

Assignment No - 1

1) What is web service ?

→ Web service is a standardized medium to propagate communication between the client and server applications on the WWW (World Wide Web). A web service is a software module that is designed to perform a certain set of task.

A web service can be defined by following ways.

It is a client - server application or application component for communication.

The method of communication b/w two devices over the network.

It is a software system for the interoperable machine to machine communication.

2) Explain difference between website and web service.

→

Web service

website

✓ 1) A web service is a web application component that uses a standardized format like XML to interact with other web app over the internet.

2) A web service doesn't have a user interface.

✓ 1) A website is a collection of webpages put together which are accessed by a web browser.

2) A website has a user interface or GUI.

3) A web service are meant for other application to be interacted with over the internet.

3) Websites are meant for use by humans.

4) Web services are platform independent as they use open protocols.

4) Cross-platform as they require tweaking to operate on different browsers, operating system, etc.

5) Web services are accessed by HTTP methods - GET, POST, DELETE, etc.

5) Websites are accessed by using their GUI components - buttons, text, forms, etc.

6) E.g. Google maps API is a web service that can be used by website to display maps by passing co-ordinates to it.

6) E.g. ArtOfTesting.com is a website that has a collection of related web pages containing tutorials.

3) What is URL? What are the parts in URL?

→ A URL (Uniform Resource Locator) is a unique identifier used to locate a resource on the internet. It is also referred to as a web address. URL's consists of multiple parts - including a protocol and domain name - that tell a web browser how and where to retrieve a resource.

End users use URLs by typing them directly into the address bar of a browser.

or by clicking a hyperlink found on a webpage, bookmark list, in an email or from another app.

1) Protocol - The protocol or scheme of a URL indicate the method that will be used for transmitting or exchanging data. The most common scheme is the hyper text transfer protocol (HTTP) for the transmission of HTML files.

e.g. = http://

2) Domain - The domain or hostname of a URL is a user-friendly expression of the internet protocol (IP) address of a website.

e.g. - WWW.example.com.

3) Path - The path that follows the domain name inside a URL points to a specific file or other resource location.

4) Query - The query string, also known as a fragment identifier is frequently used for internal searches and is commonly proceeded by a question mark (?)

4. What is domain?

- 1) A domain, in the context of networking, refers to any group of users, workstation, devices, printers, computers and database servers that share different types of data via network resources. There are also many types of subdomains.
- 2) A domain has a domain controller that governs all basic domain function and manage all user functions, including username / password and shared system resource, authentication and access. A domain is also used to assign specific resource privileges, such as a user accounts.
- 3) In a simple network domain, many computers and / or workgroups are directly connected. A domain is comprised of combined systems, servers and workgroups. Multiple server types may exist in one domain, such as web, database & print and depend on network requirements.

e.g.

protocol

HTTP://

WWW.domain-name.com

subdomain

domain name

Top level domain

root domain

05

What is hosting -

- 1) It is a type of internet hosting service that hosts websites for clients, i.e. it offers the facilities required for them to create and maintain a site and makes it accessible on the world wide web.
- 2) A web hosting is a generic term used to refer to a type of server that hosts website and/or related data, application and service.

Types of hosting -

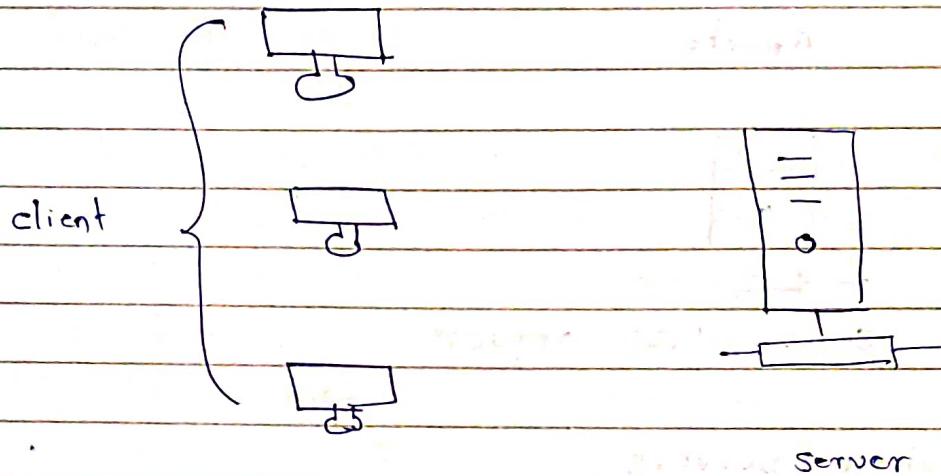
- 1) Free hosting - low quality, but viable alternative for non-commercial or professional sites.
- 2) Shared hosting - It is a reserved space, within a server shared betⁿ several users that is, it can host several website at the same time.
- 3) VPS hosting - Each website is stored on a powerful server divided into virtual components that is the client has its own RAM resource CPU, etc.
- 4) Dedicated hosting - A complete server for the user. It is expensive but allow maximum flexibility and speed.

10/10/22

Assignment No. 2

Q.1 Explain client and server model.

- - The web is service that allow computers to share and exchange data.
such as : Emailing , online gaming , FTP .
- The web is referred to as client - server communication.



client - client can be a machine or a program
for eg Laptop, desktop, mobile.

A client program is a program that allow the user to make requests.

A client , whether it is a machine or a program is an appliance and a way to make requests through the web.

Server - He can run multiple servers on one single machine.

- A server is a computer program NOT A device .
- high performance computers program are called server because they run server- programs .

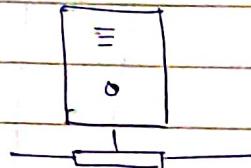
- Server provide functionality & serve other programs called clients.
- A single server can serve multiple clients at the same time.

There are several type of servers

1) web servers like Apache

Web server

Apache



Serve HTTP request

2) Database servers



Run DBMS

- A server can contain web resources, host web application, stores user and program data etc.
- It is used to serve hundreds or thousand of client.
- A server is always listening for request and as soon as it receives one, responds with a message.
- A client server model is just one way for the computers to communicate via the web.
- A client server model is based on a centralized structure.

Q.2 Explain Java RMI.

- i) The RMI (Remote Method invocation) is an API that provides a mechanism to create distributed application in java. The RMI allows an object to invoke methods on an object running in another JVM.
- 2) RMI use stub & skeleton object for communication with the remote object.

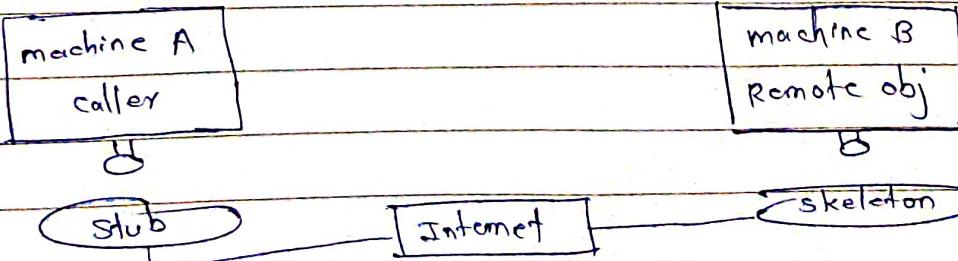
stub - The stub on object acts as a gateway for the client side. All the outgoing request are routed through it.

It does the following task.

- i) It initiates a connection with remote virtual machine (JVM)
- ii) It writes and transmits the parameters to the remote virtual machine & wait for the result.
- iii) It reads the return value or exception & it finally returns the value to the caller.

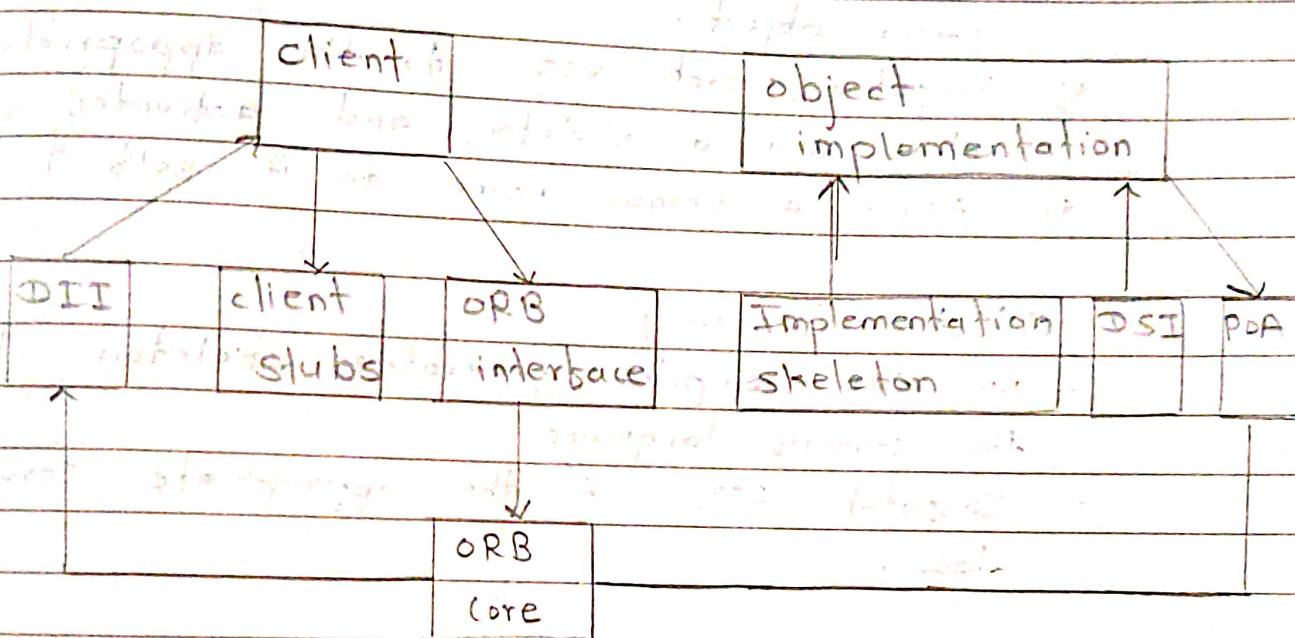
skeleton - The skeleton is an object, acts as a gateway for the server side object. All the incoming requests are routed through it.

- i) It read the parameter for the remote method
- ii) It invoke the method on the actual remote object and it write & transmits the result to the caller.



04 Explain CORBA Architecture

→ A collection of system & service for handling low level applⁿ service like like two system client and object implementation.



Working blow of CORBA architecture diagram

working blow of CORBA

- 1) It carries out the request/reply protocol b/w client & server
- 2) It provides operations that enable process to be started and stopped.
- 3) It provides operations to convert b/w remote object reference & string

Object Adapter (server) -

- 1) Bridges the gap b/w CORBA objects and the programming language interfaces of the slave classes.
- 2) Create remote object references for the CORBA object.
- 3) Dispatches each RMI to the appropriate servant class via a skeleton, and activates obj.
- 4) Assign a unique name to it self & each obj.

Skeleton (server)

- An IDL compiler generates skeleton classes in the server's language.
- Dispatch RMI's to the appropriate servant class.

Stub -

- generated by an IDL compiler in the client language.
- A proxy class is created for obj oriented language.
- stub procedures are created for procedural language.

Implementation Repository -

Activates registered server on demand and locate server that are currently running.

Interface repository

It provide info about registered ideal interface to the clients & server that require it.

Assignment no - 3

Q.1

What are the role of J2EE in distributed computing?

→ J2EE provide a programming model based upon web and business components that are managed by J2EE application server.

→ J2EE architecture Application tier / Integration tier and the web tier / Business tier.

tier	client machine	application server machine	database server machine
presentation tier	web browser	Web Tier	Database
application tier	application Tier	Business Tier	Business Tier
Integration tier	Integration Tier	Integration Tier	Integration Tier
		Business	
		Tier	

client
Machine

J2EE Server

Database
Server Machine

J2EE Architecture

The following is a breakdown of functionalities of those logical tiers:

presentation tier - The presentation tier is composed of web components, which handle HTTP request / response, session management, device independent content delivery, and the invocation of business tier components.

Application tier - The application tier (also known as the business tier) deals with the core business logic processing, which may typically deal with workflow and automation. The business components.

retrieve data from the information system with well-defined API's provided by the app server.

Integration tier - The Integration tier deals with connecting and communication to back-end Enterprise information system (EIS), database app and legacy app or mainframe app.

3) What is service oriented architecture?
Explain its characteristics.

→ Service-oriented architecture (SOA) is a method of software development that uses software components called service to create business appn.

A service-oriented architecture is a design pattern which is designed to build distributed system that deliver. It is only concept and not limited do any programming language or platform.
There are some characteristics of SOA

Interoperability

loose coupling

knowledge curtain

Resource management

service discovery

structural independence

Server quality

4) What is stateless & stateful services & Example

→ stateless service - stateless service are the type of network which client send request to the server and server response back according to current state. It does not require the server about each communicating pattern partner for multiple request.

1) stateless protocol simplify the design of server

2) stateless protocol there is no tight dependency betn server & client.

(for e.g - HTTP, UDP, DNS)

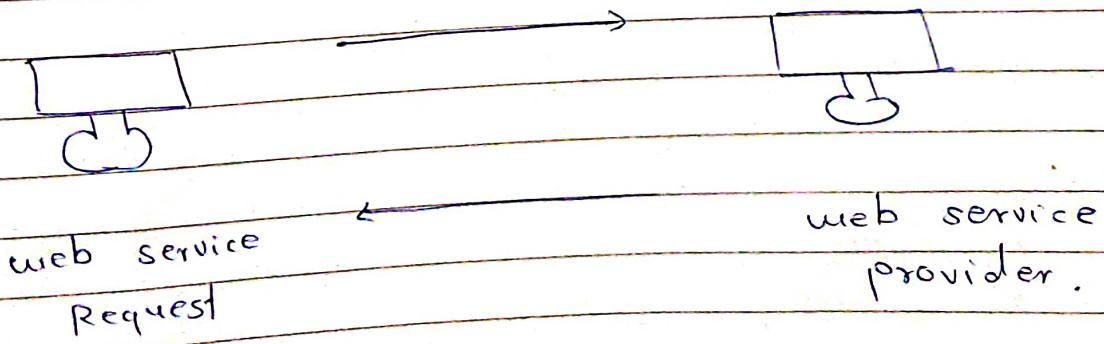
stateful service - In stateful protocol, If client send a request to the server then it expects some kind of response. If it does not get any response then it resend the request. (for e.g. FTP (file transfer protocol), Telnet).

- 1) stateful app's require backing storage.
- 2) stateful request are always dependent on the server-side state.

Q.5 What are RPC ?

→ Definition - Remote procedure call (RPC) is a protocol that one program can use to request a service from a program located in another computer on a network without having to understand the network's details.

Remote procedure call is a software communication protocol that one program can use to request a service from a program located in another computer on a network without having to understand the network details. RPC is used to call other processes on the remote systems like a local system. A procedure call is also sometimes known as a function call or a subroutine call.



Q.6 What are the features of SOAP?

- SOAP is used for communication b/w app's.
- SOAP is a format for sending messages.
- SOAP communicates through internet.

1) Independence - SOAP allows for any programming language model.

- SOAP is platform independent and language independent. That is SOAP can be used in any languages.
- SOAP is based on XML.

2) Extensibility - Security and ws-routing are among the extensions under development.

- Neutrality - SOAP can be used over any transport protocol such as HTTP, SMTP, TCP.

• SOAP follows you to get around firewalls by using proxy servers.

• SOAP is an W3C recommendation.