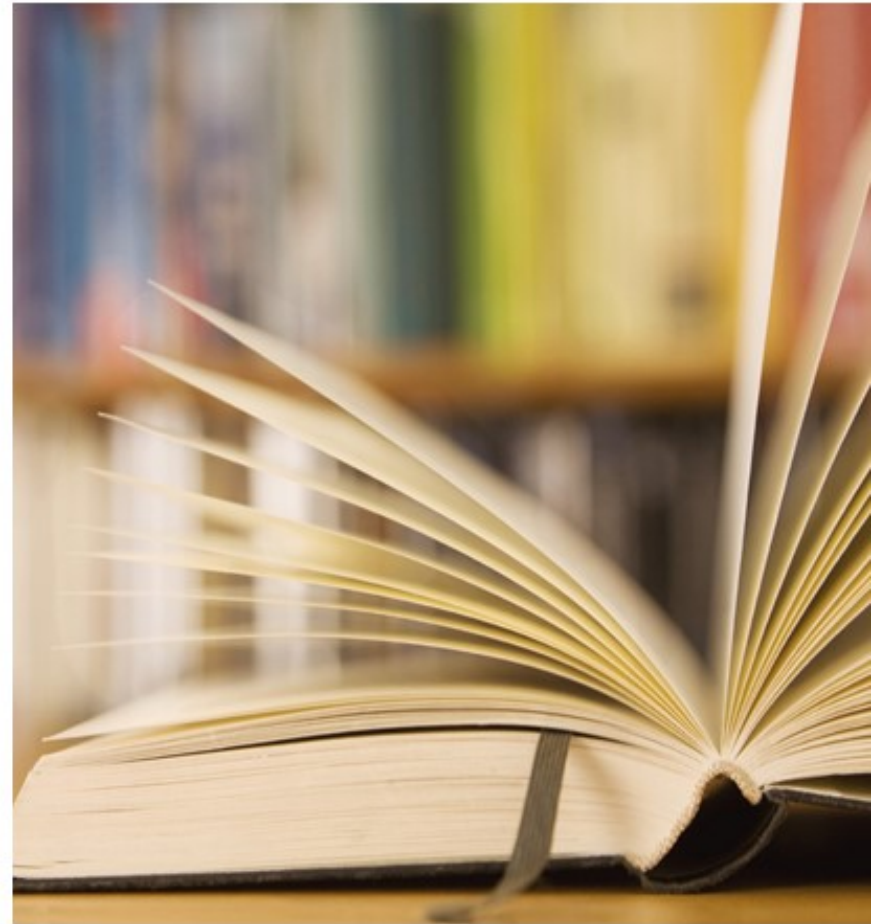**SKAAY Data Labs**
Training|Development|Consulting

MSBI STACK

SQL Server Integration Services(SSIS)
(Course Curriculum)

Amit Sharma (Founder, B.Tech – CS, Microsoft Certified Professional)
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Syllabus & Course Outline

Course Name	MSBI Stack
Duration	SSIS - Weekend (7-8 weekends)/Weekdays (4-5 weeks) SSRS - Weekend (3-4 weekends)/Weekdays (2-3 weeks) SSAS - Weekend (2-3 weekends)/Weekdays (1-2 weeks)
Delivery Mode	Classroom/Online
Key Features	300+ Quizzes, Lab/Workshop Sessions, Demo Interview Sessions, Job Assistance Group
Training kit	Welcome kit, Course related software, Notes, Practice questions, & Others

After completing this course, one should be able to work on professional MSBI projects. One should be able to implement data consolidation using Extract, Transform, & Load (ETL-SSIS) solutions, Creation of Cubes using SSAS & Reports using SSRS. The course discusses about how to develop, deploy, & manage MSBI stack solution.

Training course is extensively designed with Basics to Advanced level SSIS, SSRS & SSAS concepts. During the training, we cover 130-140 case studies(MSBI stack), labs & workshop sessions. Plenty of hands on exercises to work on and reinforce your learning

Target Students: Course is specifically designed for information Services technology (IT) professionals & developers.

Prerequisites: Students should be familiar with basics of SQL/T-SQL.

Introduction to ETL & Integration Services	Overview of BI
	ETL Concept (Overview)
	Installation Guide for SQL Server
	Configuring SSIS DB Catalog
	DTS Limitations & Comparison b/w SSIS 2012 & prior versions
	Briefing of deployment in 2010/2012
	Introduction to SSIS & it's Component
	Typical use of Integration Services
Tools	Business Intelligence Development Studio & SQL Server Data Tools
	SQL Server Management Studio (SSMS)
	Import & Export Wizard
	Package Deployment Wizard

After completing this module, folks will be able to understand
- ➢ ETL concept
- ➢ The use of SSISDB Catalog,
- ➢ About the different Components of SSIS

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SSIS Objects	
	Package
	Control Flow
	Data Flow
	Connection Manager

Data Flow Task (DFT) Source & Destination	
	Excel Source/Destination
	Flat File Source/Destination, Use of different file formats
	OLEDB Source/Destination
	SQL Server Source/Destination
	Raw file Source/Destination
	ADO NET Source/Destination
	CDS Source, Recordset Destination
	Source Assistant, Destination Assistant

After completing this module, folks will be able to understand
➢ How to move data from source to destination, Usage of Connection managers, Package level connection, Project level connection
➢ Qualifiers, Handling of In-consistent data
➢ Optimization techniques for different sources

SKAAY Data Labs (SDL)

| ☑ | SQL Server | ☑ | Power BI & DAX | ☑ | Azure with AI | ☑ | MSBI Stack (SSIS, SSRS & SSAS) |
| ☑ | Full Stack Python | ☑ | O365 | ☑ | Power Automate | ☑ | Power Apps |

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Data Flow Task (DFT)	Types of transformations
	Row Count, Use of Variables, Script Task (CF)
Transformations	Data Conversion
	Derived Column
	Conditional Split & Multicast
	Aggregate
	Pivot & Unpivot
	Sort & Merge, Union All
	Audit, Percentage Sampling & Row Sampling, Character Map
	Cache, Lookup/Merge Join, Fuzzy Lookup, Term Extraction, Term Lookup & Fuzzy Grouping
Bulk Load Operations	SQL Server Connection
	OLEDB Connection
	BULK Insert Task

After completing this module, folks will be able to understand
➢ The use of different transformations covered
➢ Auditing of package
➢ About the different bulk load techniques

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Execute SQL Task	
	Usage of different Source type
	Usage of different Resultset
	Usage of Parameter mapping
	Filtering of Source
	How to execute SP in SQL Task
	Use of expressions
	Auditing of Packages (Using User variables & System Variables)
Error Handling, Debugging, Archiving of files & Controlling Business Flow	Precedence Constraints
	Error handling
	Data Truncation
	File System Task
	Breakpoints

After completing this module, folks will be able to understand
➢ Use of SQL task, Stored Procedures, Input/Output parameters, Parameter mapping
➢ How to handle errors, Data truncation, Business flow logic, Archive Files etc.

| ☑ SQL Server | ☑ Power BI & DAX | ☑ Azure with AI | ☑ MSBI Stack (SSIS, SSRS & SSAS) |
| ☑ Full Stack Python | ☑ O365 | ☑ Power Automate | ☑ Power Apps |

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Control Flow Task (CFT) - Containers	For Each Containers
	Sequence Containers
	For Loop Containers
Delay Validation	Delay Validation & Execution of rest of the files in case one of the file got failed
Implementing Control Flow Task (CFT)	Send Mail Task, Notify Operator Task
	Execute Process Task
	Execute Package Task
Logging & It's implementation	Introduction to logging
	Types of logging & their usage
Transactions, Checkpoints & Parallelism Behaviour	Overview of transactions, transaction types & their usage, Enabling of DTC service
	Types of transactions
	Introduction to checkpoints, their properties & implementations
	Execution of concurrent task

After completing this module, folks will be able to understand
➢ Usage of containers, Work on the transformations covered
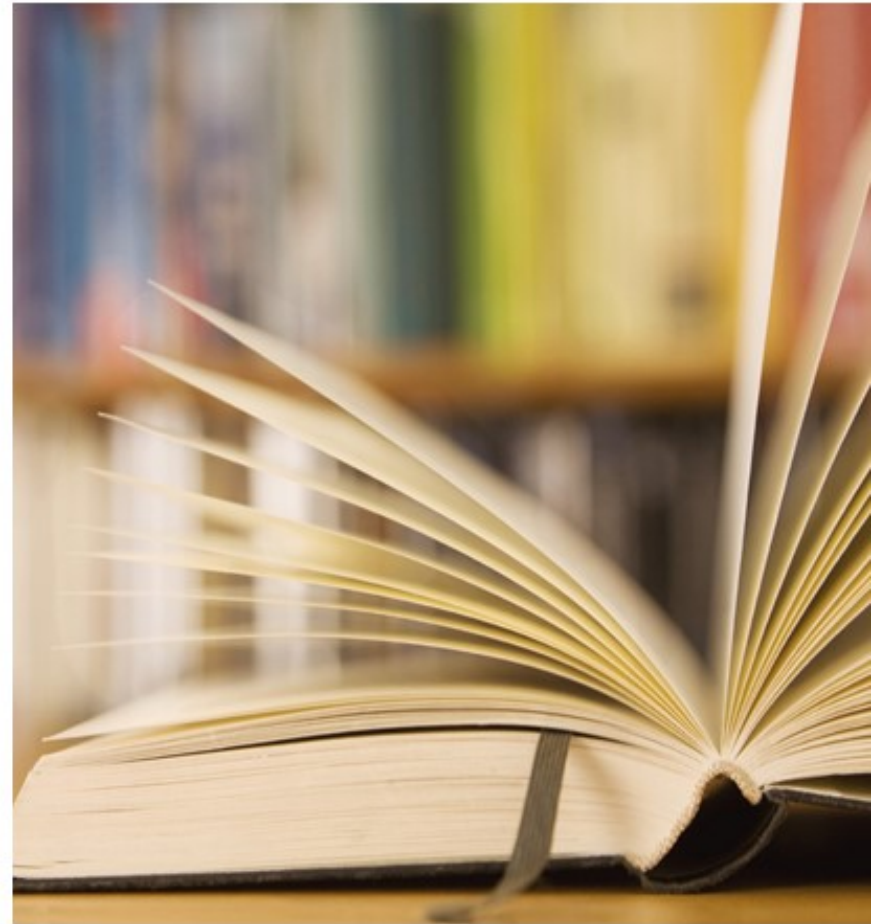➢ How to send mails, Usage of logging, transactions & checkpoints

Behaviour of Triggers in DAM	How trigger behaves across different Data Access Mode(DAM)
Incremental Load Techniques	Slowly Changing Dimensions(SCD)
	Change Data capture(CDC)
	Change Tracker
Deployment , Scheduling & Managing Packages	Learn about Package/Project parameter
	Creating & Implementation of environment variables
	Changing test environment to prod from SSISDB catalog
	Versioning in ETL solution
	Creation & Scheduling of jobs to execute Packages

After completing this module, folks will be able to understand
➢ Use of different incremental load solutions
➢ How to deploy, schedule & manage packages

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MSBI STACK

SQL Server Reporting Services(SSRS)
(Course Curriculum)

Amit Sharma (Founder, B.Tech – CS, Microsoft Certified Professional)
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Introduction to RS	
	Overview of SQL Server Reporting Services (SSRS)
	Configuring Report Server
	Reporting Services Database
	Introduction to Report Server & Report Manager
Creating Simple Reports	Creating a Report using Report Wizard
	Creating a Report without Report Wizard
	Difference b/w Report Wizard & Normal Reports
	Embedded/Shared Datasource & Dataset
Table, Matrices & List Reports	Creation of Table Reports
	Creation of Matrix Reports
	Creation of Report using List

After completing this module, folks will be able to understand
- Report Development & Management environment, Life cycle of a report
- Creation of reports using wizard & normal, different types of Datasource/dataset
- Creation of Matrix, List reports

Working with Built-In Functions & Report Template	Report Header, Report Footer
	Use of expressions(Report Name, Total Pages, Page Number etc)
	Column Function (IsNumeric, IsNothing etc) & Row functions
	Use of Row group & Column group
	Using IIF function, Switch function & Choose function
	Writing Custom Code Functions
	Creating Report Template
	Fetch data from multiple dataset
	How to bring checkboxes on the column in the report
Grouping & Subtotals	Report with Grouping & Subtotals
	Creating Running Totals for a Report
	Creating Running Totals for each Group of a Report
	Working with Built-in Fields

After completing this module, folks will be able to understand
- ➢ Use of built-in function & Report template
- ➢ Creation of Group
- ➢ .

☑	SQL Server	☑	Power BI & DAX	☑	Azure with AI	☑	MSBI Stack (SSIS, SSRS & SSAS)
☑	Python Full Stack	☑	O365	☑	Power Automate	☑	Power Apps

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Working with Bound & Un-Bound Parameters	Types of Parameters: Single value, Multi-value
	Adding drop-down list to Parameters
	Cascaded Parameter
	Handling of NULL in Parameter
	Parameterized Sorting
	Parameterized Sorting using Dynamic SQL
	Creating parameterized report with Boolean columns
	Display parameter values on the Report
Drill-through, Drill-down , Sub report & Working with Report Actions	Working with Drill-down Report
	Working with Drill-through Report
	Working with Sub-Report
	Using GoTo Report Action
	Using GoTo URL Action
	Using Bookmark Action
	Using Embedded HTML feature

After completing this module, folks will be able to understand
➢ Usage of Parameters
➢ Usage of different types of reports

Working with Image Control	Using Embedded Images
	Using External Images
	Using Data bound Images
SSRS Graphs & Visualizations	Working with Chart control
	Working with Indicator control
	Working with Data Bar control
	Working with Gauge control
	Working with Sparkline control
Enhancing Reports with more Functionalities	Implementing Interactive Sorting
	Implementing Interactive Sorting using Groups
	Implementing Dynamic Column Visibility
	Implementing Conditional formatting
	Repeating & Freezing Column headers
	Export of group data to different tabs in excel file

After completing this module, folks will be able to understand
➤ Usage of Image controls, Dashboard reports
➤ More features/functionality in enhancing the reports

Deployment & Management of Reports

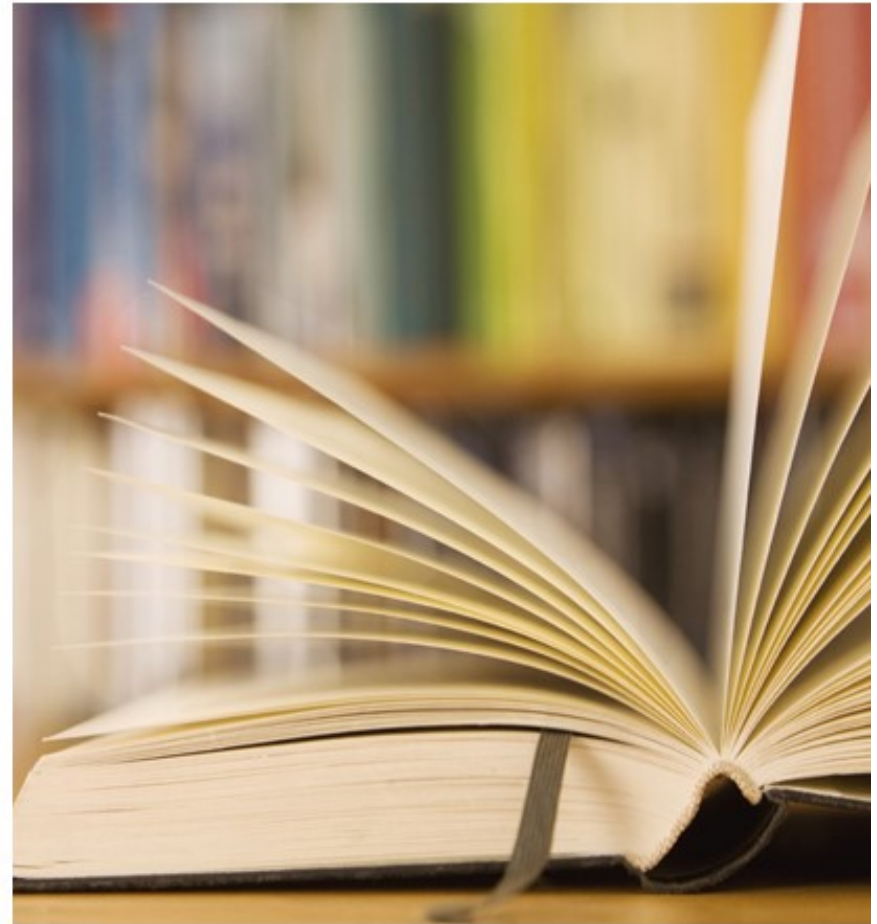| |
|---|
| Overview of Report Manager |
| Deployment of Datasource, Dataset & Reports |
| Creation of Folder in Report Manager |
| Uploading of reports from Report Manager |
| Working with Subscription |
| Working with Snapshots |
| Linked Report |

After completing this module, folks will be able to understand
➢ How to deploy & manage reports

MSBI STACK

SQL Server Analysis Services(SSAS)
(Course Curriculum)

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☑ Python Full Stack	☑ O365	☑ Power Automate	☑ Power Apps

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Introduction to DWH	What is Data Warehouse? Database vs Data Warehouse
	OLTP vs OLAP
	Dimensions & Attributes, Measure group/Fact Table & Measures
	Dimension vs Fact Table
	Star Schema & Snowflake Schema
	Business Intelligence Semantic Model(BISM)
Creation & Updating Cubes	Creating Connection with Data Source
	Creating data Source View
	Creating Cubes using Wizard & without wizard
	New Named Calculation
	Named Query
Build, Deploy & Process Cube	How to deploy a cube which has been developed in development environment
	Browsing Data & Browsing Cube in Excel

After completing this module, folks will be able to understand
➢ DWH, Cube creation
➢ Deployment of Cube

Hierarchical Dimensions	Types of Hierarchy
	Natural Hierarchy
	Un-Natural Hierarchy
Types of Dimension	Regular Dimension
	Reference Dimension
	Fact/Regenerate Dimension
Perspective	Perspective
Partitions	Partitions
Introduction to MDX	Introduction to MDX
Calculations	SSAS Calculations
Storage Mode	ROLAP, MOLAP & HOLAP
Writeback Option	Writeback Option

After completing this module, folks will be able to understand
➢ Types of Dim, Perspective, Partitions, Storage Mode & Writeback options

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Aggregation in SSAS	Introduction to Aggregation
	Different Categories of aggregation:
	Additive
	Semi-Additive
	Pseudo-Additive
	Non-Additive
Other	Process cube using SSIS
	Load data from SSIS cube to table from SSIS
	Merge Partition & Import analysis database (Reverse Engineering)
Cube Backup	How to take backup of your Cube

After completing this module, folks will be able to understand
➢ Aggregations & Cube backup

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THANK YOU!!!