**Course Outlines for Advanced Data Analytics**

| **Items** | **Course Outlines --SQL** | **Dates** |
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| Module #01 | 1. ***History of SQL language*** 2. ***Understanding SQL server connection with different services*** 3. ***Familiarization and setup of SQL Server Tools*** 4. ***How to Create a Project and Save Files*** 5. ***How to save code in any folder, under the project and server-side*** 6. ***Use of SQL Server Configuration Manager*** 7. ***Create and Setup database / Tables with code and without code*** 8. ***Understand System database (master …….)*** 9. ***Restore AdventureWorks and AdventureWorksDW database*** 10. ***Download resource for Practice ( HR Schema database)*** 11. ***Fetch data from employee tables (slicing and dicing data)*** 12. ***What is Schema?*** 13. ***Import and Export data ( .csv or .xls files)*** 14. ***SQL Data Types ( int, varchar() …..)***   **Homework** | Week 01, 02 |
| Module #02 | 1. ***Understanding the list of system Aggregation functions*** 2. ***When and how group by statement is going to be used.*** 3. ***When and how Where and Having clause used in Aggregations.*** 4. ***Homework #3 for Aggregation.*** 5. ***What are Primary key and Foreign Key and their differences*** 6. ***Concept of Entity relational diagram (ERD)*** 7. ***Type of Relationship among tables using Key*** 8. ***What are a join-in table and Different types of Join databases?*** 9. ***Learned types of join by using emp1 and dept1 tables.*** 10. ***Homework #4 Join tables of Employees and Departments.*** 11. ***Learned types of join by using Employees and Departments tables*** 12. ***Fetch data from the HRSchma using 7 tables.*** 13. ***Create a database diagram from HRSchema and saved it*** 14. ***Homework #5 Understand left and right join.*** 15. ***Homework #6 Understand join and filter.*** | Week 03,04 |
| Module #03 | 1. ***Differentiate and categorize the SQL command.*** 2. ***Understand the difference between Delete, truncating, and Dropping data.*** 3. ***What is a view? What is the use of view? Sum Limitation.*** 4. ***Understand and create local and Global temporary tables.*** 5. ***Understand and create Union and Union ALL*** 6. ***What are Subqueries and Co-related Subqueries*** 7. ***When and why need to use Sub queries inside the data dataset?*** 8. ***Learned all window functions ( such as row\_number, Rank, dense\_rank)*** 9. ***Who gets the highest salary in the company, Find out using Subqueries and Window functions.*** 10. ***When to use partition in a query.*** 11. ***What is the difference between the drive table, Subqueries?*** 12. ***Homework*** | Week 05 |
| Module #04 | 1. ***What is a Calculated column and how do create them*** 2. ***Use plus sign for concatenation and multiply for commission*** 3. ***Use isNULL function for converting null in a table*** 4. ***Use case statement for calculated column.*** 5. ***Learn CAST and CONVERT functions for converting integers.*** 6. ***What is a variable? How to create a variable and use it.*** 7. ***How to use variables in the queries.*** 8. ***How to create table variables and when to use them in queries.*** 9. ***What is an index? How index helps the performance of the queries.*** 10. ***Understand different types of Index and their uses.*** 11. ***What is a constraint in SQL? Why need to use it?*** | Week #06 |
| Module #05 | 1. ***What is the Stored Procedure? Advantage of Stored Procedure.*** 2. ***Create Stored Procedure with and without Parameters.*** 3. ***Insert conditional statement inside the Stored Procedure.*** 4. ***Learn Global variable uses in SQL queries.*** 5. ***Only while loop is used in SQL statement.*** 6. ***Most important DATE related functions and their uses.*** 7. ***Homework*** | Week #07 |
| Module #06 | 1. ***Review all the queries*** 2. ***Design the Queries will have all the techniques you have learned during all SQL Classes.*** | Week #08 |
| **Items** | **Course Outlines –Data Warehouse** | **Dates** |
| Module #01 | 1. ***Understand OLTP and OLAP process*** 2. ***Understand the Normalization and De-Normalization process*** 3. ***What is the Data warehouse concept?*** 4. ***What is ETL Process in the Data Warehouse process*** 5. ***What is Data mart?*** 6. ***Different schema designs by the Data Warehouse scientist.*** 7. ***Understand Star schema and Snowflake schema.*** | Week #09 |
| **Items** | **Course Outlines –Power BI** | **Dates** |
| Module #01 | 1. ***Download Power BI / Setting*** 2. ***Types of Power BI Data Connectors*** 3. ***Introduction to the Power BI Query Editor*** 4. ***Basic Table Transformations*** 5. ***Text, Number & Date Tools*** 6. ***Index & Conditional Columns*** 7. ***Grouping & Aggregating Data*** 8. ***Pivoting & Unpivoting tables*** 9. ***Modifying, Merging & Appending Queries*** 10. ***Connecting to the web, Folders, excel sheets*** 11. ***Defining Hierarchies & Categories*** 12. ***Query Editing & Power BI Best Practices*** 13. ***Homework and projects*** | Week #10 |
| Module #02 | 1. ***Intro to Database Normalization*** 2. ***Data ("Fact") Tables vs. Lookup ("Dimension") Tables*** 3. ***Creating Power BI Table Relationships*** 4. ***"Star" vs. "Snowflake" Schemas*** 5. ***Active vs. Inactive Relationships*** 6. ***Relationship Cardinality*** 7. ***Connecting Multiple Data Tables*** 8. ***Filtering & Cross-Filtering*** 9. ***Hiding Fields from the Power BI Report View*** 10. ***Data Modeling & Power BI Best Practices*** 11. ***Homework and projects*** | Week #11 |
| Module #03 | 1. ***Intro to Data Analysis Expressions (DAX)*** 2. ***Calculated Columns vs. Measures*** 3. ***Row Context vs. Filter Context in Power BI*** 4. ***DAX Syntax & Operators*** 5. ***Common Power BI Functions*** 6. ***Basic Date & Time Formulas*** 7. ***Logical & Conditional Statements*** 8. ***Text, Math & Stats Functions*** 9. ***Joining Data with RELATED*** 10. ***CALCULATE, ALL & FILTER Functions*** 11. ***DAX Iterators (SUMX, AVERAGEX)*** 12. ***Time Intelligence Formulas*** 13. ***DAX & Power BI Best Practices*** 14. ***Homework and project.*** | Week #12,13 |
| Module #04 | 1. ***Intro to the Power BI Report View*** 2. ***Adding Basic Charts to Power BI Reports*** 3. ***Formatting & Filtering Options*** 4. ***Matrix Visuals*** 5. ***Slicers & Timelines*** 6. ***Cards & KPIs*** 7. ***Power BI Map Visuals (Basic, Fill, ArcGIS)*** 8. ***Treemaps, Lines, Areas & Gauges*** 9. ***Editing Report interactions*** 10. ***Adding Drill through Filters*** 11. ***Linking to Report Bookmarks*** 12. ***Using "What-If" Parameters*** 13. ***Managing & Viewing Roles*** 14. ***PREVIEW: Publishing to Power BI Service*** 15. ***Power BI Data Viz Best Practices*** | Week #14 |
| **Items** | **Course Outlines –Advance Excel** | **Dates** |
| Module #01 | 1. ***Organize the Ribbons (Toolbar and Manu Bar)*** 2. ***Aggregation Functions ( SUM, AVG, COUNT, MAX, MIN)*** 3. ***Conditional Functions ( IF, COUNTIF, SUMIF)*** 4. ***Text Functions (COUNTA, LEFT, LEN, REPLACE, CONCATENATE)*** 5. ***Date and Time Function (DATE, TIME, NOW, YEAR)*** 6. ***Reference Functions ( VLOOKUP, LOOKUP, MATCH, ROW)*** 7. ***How to use Macro and VBA in Excel*** 8. ***Do calculations on a different sheet.*** 9. ***How to format cells in Excel*** 10. ***Raw Data Cleanup (text data) and use conditional formatting.*** 11. ***How to create a Pivot table.*** 12. ***How to create a chart, Histogram from the pivot table*** 13. ***How to identify and remove duplicate data from the dataset.*** 14. ***Homework and project.*** | Week #15 |
| **Items** | **Course Outlines –MSBI(SSRS)** | **Dates** |
| Module #01 | 1. ***Download Visual Studio and SSDT*** 2. ***Create a project for the SSRS report*** 3. ***Familiarize and understand the SSRS reporting tools*** 4. ***Create a connection SSRS with the SSIS tool.*** 5. ***Create Reporting dataset using SSMS for the SSRS tool.*** 6. ***Designs the reports in the SSRS tool.*** 7. ***Download the Report in Excel for presentation.*** | Week #16 |
| **Items** | **Course Outlines –MSBI(SSIS)** | **Dates** |
| Module #01 | 1. ***Create a project for the SSIS integration data*** 2. ***Familiarize and understand the SSRS reporting tools*** 3. ***Create a connection SSIS with the SSRS tool.*** 4. ***Migrate text data from a text file to SQL Server using SSIS*** 5. ***Migrate Excel data to a SQL Server using SSIS*** | Week #17 |
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