

Implementing Data Models and Reports with Microsoft SQL Server 2012

Duration: 4 Days

Pre requisites:

SQL Server pre requisites:

1. Practical knowledge of installation and configuration of SQL Server.
2. Creating and getting connected to multiple instances of Database Engine, SSAS & SSRS
3. Basic understanding of Windows & SQL Server Authentication
4. Difference in Login, user and schemas.
5. Hands-on exposure towards stored procedures and views.

SSAS pre requisites:

1. Conceptual understanding of OLAP features.
 - a. Star & Snowflake schemas
 - b. OLAP Vs. OLTP
 - c. Slowly Changing Dimensions
 - d. Overview of MOLAP, ROLAP & HOLAP
 - e. Basic understanding of Dimension & fact tables, attribute, measure, measure group and cube.
2. Working knowledge of Deployment of the cube.
3. Creating and using Time Dimension
4. Basic understanding of Data Source and Data Source View
5. Working knowledge of Aggregation types particularly related to OLAP

SSRS pre requisites:

1. Exposure to basic report creation without wizard.
 2. Concept of Shared Data Source & Shared Data Set.
 3. Concept of Tablix
 4. Configuration of Web based reports
 5. Exposure to typical SSRS function library
 6. Creating parameterized reports
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Preparing for an Exam

The Microsoft Certification website and this preparation guide contain a variety of resources to help you prepare for an exam. [Preparing for and Taking an Exam — FAQ](#) provides answers to frequently asked questions about exam [registration](#), [preparation](#), [scoring](#), and [policies](#), including:

- The most effective way to prepare to take an exam.
- The relationship between Microsoft training materials and exam content.
- Microsoft policy concerning the incorporation of service pack and revision updates into exam content.
- Exam question types and formats.
- Exam time limits and number of questions asked.

We recommend that you review this preparation guide in its entirety and familiarize yourself with the FAQs and resources on the Microsoft Certification website before you schedule your exam.

Audience Profile

The primary audience for this exam is BI Developer. They are most likely to focus on hands-on work creating the BI solution including implementing multi-dimensional data models, implementing and maintaining OLAP cubes, and creating information displays used in business decision making. Primary responsibilities may include:

- Working with large data sets across multiple database systems
- Cube/warehouse/views fundamentals
- Data model decisions: Unified Dimension Model (UDM) versus Business Intelligence Semantic Model (BISM)
- Develop Cubes and Multidimensional Expressions (MDX) queries to support analysts
- Online Analytical Processing (OLAP) cube performance
- Building pivot tables from cubes
- Building PowerPivot solutions
- Design and test report models, layouts and templates
- Manage reporting system: configuration and subscriptions

- ✦ Using report builder to create reports
- ✦ Develop complex SQL queries for reports
- ✦ Building reports Using Crescent

Credit Toward Certification

Exam 70-466: Implementing Data Models and Reports with Microsoft SQL Server 2012: counts as credit toward the following certification(s):

MCSE: Business Intelligence

Note This preparation guide is subject to change at any time without prior notice and at the sole discretion of Microsoft. Microsoft exams might include adaptive testing technology and simulation items. Microsoft does not identify the format in which exams are presented.

Please use this preparation guide to prepare for the exam, regardless of its format.

Day wise Schedule:

Day 1:

Build an Analysis Services Database (38%)

- ✦ Design dimensions and measures.

This objective may include but is not limited to: given a requirement, identify the dimension/measure group relationship that should be selected; design patterns for representing business facts and dimensions (many-to-many relationships); design dimensions to support multiple related measure groups (many related fact tables); handle degenerate dimensions in a cube; identify the attributes for dimensions; identify the measures; aggregation behavior for the measures; hierarchies

- ✦ Implement and configure dimensions in a cube.

This objective may include but is not limited to: translations; attribute relations; hierarchies; implement SQL Server Analysis Services (SSAS) dimensions and cubes; identify the Attribute Relationships that should be made for a given set of Attributes in a dimension; develop new custom attributes on dimensions; detect possible design flaws in attribute relationships; create attribute relationships correctly in an analysis services

dimension; implement time Dimensions in cubes; manage SSAS parent-child dimensions; dimension type

- ♦ Design a schema to support cube architecture.

This objective may include but is not limited to: multidimensional modeling starting from a star schema; relational modeling for a Data Mart; choose or create a topology; identify the appropriate data types with correct precision and size

- ♦ Create measures.

This objective may include but is not limited to: logically group measures; select appropriate aggregation functions; format measures

- ♦ Implement a cube.

This objective may include but is not limited to: use Business Intelligence Development Studio (BIDS) to build the cube; use BIDS to do non additive or semi additive measures in a cube; measures, perspectives; translations; dimension usage; cube specific dimension properties; measure groups; implement reference dimensions; implement many to many relationships; implement fact relationships; implement role-playing relationships; define granularity; create and manage linked measure groups and linked dimensions; actions

Day 2:

- ♦ Create Multidimensional Expressions (MDX) queries.

This objective may include but is not limited to: MDX authoring; identify the structures of MDX and the common functions (tuples, sets, topcount, SCOPE, etc.); identify which MDX statement would return the required result; implement a custom MDX or logical solution for a pre-prepared case task; graphical query designer or the generic query designer

- ♦ Implement custom logic in a data model. Must include: Data Analysis Expressions (DAX) calculated columns and measures.

This objective may include but is not limited to: key performance indicators (KPI); calculated members; use MDX functions to calculate members; relative Measures (growth, YoY, same period last year), % of total using MDX; named sets; adding intelligence to dimensions; Analysis Services stored procedures

- ♦ Implement storage design in a multidimensional model.

This objective may include but is not limited to: aggregations; partitions; storage modes; proactive caching; manage write-back partitions

- ♦ Select an appropriate model for data analysis.

This objective may include but is not limited to: UDM; Scalability, Cleansed; traditional hierarchical; high volume of data; advanced features (support for financial applications; many to many); organizational BI; Tabular Data Model: raw data; relational tables and relationships; simpler data structures; Team and personal BI; choose between multidimensional and tabular models

Manage, Maintain, and Troubleshoot an SSAS Database (18%)

- ♦ Analyze data model performance.

This objective may include but is not limited to: performance consequences of DWH design; optimize performance by changing the design of the cube or dimension; Analyze and optimize performances of an MDX/DAX query; optimize queries for huge data sets; optimize MDX in the calculations; performance monitor counters; DMVs; performance counters (new for tabular model), growth of the cache, logging options

- ♦ Process data models.

This objective may include but is not limited to: processing tables or partitions for tabular models; processing databases, cubes, dimensions for multidimensional models; full processing versus incremental processing, remote processing; lazy aggregations; automate with Analysis Management Objects (AMO) or XML for Analysis (XMLA)

- ♦ Troubleshoot data analysis issues.

This objective may include but is not limited to: use SQL Profiler; troubleshoot duplicate key dimension processing errors; error logs and event viewer logs of SSAS, mismatch of data: incorrect relationships or aggregations; dynamic security issues; validate logic and calculations

- ♦ Deploy SSAS databases.

This objective may include but is not limited to: Deployment Wizard; BIDS; SSMS; automation; test solution post deployment; deciding whether or not to process

- ♦ Install and maintain a SSAS instance.

This objective may include but is not limited to: software installation of SSAS; development tools, development and production box installation considerations;

upgrade; data file and program file location, planning for Administrator accounts; Updates (service packs); install and maintain each instance type of Analysis Services, including PowerPivot; restore and import PowerPivot

Day 3:

Build a Tabular Data Model (17%)

- ◆ Configure permissions and roles in Business Intelligence Semantic Model (BISM).

This objective may include but is not limited to: server roles; SSAS database roles; implement dynamic security (custom security approaches); role-based access; Test security permissions; cell level permissions

- ◆ Implement a tabular data model.

This objective may include but is not limited to: define tables; import data; calculated columns; relationships; hierarchies and perspectives; manage visibility of columns and tables; optimize BISM for Crescent; mark a date table; sort a column by another column

- ◆ Implement business logic in a tabular data model.

This objective may include but is not limited to: measures and KPIs; DAX; relationship navigation; time intelligence; context modification

- ◆ Implement data access for a tabular data model.

This objective may include but is not limited to: manage partitions; processing; Vertipaq versus Direct Query

Build a Report with SQL Server Reporting Services (SSRS) (28%)

- ◆ Design a report.

This objective may include but is not limited to: selecting report components (crosstab report, Tablix, design chart, data visualization components), report templates (Report Definition Language), identify the data source and parameters; designing a grouping structure; drill-down reports, drill-through reports; determine if any expressions are required to display data that is not coming directly from the data source

- ◆ Implement a report layout.

This objective may include but is not limited to: formatting; apply conditional formatting; page configuration; headers and footers; matrix; table; chart; image; list; indicators, maps, grouping; use Report Builder to implement a report layout; creating a

range of reports using different data regions; custom fields (implementing different parts of the report); collections (global collections); using expressions; data visualization components; identifying report parts; group variables and report variables

Day 4:

- ♦ Configure authentication and authorization for a reporting solution.

This objective may include but is not limited to: configure server-level and item-level role-based security; configure Windows authentication and custom authentication (forms-based authentication); configure Reporting service security (setup or addition of role) ; authenticating against data source; storing credential information; describe Report Server security architecture and site level security; create system level roles; item level security; create a new role assignment; assign Windows users to roles; secure reports using roles; configure SharePoint groups and permissions

- ♦ Implement interactivity in a report.

This objective may include but is not limited to: drilldown; drillthrough; interactive sorting; parameters: (databound parameters; multi-value parameters); create dynamic reports in SSRS using parameters; show/hide property; actions (jump to report); filters; parameter list; fixed headers; document map, embedded HTML

- ♦ Troubleshoot reporting services issues.

This objective may include but is not limited to: querying the executionlog views in Report Server database; viewing reporting services log files; Windows Reliability and Performance monitor ; Using the Report Server: Service and Web Service objects; long running reports; rendering; connectivity issues, use SQL Profiler; data reconciliation: incorrect relationships or aggregations; dynamic security issues; validate logic and calculations

- ♦ Manage a report environment.

This objective may include but is not limited to: manage subscriptions and subscription settings, manage data sources, integrating SharePoint Server 2010; email delivery settings; managing the number of snapshots; manage schedules, manage running jobs, manage report server logs; manage report server databases, manage the encryption keys,

setting up the execution log reporting; reviewing the reports; site level settings; design report lifecycle; automate management of reporting services; create a report organization structure; install and configure reporting services

- ◆ Configure report data sources and datasets.

This objective may include but is not limited to: query types (stored procedure versus table versus text only); parameterized connection strings (dynamic connection strings); filter location (dataset vs. query); ; configure data source options i.e. extract and connect to different LOB platforms; shared and embedded data sources and datasets; connect to SQL Azure database; SQL Data Market; MDX queries; work with non-relational data sources such as xml or SharePoint
