

What is N-Tier?

An **N-Tier Application** program is one that is distributed among three or more separate computers in a distributed network.

The most common form of n-tier is the 3-tier Application, and it is classified into three categories.

- User interface programming in the user's computer
- Business logic in a more centralized computer, and
- Required data in a computer that manages a database.

This architecture model provides Software Developers to create Reusable application/systems with maximum flexibility.

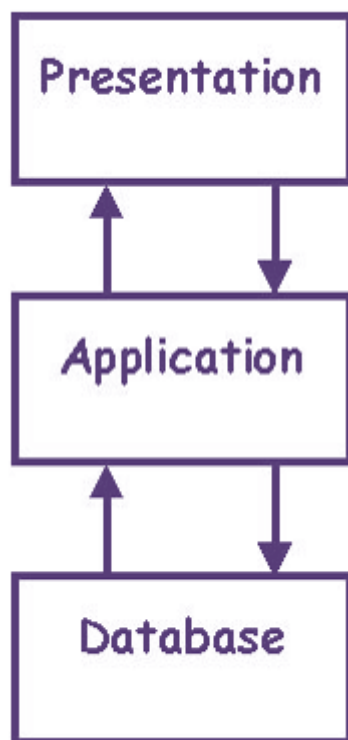
In **N-tier**, "**N**" refers to a number of tiers or layers are being used like – **2-tier, 3-tier or 4-tier, etc.** It is also called "**Multi-Tier Architecture**".

The n-tier architecture is an industry-proven software architecture model. It is suitable to support enterprise level client-

server applications by providing solutions to scalability, security, fault tolerance, reusability, and maintainability. It helps developers to create flexible and reusable applications.

N-Tier Architecture

A diagrammatic representation of an n-tier system depicts here – presentation, application, and database layers.



N Tier Architecture Diagram

These three layers can be further subdivided into different sub-layers depending on the requirements.

Some of the popular sites who have applied this architecture are

- MakeMyTrip.com
- Sales Force enterprise application
- Indian Railways – IRCTC
- Amazon.com, etc.

Some common terms to remember, so as to understand the concept more clearly.

- **Distributed Network:** It is a network architecture, where the components located at network computers coordinate and communicate their actions only by passing messages. It is a collection of multiple systems situated at different nodes but appears to the user as a single system.
 - It provides a single data communication network which can be managed separately by different networks.
 - An example of Distributed Network—where different clients are connected within LAN architecture on one side and on the other side they are connected to high-speed switches

along with a rack of servers containing service nodes.

- **Client-Server Architecture:** It is an architecture model where the client (one program) requests a service from a server (another program) **i.e.** It is a request-response service provided over the internet or through an intranet.

In this model, **Client** will serve as one set of program/code which executes a set of actions over the network. While **Server**, on the other hand, is a set of another program, which sends the result sets to the client system as requested.

- In this, client computer provides an interface to an end user to request a service or a resource from a server and on the other hand server then processes the request and displays the result to the end user.
- An example of Client-Server Model— an ATM machine. A bank is the server for processing the application within the large customer databases and ATM machine is the client having

a user interface with some simple application processing.

- **Platform:** In computer science or software industry, a platform is a system on which applications program can run. It consists of a combination of hardware and software that have a built-in instruction for a processors/microprocessors to perform specific operations.
 - In more simple words, the platform is a system or a base where any applications can run and execute to obtain a specific task.
 - An example of Platform – A personal machine loaded with Windows 2000 or Mac OS X as examples of 2 different platforms.

- **Database:** It is a collection of information in an organized way so that it can be easily accessed, managed and updated.
 - Examples of Database – MySQL, [SQL](#) Server, and Oracle Database are some common Db's.

Types of N-Tier Architectures

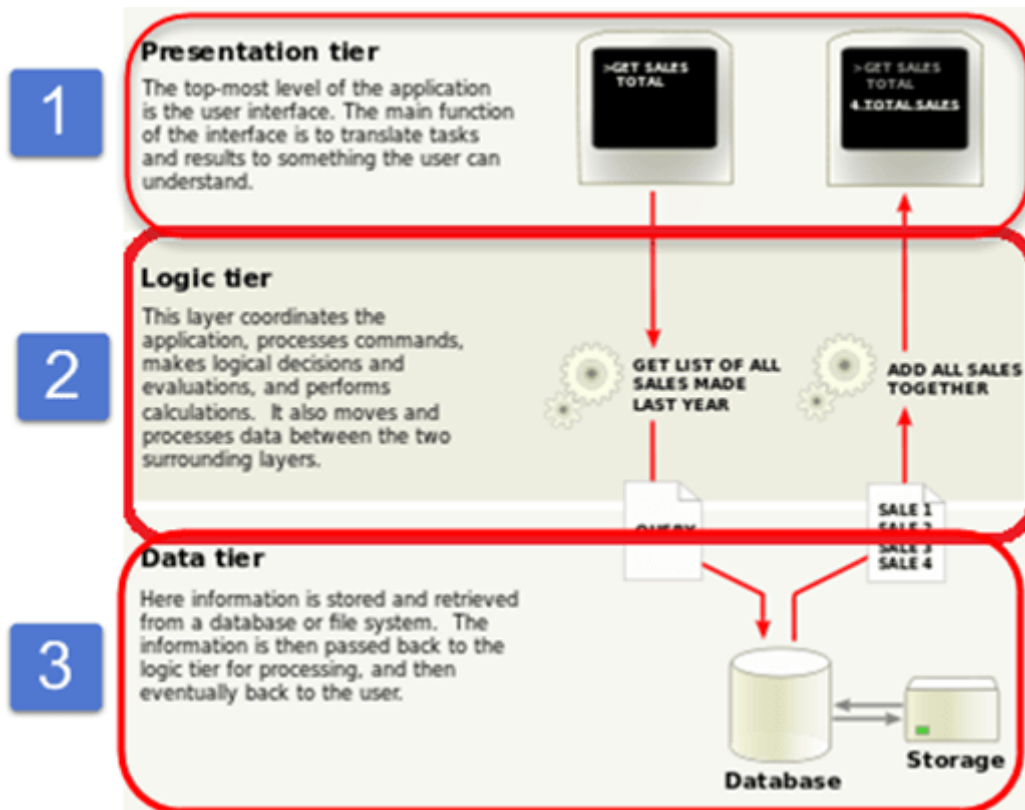
There are different types of N-Tier Architectures, like **3-tier Architecture**, **2-Tier Architecture** and **1- Tier Architecture**.

First, we will see 3-tier Architecture, which is very important.

3-Tier Architecture

By looking at the below diagram, you can easily identify that **3-tier architecture** has three different layers.

- Presentation layer
- Business Logic layer
- Database layer



3 Tier Architecture Diagram

Here we have taken a simple example of student form to understand all these three layers. It has information about a student like – Name, Address, Email, and Picture.