**SQL Server Questions**

1. SQL Server Architecture

3 layers –

Protocol layer

TCP/IP – the port that allows to communicate between user and server,

Shared Memory – machine provided to user and sql server for running.,

Nmaed Pipes : the network via which end user connects to sql server ,

Tabular Data Stream : packets that allow data transfer between end user and server.

Relational Engine : serves as an Query processor between end user and sql server. Works on how a query should be executed to get the best possible result. It takes query from end user , send it to storage engine and after getting processed result from storage engine , returns the result to user.

CMD Parsing – checks that whether the query from end user contains any error or not

Optimizer – creates an execution plan for the query. A cheap plan so that the run time is reduced and server runs smoothly

Query executor – receives the processed query from storage engine and sends to protocol layer. Protocol layer sends to end user.

Storage Engine : servers as a platform for query execution, stores and retrieves data.

Date files: primary(.mdf), secondary(.ndf), log(.ldf)

Access method : servers as a interface between query executor and buffer manager

Buffer manager : data from end user (read or written) is copied to memory via buffer manager and updated pages written back to disk via buffer manager.

* Buffer pool/cache: storage area where data is fed in the form of pages (8k). when buffer pool fills up , the old/unused data is purged(removed).
* Pages : basically data from end user is stored int the form of pages

1. Dirty Pages : the result or the data that has changed post a write operation to disk.(update /insert )
2. Clean Page: the data that has not changed as is as same as that of the disc.(select)
3. Database Mirroring

For mirroring to be configured under services.msc , both in principal and mirrored server , MSSQLSERVER & SQL SERVER AGENT should be running under the same username and credentials.

Also if mirroring is not happening due to some reasons dropping endpoints and creating endpoints can also help to resolve the issue.

Conditions that might trigger a database mirroring TCP network time out,

Incorrect order of TDS, CPU/Disk overload.