

Practical no. 1

Aim: Develop Time Server Service that returns current time in java and call it from clients developed in Java, PHP, Android & .NET.

Description:

(i) Web Service:

- A web service is a set of open protocols & standards that allow data to be exchanged between different applications or systems.

(ii) JAX-WS:

- Java API for XML web services (JAX-WS) is a technology for building web services & clients that communicate using XML.
- JAX-WS allows users (developers) to write message-oriented as well as RPC oriented web-services.

(iii) Annotations used:

(a) @WebService:

- This annotation tells the server runtime environment to expose all public methods on that bean as a web service.

(b) @WebMethod:

- This denotes a method that is a web-service operation.

(c) @SOAPbinding:

- This annotation specifies the mapping of web services onto the SOAP message protocol.

Practical no. 11

Aim : Develop web service in Java that returns complex ~~do~~ data types (eg. as list of friends).

Description:

(i) SEI:

- The Service Endpoint Interface (SEI) is a Java interface class that defines the methods to be exposed as a web service.

(ii) SIB:

- A Service Implementation Bean (SIB), is a term used in Java platform, for a Java object implementing a web service.

(iii) wsgen command:

- The wsgen command-line tool generates the necessary artifacts required for Java API for XML Web Services (JAX-WS) applications when starting from Java code.

(iv) wsimport command:

- The wsimport command line generates JAX-WS portable artifacts that can be packaged in web application archive (WAR) file & provides an Ant task.

Practical no. 111

Aim : Develop a web service in Java that returns matrix multiplication by Strassen's Algorithm.

Description:

(i) WSDL:

- WSDL stands for web services description language. It is the standard format for describing a web service.

- WSDL was developed jointly by Microsoft & IBM.

(ii) Strassen's Matrix:

- It is a faster than the standard matrix multiplication algorithm for large matrices with better asymptotic complexity though the naive algorithm is often better for small matrices.

(iii) Endpoint:

- An endpoint is either in a published or an unpublished state.
The publish methods can be used to start publishing endpoint.

Practical no. # V

Aim: Creating Virtual Private Server using Amazon web Services.

Description:

(i) Amazon web Services (AWS):

- Amazon web services, Inc. (AWS) is a subsidiary of Amazon providing on-demand cloud computing platforms and APIs to individuals, companies and governments, on a metered pay-as-you-go basis.

- These cloud computing web services provide a variety of basic abstract technical infrastructure and distributed computing building blocks and tools.

(ii) Virtual Private Server (VPS):

- A Virtual Private Server (VPS) is a virtual machine sold as a service by an Internet hosting service.

- A virtual private server runs its own copy of an operating system (OS), and customers may have super-user-level access to that operating system instance, so they can install almost any software that runs on that OS.

(iii) Networking Concept:

- The concept of networking is wide but we can define it as the interconnection of two or more networks in different places.
- Computer Network, in simplest terms, it means connecting computers so that they can share files, printers, applications and other computer-related resources.

Practical no. VI

Aim : Develop an application to consume Google's Search / Google's Map RESTful Web service.

Description :

(i) Methods used in the program :

- Following are the methods used in RESTful web services :

(a) GET :

- provides a read only access to a resource

(b) POST :

- Used to create a new resource.

(c) DELETE :

- Used to remove a resource.

(d) PUT :

- Used to update a existing resource or create a new resource.

Practical no. VII

Aim : Develop WCF service returning response in JSON type.

Description :

(i) WCF (Windows Communication Foundation):

- The Windows Communication Foundation (WCF) previously known as Indigo, is a free and open-source runtime and a set of APIs in the .NET Framework for building connected, service-oriented applications.

- It is designed using service-oriented architecture principles to support distributed computing where services have remote consumers.

(ii) Advantages & Disadvantages of WCF:

- Advantages of WCF:

(a) One can create new components for security, transport, authentication.

(b) Faster than ASMX.

(c) Supports scaling / load balancing.

(d) Interoperability, for Java and more.

- Disadvantages of WCF:

- (a) A drawback would be that, WCF is Microsoft's implementation of SOA and hence its API's are solely controlled by MS which makes interoperability a bit difficult.
- (b) Also, to deploy WCF apps, you will need more underlying hardware resources on platform on which the WCF applications will be running, since there is an additional layer of abstraction to deal with.

Practical no. VIII

Aim: Develop and demonstrate WCF service having multiple endpoints.

Description :

(i) Endpoints:

- WCF provides communication for client applications using endpoints.
- Endpoints provide the configuration required for the communication & create the complete WCF service application.
- Endpoints are a combination of ABC where,
 - (a) A → Address
 - (b) B → Binding
 - (c) C → Contracts

Practical no. IX

Aim : Develop application to download Image/video from server or upload Image/video to server using MTOM techniques.

Description :

(i) MTOM :

- SOAP Message Transmission Optimization Mechanism (MTOM) is the use of MIME to optimize the bitstream transmission of SOAP messages that contain significantly large base64 Binary elements.
- The MTOM message ~~format~~ allows ~~bit~~ bitstream compression of binary data.

Practical no. X

Aim: Using AWS Flow Framework develop application that includes a simple workflow. Workflow calls an activity to print hello world to the console. It must define the basic usage of AWS Flow Framework, including defining contracts, implementation of activities and workflow coordination logic and worker programs to host them.

Description:

c) AWS Flow Framework:

- The AWS Flow Framework is a collection of convenience libraries that make it faster and easier to build applications with Amazon Simple Workflow.
- The AWS Flow Framework takes care of creating and executing your application's steps keeps track of their progress, lets you define, retry rules for when steps fail, and much more.

(ii) Simple Workflow:

- The Amazon Simple Workflow Service (Amazon SWF) makes it easy to build applications that coordinate work across distributed components.
- In Amazon SWF, a task represents a logical unit of work that is performed by a component of your application.

(iii) Contracts:

- The contract has no implementation-specific settings.
- This use of implementation-neutral contracts allows clients to be decoupled from the implementation and hence provides flexibility to change the implementation details without breaking the client.

Practical no. XI

Aim : Using Aws Flow Framework develop application , 'Booking' for making a reservation , including flight & rental car.

Description:

(i) Pros and Cons of Aws Flow Framework?

- Pros of Aws Flow Framework?

- (a) User - friendly .
- (b) Flexible .
- (c) Secure .
- (d) Cost - effective .
- (e) Reliable .
- (f) Scalable and elastic .
- (g) Highly Performant .

- Cons of Aws Flow Framework?

- (a) Limitations
- (b) Lack of experts
- (c) Price Variations
- (d) General Issues .