Vidyavardhini's College of Engineering and Technology

Department of Artificial Intelligence & Data Science

AY: 2025-26

Class:	TE - AIDS	Semester:	V
Course Code:	CSC502	Course Name:	WC

Name of Student:	Divya P. Davane
Roll No. :	11
Assignment No.:	01
Title of Assignment:	Apply the fundamentals of web Technologies
Date of Submission:	23/7/2025
Date of Correction:	28/7/2025

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Completeness	5	5
Demonstrated Knowledge	3	3
Legibility	2	2
Total	10	10

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Completeness	5	3-4	1-2
Demonstrated Knowledge	3	2	1
Legibility	2	1	0

Checked by

Name of Faculty : Miss. Kshitija Gharat

Signature : Gharat

Date : 28/7/25

WC Assignment - I

Q. 1 Explain how DNS works and the process it follows to resolve domain names to IP addresses.

Ans The Domain Name System (DNS) is a hierarchical and decentralized system used to translate human readable domain names (like www.google.com) into machine-readable IP addresses (like 142.250.183.68). Since computers use IP addresses to identify each other on the internet, DNS plays a critical role in enabling user-friendly internet navigation.

* DNS Resolution Process:

i) User Requests a Website:
When a user enter a domain name in their web browser, needs the IP address associated with that domain to connect to the website.

ii) Check Local Cache:
The operating system first checks the local DNS cache to see if the IP address is already stored from a previous lookup. If found, it is used immediately.

iii) Query the Recursive Resolver:
If not in the local cache, the request is sent to a DNS recursive resolver. The recursive resolver is responsible for tracking down the IP address by querying other DNS servers.

iv) Contact Root DNS Server:
The recursive resolver contacts a root DNS server, which doesn't know the final IP but responds with the address of a Top-Level Domain (TLD) server.

v) Contact TLD DNS Server:
The resolver then contacts the TLD server, which

provides the IP address of the authoritative DNS server for the domain.

Q. 2 Compare the two protocols used for formatting and transmitting the message over the internet with respect to encryption, authentication, integrity and application

Ans The HTTP (Hypertext Transfer Protocol) and HTTPS (HTTP secure or HTTP over SSL/TLS) are two commonly used Internet communication protocols.

	Aspect	HTTP	HTTPS
i)	Encryption	Not-encrypted. Data is transmitted in plain text, making it vulnerable to wares dropping.	Encrypted using SSL/TLS. Protects data from interception during transmission
ii)	Authentication	No mechanism to verify the identity of the website.	Uses digital certificates to authenticate the website
iii)	Integrity	Data can be modified or corrupted during transmission without detection	Ensures data integrity. Any tampering is detected and rejected

iv)	Application	Used for general browsing where security is not a concern.	Used for secure applications like banking, online shopping, login forms and data transfer.

Q.3. Identify and explain the different method to retrieve the resource, create new resource, update the resource, modify the resource and delete the resource while using the REST style.

Ans. REST (Representational State Tranfer):

- The REST is an architectural style used for designing networked applications.
- It uses standard HTTP methods to perform operations on resources, which are identified by URI's

* Different methods:

i) Retrieve a Resource:

HTTP Method: GET

- Used to fetch / read data from the server.
- Safe and idempotent
- Example:

GET /Users/101 returns details of user with ID 101

ii) Create a New Resource:

HTTP Method: POST

- Used to create a new resource on the server.
- Sends data in the request body.

- Example :
  POST/ users creates a new resource on the server.

iii) Update a Resource :
HTTP Method : GET PUT
- Used to fetch / read data from the server.
- Safe and idempotent
- Requires complete data
- Example :
  PUT/ users / 101 replaces user 101's data with the new data.

iv) Modify a Resource :
HTTP method : PATCH.
- Used to partially update a resource.
- Only the modified field are sent.
- Example :
  PATCH / users / 101 updates only specified fields of user 101

v) Delete a Resource :
HTTP method : DELETE
- Used to remove a resource from the server.
- Example :
  DELETE / users / 101 deletes user 101.