

Name:Roll Number:*****WRITE BRIEF AND PRECISE ANSWERS. READ THE QUESTION AND ANSWER ONLY WHAT IS ASKED*****

1. What are the OLTP and OLAP services available in SQL Server software stack? How do OLTP and OLAP services differ in their design and usage?
 - a.
OLTP: SQL Server Database Engine
OLAP: SQL Server Analysis Services (SSAS)
 - b.
OLTP: Normalized Tables, Optimized for Read/Write
OLAP: Denormalized Tables, Optimized for Read
2. What is the purpose of ETL? How does it differ from ELT? Can you think of a scenario where you would ETL and ELT.
 - a. Extract data from any source, transform/modify it, and then load it in the destination system.
 - b. ETL does data transformation/modification on the server where ETL service is running, whereas ELT loads the data first in the destination system and performs the transformation using SQL.
 - c. ETL: generally small transformations, offload compute from the destination system
ELT: transformations required on extremely large set of data, can utilize compute from the destination system using SQL, which big data systems are generally very well suited for.
3. Mention 2 reasons why you must use SQL Server VM instead of SQL Server PaaS service when migrating to the cloud.
 - a. SQL PaaS offering not supported by Software Vendor
 - b. Requirement to install a required software on server running the database engine (e.g., pdf indexer, etc.)

References

- SQL Server Components & Services: <https://learn.microsoft.com/en-us/sql/sql-server/what-is-sql-server>
- SQL Server Integration Services (SSIS): <https://learn.microsoft.com/en-us/sql/integration-services/sql-server-integration-services>
- PDF iFilter/Indexer
 - <https://jonmorisissqlblog.blogspot.com/2016/06/setting-up-full-text-search-for-pdf.html>
 - <https://www.foxit.com/products/pdf-ifilter/>
- Storing unstructured data in sql server
 - <https://learn.microsoft.com/en-us/sql/relational-databases/blob/binary-large-object-blob-data-sql-server>
 - <https://learn.microsoft.com/en-us/sql/relational-databases/blob/filestream-sql-server>