What is WebService?

Web Services is the mechanism or the medium of communication through which two applications / machines will exchange the data irrespective of their underline architecture and the technology.

Web Services can be implemented in different ways, but the following two are the popular implementations approaches.

1. SOAP (Simple Object Access Protocol)
2. REST (Representational State Transfer architecture)

All Web services are APIs but all APIs are not Web services.

REST APIs are a type of **Web Service APIs**. A **REST API** is a standardized architecture style for creating a **Web Service API**. One of the requirements to be a **REST API** is the utilization of HTTP methods to make a request over a network.

SOAP vs. REST

Let's have a short overview of soap vs rest before we do a deep dive into the key differences between them.

SOAP - SOAP is a protocol which was designed before REST and came into the picture. The main idea behind designing SOAP was to ensure that programs built on different platforms and programming languages could exchange data in an easy manner.

REST - This was designed specifically for working with components such as media components, files, or even objects on a particular hardware device. Any web service that is defined on the principles of REST can be called a RestFul web service. A Restful service would use the normal HTTP verbs of GET, POST, PUT and DELETE for working with the required components.

SOAP	REST
• SOAP stands for Simple Object Access Protocol	• REST stands for Representational State Transfer
• SOAP is a protocol. SOAP	• REST is an Architectural style in which a web service

was designed with a specification. It includes a WSDL file which has the required information on what the web service does in addition to the location of the web service.	can only be treated as a RESTful service if it follows the constraints of being 1. Client Server 2. Stateless 3. Cacheable 4. Layered System 5. Uniform Interface
• SOAP cannot make use of REST since SOAP is a protocol and REST is an architectural pattern.	• REST can make use of SOAP as the underlying protocol for web services, because in the end it is just an architectural pattern.

SOAP requires more bandwidth for its usage.

REST does not need much bandwidth when requests are sent to the server.

SOAP can only work with XML format. As seen from SOAP messages, all data passed is in XML format.

REST permits different data format such as Plain text, HTML, XML, JSON, etc. But the most preferred format for transferring data is JSON.

SOAP has tighter security. WS-Security, in addition to SSL support, is a built-in standard that gives SOAP some more enterprise-level security features, if you have a requirement for them.

SOAP has better security as compared to REST.

FIRST, WHAT IS AN API?

In the simplest of terms, an API is a piece of software that plugs one application directly into the data and services of another by granting it access to specific parts of a server. APIs let two pieces of software communicate, they’re the basis for everything we do on mobile, and they allow us to streamline IT architectures, power savvier marketing efforts, and make easier to share data sets.