API INTRODUCTION OF FINANCE AND ACCOUNTING STUDENTS

API (Application Programming Interface):

Through the use of a set of definitions and protocols, APIs allow two software components to communicate with one another. For instance, daily weather data is stored in the software system of the weather office. Through APIs, your phone's weather app "talks" to this system to provide you with daily weather updates.

How Do APIs Work?

Client and server architecture is typically used to illustrate API architecture. Applications that send requests are referred to as clients, while those that respond are referred to as servers. The smartphone app is the client in the weather example, while the bureau's weather database is the server.

Depending on when and why they were developed, APIs can function in four different ways.

- **SOAP APIs**

These APIs use Simple Object Access Protocol. Client and server exchange messages using XML. This is a less flexible API that was more popular in the past.

- **RPC APIs**

These APIs are called Remote Procedure Calls. The client completes a function (or procedure) on the server, and the server sends the output back to the client.

- **Websocket APIs**

Websocket API is another modern web API development that uses JSON objects to pass data. A WebSocket API supports two-way communication between client apps and the server. The server can send callback messages to connected clients, making it more efficient than REST API.

- **REST APIs**

These are the most popular and flexible APIs found on the web today. The client sends requests to the server as data. The server uses this client input to start internal functions and returns output data back to the client. Let’s look at REST APIs in more detail below.

What are REST APIs?

Representational State Transfer is referred to as REST. Clients can access server data using a set of functions defined by REST, such as GET, PUT, DELETE, and so on. HTTP is used by clients and servers to exchange data.

Statelessness is what distinguishes REST APIs most. Statelessness is the absence of client data storage on servers between requests. The URLs you enter in your browser to visit a website are comparable to client requests made to the server. The server's response consists of raw data without the usual web page graphical display.

What is web API?

A Web API or Web Service API is an application processing interface between a web server and web browser. All web services are APIs but not all APIs are web services. REST API is a special type of Web API that uses the standard architectural style explained above.

The different terms around APIs, like Java API or service APIs, exist because historically, APIs were created before the world wide web. Modern web APIs are REST APIs and the terms can be used interchangeably.

What are API integrations?

Software elements known as API integrations allow data to be automatically updated between clients and servers. The automatic syncing of data to the cloud from your phone's picture gallery or the automatic syncing of the date and time on your laptop when you go to a different time zone are two instances of API integrations. They can also be effectively used by businesses to automate a variety of system tasks.

What are the benefits of REST APIs?

REST APIs offer four main benefits:

1. **Integration**

APIs are used to integrate new applications with existing software systems. This increases development speed because each functionality doesn't have to be written from scratch. You can use APIs to leverage existing code.

2. **Innovation**

Entire industries can change with the arrival of a new app. Businesses need to respond quickly and support the rapid deployment of innovative services. They can do this by making changes at the API level without having to re-write the whole code.

3. **Expansion**

APIs present a unique opportunity for businesses to meet their clients' needs across different platforms. For example, maps API allows map information integration via websites, Android,iOS, etc. Any business can give similar access to their internal databases by using free or paid APIs.

4. **Ease of maintenance**

The API acts as a gateway between two systems. Each system is obliged to make internal changes so that the API is not impacted. This way, any future code changes by one party do not impact the other party.

What are the different types of APIs?

APIs are classified both according to their architecture and scope of use. We have already explored the main types of API architectures so let's take a look at the scope of use.

- **Private APIs**

These are internal to an enterprise and only used for connecting systems and data within the business.

- **Public APIs**

These are open to the public and may be used by anyone. There may or not be some authorization and cost associated with these types of APIs.

- **Partner APIs**

These are only accessible by authorized external developers to aid business-to-business partnerships.

- **Composite APIs**

These combine two or more different APIs to address complex system requirements or behaviors.

What is an API endpoint and why is it important?

API endpoints are the final touchpoints in the API communication system. These include server URLs, services, and other specific digital locations from where information is sent and received between systems. API endpoints are critical to enterprises for two main reasons:

1. **Security**

API endpoints make the system vulnerable to attack. API monitoring is crucial for preventing misuse.

2. **Performance**

API endpoints, especially high traffic ones, can cause bottlenecks and affect system performance.

How to secure a REST API?

All APIs must be secured through proper authentication and monitoring. The two main ways to secure REST APIs include:

1. **Authentication tokens**

These are used to authorize users to make the API call. Authentication tokens check that the users are who they claim to be and that they have access rights for that particular API call. For example, when you log in to your email server, your email client uses authentication tokens for secure access.

2. **API keys**

API keys verify the program or application making the API call. They identify the application and ensure it has the access rights required to make the particular API call. API keys are not as secure as tokens but they allow API monitoring in order to gather data on usage. You may have noticed a long string of characters and numbers in your browser URL when you visit different websites. This string is an API key the website uses to make internal API calls.

!! Please Don’t Share the API’s key for anyone !!

How To Hide Your API Keys In Your Project?

This Video Link will help you to understand hiding instructions: Youtube Video Link

Some Usufel Finance and Accounting API's:

1. **Alpha Vantage**
2. **YahooFinance**
3. **Financial Modeling Prep**
4. **NASDAQ API**