# Advance Java

## Basics :

**Software Architecture**: N Tier, 3 Tier, 1 Tier, 2 Tier Architecture

<https://www.appsierra.com/blog/tiers-in-software-architecture>

One-tier architecture

Two-tier architecture

Three-tier architecture

UI

Bussiness Layer

BAkend or database layer

NGNIX :- Open Source web server can also be used for load balancing caching etc.

Nip.io :- Nip.io is a free service that allows users to map IP addresses to hostnames using wildcard DNS

## JDBC :

JAVA DATABASE CONNECTION : A powerful API that allows Java Programs to access and manipulate data stored in a wide variety of databases.

<https://www.guru99.com/jsp-tutorial.html>

API - Application Programming Interface

JDBC helps java to communicate with databse

JDBC is an API which defines how client can connect to databse send sql queries and statement.

JDBC consist set of interfaces and classes written in java

JDBC provides platform independence, security.

**Why JDBC**

* Interoperability: provides an Universal API for accessing and interacting with any SQL-compliment db.
* Performance : JDBC allows applications to cache data much more efficiently by facilitating the retrival
* Flexibility : in choosing vendor-specific or vendor natural database management system.

**JDBC Drivers**

* ODBC bridge Driver
* Native API Driver
* Network Protocol Driver
* Thin Driver

**Connection with Intellij**

## Servlet

Servlet is java's answer to CGI(Common gateway interface) programming

PRogram runs on web server and build pages on the fly

<https://www.tpointtech.com/servlet-tutorial>

Pag uses information from a db.

jar - java archive file

var - web archive file

ear - enterprise archive file

Web pplication

Servlet is a technology to create web app

**<<<<<<<<<< Web Technology >>>>>>>>>>>>>**

Website

HTTP

HTTP Request

Get vs post

Container

Server : Web vs application

Content type

Package : Groups of classes and interface which are logically related

Servlet is an interface

System.out.print - to see the output on terminal

out,print - to run the file in web page

>>>>>>>>>>>**Servlet life cycle :**  |

1 make project

2 make package and load the class

3 implements the servlet

4 load the methods

5 edit the service method as per the output requirement

6 Make servlet 1,2,3 for web,post nd http

7 run and check

Login page

make html in webapp

make package and import

make file Validation

import doGet and doPost methods

call validate method in get and post

fetch all parameters : **req.getParameter("id")**

// Perform User Authantication based on database records

**>>>>>>>>DATABASE CONNECTION :**

1 make package for connection

2 make class of MyConn

3 configure Connection class

e.printStackTrace - to get the exception

**>>>>>>Sevlet Navigation :**

**Resp.sendRedirect(“url”)** to navigation with url

**RequestDispatcher rs = req.getRequestDispatcher();** to navigatw with same url

Edit Web.xml to load direct your html page inspite of index.jsp

2 types in requrst dispatcher – forward() and include()

**SERVLET IS MORE SECURE THEN JSP**

**>>>>>>>Session Tracking System:**

Four techniques –

* Cookies : Store the data on the client side,
  + Non-persistent Cookie
  + Persistent Cookie
* Hidden from field :
* URL Rewriting
* Http Session

## JAVA SERVER PAGES (JSP)

* Do not need to restart the server every changes.
* We do not have class file so we need to host the jsp.
* Once we are having class file we have byte code which is compiled by the compiler
* Scriptlet <%java code%> in jsp (out is internally available in jsp)
* We can use the variable directly in between <%=var%>
* Package is a folder which contains all the logical classes

**Scopes in JSP**

Page, Request, Session, Application

<https://www.dineshonjava.com/jsp-scopes-example/>

**JSP Directives**

1. Page directive
2. Include directive
3. Taglib directive

<https://www.guru99.com/directives-in-jsp.html>

**JSP Action Tags**

<https://www.guru99.com/jsp-action-tags.html>

Jsp:useBean : declares that the page will use a bean that is stored within and is accessible from the specified scope, which can be application, session, request, or page.

Action tags : <https://www.tpointtech.com/jstl-formatting-tags>

## Tasks

Create a dataservlet to develop Simple functionalities of simple calculator (,-,\*,/ dropdown)

Create a servlet to calculate EMI based on principle amount, Duration, and interest rate using compound interest

Create a servlet 1,2,3 to understand difference between send redirect and RequestDispatcher

Resp.sendRedirect(“url”) to navigation with url

RequestDispatcher rs = req.getRequestDispatcher();

Create Home,Studentlist,contact us and aboutus using servlet

Create GST Calculator using JSP.

Create a simple page to set application name and print on different pages

Create WebApp which will get 1 value from the user for version, if session is available( Display : Welcome ‘value’) else will display (Guest value) and for logout page it will display bye value.

Create JSP which will contain Header part name it header.jsp and create footer.jsp and create p1,p2,p3 jsps and display header and footer all of them.Using include directive include the pages

Create age calculator using JSP.

Create 2 object of class student and static method named city