**HTML Fundamentals**

1. What are the basic Features of HTTP?

Media independent, connectionless, stateless

1. What are request methods in HTTP?

GET, HEAD, POST, PUT, DELETE, CONNECT, OPTIONS, TRACE, PATCH

1. What are the differences between GET and POST methods?

GET carries request parameter appended in URL string while POST carries request parameter in message body

1. What is status code in HTTP?

A code issued by a server in a response to a client’s request made to the server

1. What are the header fields in HTTP?

General, Client-Request, Server Response, Entity

1. What is URI?

Uniform Resource Identifier

1. What are Idempotent methods and why do we call them?

HTTP method that can be called many times without different outcomes.

1. Explain HTTP Request & Response Messages

Requests messages are sent by the client to trigger an action on the server, and responses are the answer from the server

1. What is Session State in HTTP?

a way of identifying contacts on your website by assigning them a unique session ID and by using cookies.

1. What is HTTPS?

(Hypertext Transfer Protocol Secure) an extension used for secure communication over a network

**Introduction to API**

1. Explain REST and RESTFUL?

REST is an software architectural , RESTFUL is the use of the architectural

1. Mention what are the HTTP methods supported by REST?

GET, POST, PUT, DELETE, OPTIONS, HEAD

1. Explain the architectural style for creating web API?

Uniform interface, stateless, cacheable, client-server architecture

1. Explain the RESTFul Web Service?

a lightweight, maintainable, and scalable service that is built on the REST architecture

1. Explain what is a “Resource” in REST?

A key abstraction of information

1. Which protocol is used by RESTful web services?

HTTP

1. What is messaging in RESTful web services?

Using HTTP protocols as a medium of communication between client and server

1. State the core components of an HTTP Request?

Verb, Uniform Resource Identifier, HTTP Version, Request header, request body

1. State the core components of an HTTP response?

Request Code , Version, Response header and body

1. What do you understand about payload in RESTFul web service?

The interesting information in a chunk of data and the overhead to support it

1. Explain the caching mechanism?

a high-speed data storage layer which stores a subset of data, the data is stored in

RAM

1. List the main differences between SOAP and REST?

SOAP cannot make use of REST since SOAP is a protocol and REST is an architectural pattern.

1. Enlist advantages and disadvantages of ‘Statelessness’.

Advantages: web services can treat each method request independently, does not maintain the clients previous interactions, work with HTTP protocols

Disadvantages: Web services need to get extra information in each request and then interpret to get the client's state in case the client interactions are to be taken care of.

**Object Oriented Programming Fundamentals**

1. What is the main difference between a class and an object?

a class is a construct that encapsulates a group of variables and methods; whereas, an object acts as member or instance of that class.

1. What is Encapsulation? Explain with a used case

binding object states and behaviors together to hide implementation details from users.

1. What is Polymorphism? Explain with a used case

Same function name with different amount of vales being passed

1. Explain Overriding & Overloading and its advantages

Overloading: The function name is the same but the parameters and returns type changes

Overriding: the function of the child class has the same name as the parent’s class function

1. What is Inheritance and different types of inheritance? Explain with a used case

Creating a child class. Single, Multi, Hierarchical

1. What is an abstract class?

A class where you cant create an object of it.

1. What is an interface and how multiple inheritance is achieved with this

Interface allows a class can inherit properties of more than one parent class.

1. What are the access modifiers?

define the access privileges of classes, interfaces, constructors, methods, and data members.

1. What are the various types of constructors?

Default, no argument, parameterized

1. What is ‘this’ pointer?

Applies to the current variable

1. What is static and dynamic Binding?

static binding is a compile time operation while dynamic binding is a runtime

1. How many instances can be created for an abstract class and why?

0 you can only extend that abstract class

1. Which OOPS concept is used as a reuse mechanism and explain with a use case

Inheritance

1. Please identify one practical scenario for each pillar of OOPs.

**Unit Testing & JUnit**

1. What is unit testing?

a level of software testing where individual units/ components of a software are tested.

1. What is the difference between manual testing and automated testing?

Maunal testing is not accurate due to human error while automated testing is more reliable, as it is performed by tools and scripts

1. Is it necessary to write the test case for every logic? If yes, why

You should have one test case per class

1. What are the features of JUnit?

an open source framework, which is used for writing and running tests.

1. What are the important JUnit annotations? And its usage in coding

@BeforeClass, @AfterClass, @Before, @After, @Test

1. What does Assert class?

a method useful in determining Pass or Fail status of a test case

1. What is Code Coverage?

Percentage of code which is covered by automated test

1. What are the best practices to perform Unit Testing?
2. What is Mocking?

creating objects that simulate the behavior of real objects.

**GIT**

1. What is GIT and its significance in SDLC

A enterprise version control system

1. What is the difference between GIT and SVN?

Git is distributed and SVN is centralized

1. What are the advantages of using GIT?

Flexible, distributed model, fast

1. What is “Staging Area” or “Index” in GIT?

The git “index” is where you place files you want committed to the git repository

1. What is GIT stash?

Stash the changes in a dirty working directory away

1. What is the function of git clone?

A command line utility which is used to target an existing repository and create a clone, or copy of the target repository

1. How can you create a repository in Git?

You can take a local directory that is currently not under version control, and turn it into a Git repository

1. What is the purpose of branching in GIT?
2. What is the difference between ‘git remote’ and ‘git clone’?

Remote: add a remote repository to your orgin

Clone: copy a different repository

1. What is the function of ‘git diff ’ in git?

Track the changes made on a file

1. Explain what the commit message is?

Allows to choose which changes you want to save

1. Why is it advisable to create an additional commit rather than amending an existing commit? The amend operation will destroy the state that was previously saved in a commit.
2. What is Rebasing

Reapply commits on top of another base tip

**Maven Fundamentals**

1. Explain what is Maven? How does it work?

A project management tool that is based on POM, it uses for projects builds and documentation

1. Explain what POM and its significance is

Project object model, an XML representation of a Maven project held in a file

1. Explain what a Maven artifact is?

An artifact is a JAR file that gets deployed to a Maven repository.

1. List out the dependency scope in Maven?

Compile, provided, runtime, test, system, import

1. List out what are the build phases in Maven?

Validate, compile, test-compile, test, package, integration-test, install, deploy

1. Mention the three-build lifecycle of Maven?

Default, clean, site

1. List out what are the aspects does Maven Manages?

Build, documentation, reporting, dependencies, SCMs, Releases, distribution, mailing list

1. Explain what a Maven Repository is? What are their types?

A Maven repository is a location where all the project jars, library jars, plugins or any other project related artifacts are stored and can be easily used by Maven. Their types are local, central, and remote

1. Explain how you can exclude dependency?

By using the exclusion element, dependency can be excluded

1. For POM what are the minimum required elements?

project root, modelVersion, groupID, artifactID and version.

**CI/CD**

1. What are the fundamental differences between DevOps & Agile?

DevOps is a practice of bringing development and operations teams together whereas Agile is an iterative approach that focuses on collaboration, customer feedback and small rapid releases.

1. What is the need for DevOps?

it allows enterprises to create and improve products at a faster pace than traditional software development methods

1. What are the advantages of DevOps?

Faster, continuous software delivery, less complexity to manage

1. Explain with a use case where DevOps can be used in industry/ real-life.

Cloud movement such as google Cloud

1. What are the success factors for Continuous Integration?
2. What are the differences between continuous integration, continuous delivery, and continuous deployment?

Delivery: small build cycle with short sprints

Deployment: every change is automatically deployed

Integration: merging all code from all developers to one central branch

1. What role does the Quality Assurance (QA) team play in DevOps?

ties together development and operations and enables them to collaborate to have software and applications up and running

1. Describe an efficient workflow for continuous integration
2. What are the best practices for DevOps implementation?

Automate wherever possible, select tools that bare compatible with each other , integrate and deliver continuously

1. How will you approach when a project needs to implement DevOps?

Start small , get buy in from all teams, make it resilient and adaptive