1a) distinguish between SQL Server 2012 editions?

The new SQL Server 2012 family will be comprised of the Enterprise, Business Intelligence, Standard, Web, Developer, and Express editions.

**SQL Server 2012 Standard Edition**

SQL Server 2012 Standard Edition is limited to 16 cores and 64GB of RAM. It provides the core relational database engine and basic business intelligence (BI) capabilities.

It doesn't include support for the advanced availability features or the more powerful BI features such as PowerPivot, Power View, and Master Data Services. The Standard Edition does include support for two-node AlwaysOn Failover Clusters, and it's licensed either per core or per server.

### SQL Server 2012 Business Edition

The Business Intelligence edition includes all of the features in the Standard edition and support for advanced BI features such as Power View and PowerPivot, but it lacks support for the advanced availability features like AlwaysOn Availability Groups and other online operations. The Business Intelligence edition supports two-node AlwaysOn Failover Clusters, and it's licensed per server.

### SQL Server 2012 Enterprise Edition

SQL Server 2012 Enterprise Edition is the high end of the SQL Server 2012 product lineup. The Enterprise edition supports up to 16-node AlwaysOn Failover Clusters as well as AlwaysOn Availability Groups, online operations, PowerPivot, Power View, Master Data Services, advanced auditing, transparent data encryption, the Column Store index, and more. The Enterprise edition is licensed per core.

### SQL Server 2012 Express Editions and Local DB

#### SQL Server 2012 will continue to offer [three versions of the free SQL Server Express Edition](http://sqlmag.com/article/sql-server/sql-server-express-2012-editions-143625): Express (Database Only), Express with Tools, and Express with Advanced Services. Microsoft will also continue to offer a download of SQL Server Management Studio Express.

#### The Express editions are limited to support for one CPU and 1GB of RAM. Databases are limited to 10GB per database

Local DB isn't the old Compact Edition: It uses the same sqlservr.exe engine as the other editions of SQL Server and is designed for developers. It requires no configuration and runs as a user process, not as a service.

### SQL Server 2012 Web and Developer Editions

The Developer edition provides the same feature set as the Enterprise edition. However, it's licensed per developer and can't be used for production work. The Web edition is licensed only to hosting companies with a Services Provider License Agreement (SLPA).

1b)Describe the considerations involved in planning a SQL 2012?

Installation Planning Process

A SQL Server 2012 installation planning process consists of three phases:

**Phase 1** In the first phase, analysis of server use should be performed. It is in this phase that the planning team determines the various ways in which each server will be utilized. The output of phase 1 should be a plan document (usually an Excel spread sheet listing each server and the databases that will run on the server with details about each database) that can be used as the input for phase 2.

**Phase 2** This phase involves requirements analysis. In this phase, the planning team determines the hardware requirements based on the server use analysis report document. The output of phase 2 should be an amended plan document that now includes the hardware requirements for the servers to be deployed.

**Phase 3** Finally, in phase 3, the plan is finalized with projected deployment dates for each server. Plans normally include testing start and completion dates, implementation start and completion dates, and post-installation user interview dates. This complete plan ensures that all activities are scheduled, and they are, therefore, more likely to be performed.

2a).recognize how to follow pre- and post-installation security best practices?

#### Pre-installation security issues:

If you will be using an Express Edition of Microsoft SQL Server, you should consider downloading and installing Microsoft SQL Server Management Studio Express. This free software can be used to perform backups and to manage your database.

Installation of SQL Express may fail if you have a SQL Native Client previously installed.  It is strongly recommended you uninstall SQL Native Client using **Add or Remove Programs** before running the installation program.

You must have access to the specified SQL Server. The program will support either Windows authentication or SQL Server authentication to access the specified SQL server. Although administrative access is not required, this account does need permissions to create and populate the product database on the specified SQL Server. In addition, the Shavlik Protect console machine background services must be able to access the SQL Server. All background services run using the Local System account on the console. If you are using Integrated Windows Authentication on a remote server, be sure to use the machine account when defining the console login account on SQL Server.

**Note:** For security purposes, Shavlik recommends using Windows authentication where possible. For information on configuring a remote SQL Server to accept Windows authentication credentials from the Shavlik Protect console, see [SQL Server Post-Installation Notes](http://www.shavlik.com/onlinehelp/protect90htmlhelp/SQL_Server_Post_Installation_Notes.htm).

In order to create the database, the user account you specify during the installation process must be assigned the *db-creator* role.

If you are using SQL Server on a remote machine, you must configure the server to allow remote connections. This can be done using SQL Server Configuration Manager.

If you want to use a clustered configuration for redundancy purposes it must be configured prior to installation. You then reference the virtual clustered instance during the installation process. Clustered configurations are not supported with SQL Server 2005 Express Edition, SQL Server R2 2008 Express Edition, or SQL Server 2012 Express Edition.

[During or After Installation of SQL Server](javascript:void(0))

After installation, you can enhance the security of the SQL Server installation by following these best practices regarding accounts and authentication modes:

**Service accounts**

Run SQL Server services by using the lowest possible permissions.

Associate SQL Server services with low privileged Windows local user accounts, or domain user accounts.

For more information, see [Configure Windows Service Accounts and Permissions](https://technet.microsoft.com/en-us/library/ms143504%28v=sql.110%29.aspx).

**Authentication mode**

Require Windows Authentication for connections to SQL Server.

Use Kerberos authentication. For more information, see [Register a Service Principal Name for Kerberos Connections](https://technet.microsoft.com/en-us/library/ms191153%28v=sql.110%29.aspx).

**Strong passwords**

Always assign a strong password to the sa account.

Always enable password policy checking for password strength and expiration.

Always use strong passwords for all SQL Server logins.

**3a)Identify how to install sql server 2012 using the wizard?**

# Installation for SQL Server 2016

**SQL Server 2016**

The SQL Server Installation Wizard provides a single feature tree to install all SQL Server components:

* Database Engine
* Analysis Services
* Reporting Services
* Integration Services
* Master Data Services
* Data Quality Services
* Management tools
* Connectivity components