Assignment 17: 18 Feb 2023

Q1. What is an API? Give an example, where an API is used in real life.
Q2. Give advantages and disadvantages of using API.
Q3. What is a Web API? Differentiate between API and Web API.
Q4. Explain REST and SOAP Architecture. Mention shortcomings of SOAP.
Q5. Differentiate between REST and SOAP.

Q1. What is an API? Give an example, where an API is used in real life.

Ans: APIs are mechanisms that enable two software components to communicate with each other using a set of definitions and protocols.
For example, the weather bureau's software system contains daily weather data. The weather app on your phone “talks” to this system via APIs and shows you daily weather updates on your phone.

Q2. Give advantages and disadvantages of using API.

Ans:

Advantages	Disadvantages
♦ Interpretation of real objects ♦ Identification of complex patterns and complex situations ♦ Ability to include or ignore features intelligently ♦ Multi-scale representation ♦ Use of shape, context, neighbourhood relationships	♦ Subjective ♦ Time consuming ♦ A fixed scale is necessary ♦ Inconsistency in the use of a steady scale to the whole image ♦ Human error ♦ Imprecise boundary delineation

Q3. What is a Web API? Differentiate between API and Web API.

Ans: A web API is an application programming interface for either a web server or a web browser.

Web Serviced	API
All web services are APIs.	All APIs are not web services.
It supports XML.	Responses are formatted using Web API's MediaTypeFormatter into XML, JSON, or any other given format.
You need a SOAP protocol to send or receive and data over the network. Therefore it does not have light-weight architecture.	API has a lightweight architecture.
It can be used by any client who understands XML.	It can be used by a client who understands JSON or XML.
Web service uses three styles: REST, SOAP, and XML-RPC for communication.	API can be used for any style of communication.
It provides supports only for the HTTP protocol.	It provides support for the HTTP/s protocol: URL Request/Response Headers, etc.

Q4. Explain REST and SOAP Architecture. Mention shortcomings of SOAP.

Ans: REST is a software architectural style that defines the set of rules to be used for creating web services.A REST API is an application programming interface (API) that uses a representational state transfer (REST) architectural style. The REST architectural style uses HTTP to request access and use data.

The SOAP web services architecture is based on interactions between three components: a service provider, a service requester, and an optional service registry.

Disadvantages of soap :

(i) Soaps cannot be used in hard water which contain `Ca^(2+)` or `Mg^(2+)` ions. This is because `Ca^(2+)` and `Mg^(2+)` salts of higher fatty acids are insoluble in water.

(ii) Soaps cannot be used in acidic medium because free fatty acids are not soluble in water.

Q5. Differentiate between REST and SOAP.

Ans:

SOAP	REST
• SOAP is a protocol.	• REST is an architectural style.
• SOAP can't use REST because it is a protocol.	• REST can use SOAP web services because it is an architecture and can use any protocol like HTTP, SOAP.
• SOAP uses services interfaces to expose the business logic.	• REST uses URI to expose business logic.
• SOAP defines standards to be strictly followed.	• REST does not define too much standards like SOAP.
• SOAP requires more bandwidth and resource than REST.	• REST requires less bandwidth and resource than SOAP.
• SOAP defines its own security.	• RESTful web services inherits security measures from the underlying transport.
• SOAP permits XML data format only.	• REST permits different data format such as Plain text, HTML, XML, JSON etc.