Administering Microsoft SQL Server 2012 Databases

Install and Configure (19%)

- Plan installation.

  - May include but not limited to: evaluate installation requirements; design the installation of SQL Server and its components (drives, service accounts etc.); plan scale up vs. scale out basics; plan for capacity, including if/when to shrink, grow, autogrow, and monitor growth; manage the technologies that influence SQL architecture (e.g., service broker, full text, scale out, etc.); design the storage for new databases (drives, filegroups, partitioning); design database infrastructure; configure a SQL Server standby database for reporting purposes; Windows-level security and service level security; Core mode installation; benchmark a server before using it in a production environment (SQLIO, Tests on SQL Instance); choose the right hardware

- Install SQL Server and related services.

  - May include but not limited to: test connectivity; enable and disable features; install SQL Server database engine and SSIS (not SSRS and SSAS); configure an OS disk

- Implement a migration strategy.

  - May include but not limited to: restore vs detach/attach; migrate security; migrate from a previous version; migrate to new hardware; migrate systems and data from other sources

- Configure additional SQL Server components.

  - May include but not limited to: setup and configure all SQL Server components (Engine, AS, RS and SharePoint integration) in a complex and highly secure environment; configure full-text indexing; SSIS security; filestream; filetable

- Manage SQL Server Agent.

  - May include but not limited to: create, maintain, and monitor jobs; administer jobs and alerts; automate (setup, maintenance, monitoring) across multiple databases and multiple instances; send to "Manage SQL Server Agent jobs"

Maintain Instances and Databases (17%)

- Manage and configure databases.

  - May include but not limited to: design multiple file groups; database configuration and standardization: autoclose, autoshrink, recovery models; manage file space, including adding new filegroups and moving objects from one filegroup to another; implement and configure contained databases; data compression; configure TDE; partitioning; manage log file growth; DBCC

- Configure SQL Server instances.

  - May include but not limited to: configure and standardize a database: autoclose, autoshrink, recovery models; install default and named instances; configure SQL to use only certain CPUs (affinity masks, etc.); configure server level settings; configure many databases/instance, many instances/server, virtualization; configure clustered instances including MSDTC; memory allocation; database mail; configure SQL Server engine: memory, filffactor, sp_configure, default options

- Implement a SQL Server clustered instance.

  - May include but not limited to: install a cluster; manage multiple instances on a cluster; set up subnet clustering; recover from a failed cluster node

- Manage SQL Server instances.

  - May include but not limited to: install an instance; manage interaction of instances; SQL patch management; install additional instances; manage resource utilization by using Resource Governor; cycle error logs

Optimize and Troubleshoot (14%)

- Identify and resolve concurrency problems.

  - May include but not limited to: examine deadlocking issues using the SQL server logs using trace flags; design reporting database infrastructure (replicated databases); monitor via DMV or other MS product; diagnose blocking, live locking and deadlocking; diagnose waits; performance detection with built in DMVs; know what affects performance; locate and if necessary kill processes that are blocking or claiming all resources

- Collect and analyze troubleshooting data.

  - May include but not limited to: monitor using Profiler, collect performance data by using System Monitor, Collect trace data by using SQL Server Profiler, identify transactional replication problems; identify and troubleshoot data access problems; gather performance metrics; identify potential problems before they cause service interruptions; identify performance problems, use Xevents and dmvs; create alerts on critical server condition; monitor data and server access by creating audit and other controls; identify IO vs. memory vs. CPU bottlenecks; use the Data Collector tool

- Audit SQL Server instances.

  - May include but not limited to: implement a security strategy for auditing and controlling the instance; configure an audit; configure server audits; track who modified an object; monitor elevated privileges as well as unsolicited attempts to connect; policy-based management

Manage Data (19%)

- Configure and maintain a back up strategy.

  - May include but not limited to: manage different backup models, including point in time recovery; protect customer data even if backup media is lost; perform backup/restore based on proper strategies including backup redundancy; recover from a corrupted drive; manage a multi-TB database; implement and test a

database implementation and a backup strategy (multiple files for user database and tempdb, spreading database files, backup/restore); backup a SQL Server environment; back up system databases

- Restore databases.

  - May include but not limited to: restore a database secured with TDE; recover data from a damaged DB (several errors in DBCC checkdb); restore to a point in time; file group restore; page level restore

- Implement and maintain indexes.

  - May include but not limited to: inspect physical characteristics of indexes and perform index maintenance; identify fragmented indexes; identify unused indexes; implement indexes; defrag/rebuild indexes; set up a maintenance strategy for indexes and statistics; optimize indexes (full, filter index); statistics (full, filter) force or fix queue; when to rebuild vs. reorg and index; full text indexes; column store indexes

- Import and export data.

  - May include but not limited to: transfer data; bulk copy; bulk insert

Implement Security (18%)

- Manage logins and server roles.

  - May include but not limited to: configure server security; secure the SQL Server using Windows Account / SQL Server accounts, server roles; create log in accounts; manage access to the server, SQL Server instance, and databases; create and maintain user-defined server roles; manage certificate logins

- Manage database permissions.

  - May include but not limited to: configure database security; database level, permissions; protect objects from being modified

- Manage users and database roles.

  - May include but not limited to: create access to server / database with least

privilege; manage security roles for users and administrators; create database user accounts; contained logins

- Troubleshoot security.

  - May include but not limited to: manage certificates and keys; endpoints

Implement High Availability (12%)

- Implement AlwaysOn.

  - May include but not limited to: implement a mirroring solution using AlwaysOn; failover

- Implement database mirroring.

  - May include but not limited to: set up mirroring; monitor the performance of database mirroring

- Implement replication.

  - May include but not limited to: troubleshoot replication problems; identify appropriate replication strategy

Target exam : 70-462 of SQL server 2012 Associate level