

Assignment SDA

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Course: Software Design and Architecture

MS SQL Evolution Overview

SQL Server 1.0 (1989)

- Release Number: 1.0
- Major Features:
 - Developed for the OS/2 operating system in collaboration with Sybase and Ashton-Tate.
 - Provided foundational relational database capabilities like data storage and query execution.
 - Built as a basic client-server model designed for small-scale applications.
- Architectural Highlights:
 - Client-server architecture with a focus on transactional processing.
 - Limited scalability due to reliance on 16-bit computing.

SQL Server 7.0 (1998)

- Release Number: 7.0
- Major Features:
 - First version completely developed by Microsoft, breaking away from Sybase.
 - Introduced OLAP (Online Analytical Processing) services for analytics.
 - Query Analyzer enabled users to optimize query execution performance.
 - Enhanced indexing and data management capabilities.

- Architectural Highlights:
 - Shifted to a 32-bit architecture for better performance and scalability.
 - Introduced a Unified Storage Engine, improving how data and indexes were managed.

SQL Server 2005

- Release Number: 2005
- Major Features:
 - Introduced a suite of services: Integration Services (SSIS), Reporting Services (SSRS), and Analysis Services (SSAS).
 - Added Common Language Runtime (CLR) integration for custom database logic.
 - Database mirroring and replication for enhanced high availability.
- Architectural Highlights:
 - Implemented a Service-Oriented Architecture (SOA) for modular service deployment.
 - Improved partitioning and indexing mechanisms, enabling better support for large-scale applications.

SQL Server 2012

- Release Number: 2012
- Major Features:
 - AlwaysOn Availability Groups provided robust disaster recovery and high availability solutions.
 - Columnstore indexes improved query performance for large datasets by enabling efficient data compression and retrieval.
 - Power View enhanced data visualization capabilities.
- Architectural Highlights:
 - Optimized memory management to handle high-performance workloads.
 - Enhanced focus on analytics and real-time processing.

SQL Server 2019

- Release Number: 2019
- Major Features:

- Big Data Clusters introduced, allowing seamless querying and management of large-scale datasets.
- Intelligent Query Processing incorporated AI-driven enhancements for optimized query performance.
- Data virtualization capabilities enabled through PolyBase, integrating SQL Server with external data sources.
- Architectural Highlights:
 - Support for Kubernetes and containerized deployments.
 - Deep integration with Spark and Hadoop ecosystems, aligning SQL Server with big data technologies.

THE END
