Aliases (AS keyword for Columns and Tables)
- CASE Statements and Conditional Queries

FUNCTIONS AND STORED PROCEDURES

- Built-in Functions (String, Numeric, Date Functions)
- Creating and Using User-Defined Functions
- Stored Procedures: Creating, Altering, Dropping Procedures
- Passing Parameters to Procedures
- IF-ELSE Logic in Procedures
- Creating and Using Triggers
- Cursors in MySQL
- Handling Exceptions in MySQL

DATABASE DESIGN AND NORMALIZATION

- Introduction to Database Normalization
- First, Second, and Third Normal Forms
- ER Diagrams (Entity-Relationship)
- Designing a Sample Database Schema

INDEXING AND OPTIMIZATION

- What are Indexes?
- Creating and Using Indexes
- Optimizing Queries for Performance
- MySQL Query Execution Plan (EXPLAIN)
- Optimizing Database Structure

TRANSACTIONS AND LOCKING

- Introduction to Transactions
- ACID Properties (Atomicity, Consistency, Isolation, Durability)
- MySQL Transaction Control (START TRANSACTION, COMMIT, ROLLBACK)
- Understanding Isolation Levels
- MySQL Locking (Row-level, Table-level locks)

MySQL

BACKUP AND RESTORE

- Backing Up MySQL Databases
- Restoring MySQL Databases
- Importing and Exporting Data (MySQLDump, CSV, SQL Files)

MYSQL SECURITY

- Managing Users and Privileges
- Roles in MySQL
- Securing MySQL (SSL, Firewall, Passwords)
- Best Practices for Security

WORKING WITH PHP AND MYSQL

- Connecting MySQL with PHP
- Performing CRUD Operations with PHP
- MySQLi and PDO (PHP Data Objects)

MYSQL IN CLOUD

- Introduction to Cloud Databases (AWS RDS, Google Cloud SQL)
- Setting up MySQL on Cloud Platforms
- Managing MySQL Backups and Security on Cloud

MYSQL BEST PRACTICES

- Best Practices for Designing and Querying Databases
- Best Practices for Performance Tuning
- Regular Maintenance and Monitoring of MySQL Databases

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