Browser is a standalone application that is used to access any web application over the Network through URL
② The browser understand only HTML, CSS and javascript so that it always create HTTP request and interpreted http respond given by the server
③ The browser always send and receive the request through http protocol

* Web server / Presentation layer :→
① A web server is an application that run on operating system
② Webserver as the name implies serve request to the browser it help both web browser & web application to interact to each other
③ Every app server is under the control of web server
④ It receive the request form browser communicate with the web applicated and provide the respond back to the browser

* App server / Bussiness server :→
① The collection of all resources are present in app server.
② The app server contain the bussiness logic of the source code, servelet code and JDBC code
③ Web resource always immplineted using JSP or spring boot for java and asp.net for C#
④ Web resource were the bussiness logic code is written base on CRS
⑤

* Type of web Resource :→
Static web resource :→ Response present inside the web applicaⁿ before the request is called static web resource.
E.g :→ wikipidia
Note :→ If web applicaⁿ is a collection of static web resource then it's called static web application.
→ To develop static web applicaⁿ only html is enough

Dynamic web resource :→ Response get it generate at the time of request we call it as dynamic web resource.
E.g :→ Internet banking, gmail
Note :→ If a web application contain atleast one dynamic web resource then, it is called dynamic web application
② JSP or spring boot is mandatory to develop a dynamic web applicaⁿ

* Database :→
It is a place where we can store n number of data in organized manner for easy data retrieval
Ex :→ NSQL, MYSQL, mongo DB, Oracle

* URL :→ ① URL stand for uniform resource locator
2) URL is used to uniquely identify a particular webresource over the fastwast internet
3) Every web applicaⁿ should have it own unique address in the form of URL.
4) URL is the one and only way to access web application over the browser

Syntax :→ Protocol :// DomainName : PortNo / ResourcePath ? query string # FragmentID

* Protocal :→ ① When one application wants to communicated with another applicaⁿ there needs to be a common language that both application can understand each other hence we use protocal.
② The protocal is a common language through which two applications can exchange information with each other.
③ It is set of rule and instruction
④ The browser alway sent a request and recenive the respond through http protocal hence it is called as http request and http respone
~~④ It is~~

e.g of protocal information in case insensitive

http, https, SMTP, FTP

* Domain Name :→

① It is use to uniquely identify a specific server within the ~~inter~~ network where web application is present.

② A domain name might be the variable name or IP address

③ It is a mandatory information

④ Fig e.g for domain name are .com which stand for commercial domain, .edu which stand for education domain.

* ~~Port~~ Port No. :→ Port no is used to uniquely identify the specific software within the computer

② It is optional informational in the web URL

③ Port No act as a access getway for an application of server so that it can be lunched at local server

④ Fig e.g for port no are 8080, 8090, 8888

* Resource Path :→ ① Resource path is used to uniquely identify a specific web resource or web page within the web application.

② With the help of resource path we can navigate to singer webpage within the collection of multiply web page.

* query string :→ ① It is one of the component of URL which is used to pass a value to specific parameter

② query string always being with a ?

③ query string is always written in name value pair.

④ We can have multiple value pass separated by and operator

* Fragment :→ It is used to uniquely identify the specific fragment or section in the web page.

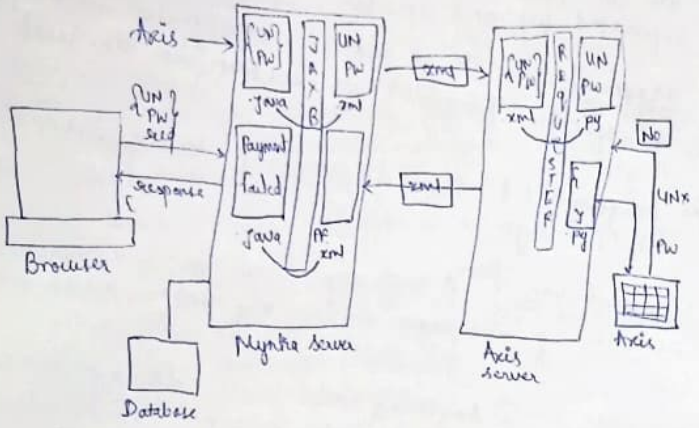
① fragment id should always being with the (#) sign.

* Web application :→ A web application is a commpose collection of web pages which are interconnected with data

* Web page :→ ① Anything which is display by the browser in the form of response value called it as web page

② A web page is the collection of all the web resource and web element which are written in a language like HTML, CSS, JS

*



* xml :→

① xml is used to store and transport data bet^w to application

② It is collection of custom tags or user difine tags

③ xml tags also called as elements.

④ It is case sensitive and look very similar to html.

⑤ xml is markup language and platform independent language which help to store and transport data

⑥ different application which are develop using different Technologies of or same technologie can transfer the data among them self with the help of xml.

⑦ As the name implies it is an extension of HTML and hence xml looks similar to html but purpose for both language are completly different

* XML Structure

```
<Root>
  <child>
    <sub child>
    </sub child>
  </child>
</Root>
```

① Like HTML, xml also follows a tree structure

② An xml tree start at a Root element and branches from root element will have child element

③ child element can also have sub child element with this format we are avail to store the huge amount of data and transfer it to another server

* xml Entity reference

① some character have a special meaning in xml

② If u place a character like greater than > < inside xml elements it will generate an error bcoz it represent the start of a new element.

E.g :→ <sal> Salary > 10,000 </sal>

-This statement would generate an error as it represent the start of new element and hence in order to avoid this error, we use an entity reference

E.g :→ <sal> salary> 10,000 </sal>

③ There are five predefind entity reference than xml

i) > → grater than

ii) < → less than

iii) & → in order to denote and

iv) ' → appostopy sign

v) " → question mark.

JAXB is a java API that help us to convert java object to xml and xml to java object.
The process of convating java object to xml is called as marshalling or serialization
The process of converting xml to java object is called as unmarshalling or de-serialization

JSON

Json stand for Java Script object notation
① It is use store and transport data between two application
② It is very little weight to language
③ Json is easy to use in compare with xml
④ It as more no of datatype.
⑤ like xml Json is also a platform independent language which help us to store and transport data.
⑥ Jackson compare to xml json much more little weight there is for application to pase and generate by avoiding complicated translation
⑦ Json is the name implies which consist of data similar object notation of java script.
⑧ If we receive datafrom a server in json format we can directly use it like any other javascript object
⑨ If the format of the transcation is json than it is 100% sure that it would be a rest web service
⑩ In case if the format is xml than it is only 50% sure that it can be soap webservice.

Syntax :→

```
object {}
{
 "name" : "value"
 "name" : "value"
}
```

① If Json we store data in name, value, pair
② If we have multiple set of data than it has to be operated by , (comma)
③ The {} hold down the object and [] hold down the array
④ In json value must be store in one of the following data type.
 ① String
 ② Number
 ③ boolean
 ④ null
 ⑤ an object
 ⑥ an array

* Json parser :→

① jackson, jaresey and jackRS are the java API that help us to convert java object to Json and json to java object.
② The process of converting java object to Json it is called as marshaling or serialization.
③ The process

xml data is typeless

2] All xml data should be string

3] Retriving data is difficult

4] It is more secured than Json

5] In xml we store data in tree structure formate

Json

1] Json data has datatype, it is light weighted.

2] Json datatype are string, number, array, boolean, null, object

3] Retriving data is easy in Json

4] Json is less secured

5] Data is stored can name, value, pair

* Service Oriented Architecture

1] Service oriented architecture represents all the important layer which are required in order to run a bussiness

2] It also present the type of testing we can perform on each layer to make sure that a layer is work accordingly

3] If we do not test each and every layer properly then, the bussiness ~~good~~ work go for loss.

* Presentation layer

i] Presentation layer contain web pages, web resource, web-element which required for graphical user interface :to which the user can communicate with bussiness logic.

ii] In order to makesure that the presentation layer is working correctly we preform manual testing and automation testing.

* Bussiness layer :→

i] The bussiness layer contain the source code and bussiness logic which is core feature form the application.

ii] To make sure that the bussiness layer it working find we preform unit testing & web service testing

iii] If layer the testing if directly perform on server

* Database layer :→

i] Database layer contain all the data which is taken form the particular domain.

ii] If database layer stop working we will have to face data loss, data integrity and data detection issue

iii] To make sure that database is working find we have to perform ETL testing (Extract transfer load)

Programming Interface)

i) API stand for application programming interface
ii) API acts as a bridge or connection between two programs of application
iii) It is also consider as the medium of communication form user and two server

Q) What is API ~~type~~ testing?

→ ① Testing the interface between two programms with respect to functionality, reliability, performance and security is known as API testing

② Testing the application directly in business layer is called as api testing.

③ Testing done without the use of browser is also called as api testing

* Unit Testing:→

① Testing each and every line of source testing using another program is called unit testing

② White box testing is also referred as unit testing

③ If order to automate unit test case we have to go for unit testing tool like JUnit, Test-NG, Pytest

Example:→ Antivirus application.

* Web service

i) Web service is the mechanism or of the medium of communication (API) through which two application or machine can exchange the data irrespective of there technology

ii) Web service help the application to exchange the information with each other when running of on same or different platform.

iii) Web service help us to share the functionality of one application to any other application without sharing the source code and database data.

iv) All web service are expost through API

Q) What is web service testing?

→ ① Testing request & respons of the API is called web services testing

② Testing request & respons between two application is called as web service testing.

③ Web service provider or to test all the API

Q) Why web service testing?

→ i) The purpose of web service testing is to verify that all of the API expose by your application is working as expected with respect to functionality performance, scalability and security.

ii) Web service testing allow both service provider and service receiver to get the benefits of the application.