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Application Programming Interfaces (API) Programming Languages +2

What is an API?

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Chris Beach, Scala/Java developer

126.6k Views

Originally Answered: In layman's terms, what is an API?

An API (Application Programming Interface) is best thought of as a *contract* provided by one piece of computer software to another.

It's important to note that pieces of software can interact with or without an API.

For example:

Without API:

An app finds the current weather in London by opening <http://www.weather.com/> and reading the webpage like a human does, interpreting the content.

With API:

An app finds the current weather in London by sending a message to the [weather.com](http://www.weather.com) API (in a structured format like JSON). The [weather.com](http://www.weather.com) API then replies with a structured response.

With an API, the exact structure of request and response is documented upfront by [weather.com](http://www.weather.com), and is likely to remain constant, regardless of whether the website changes its look and feel for human visitors.

Without an API, my app relies on the website never changing its look. If it does, my app may stop working because it can't parse (understand) the webpage anymore. Computers are only as smart as the software you write.

So, the example with API is preferable because it's more robust. I know that my app will continue to work with the [weather.com](http://www.weather.com) API, regardless of whether [weather.com](http://www.weather.com) changes its web site

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Tristan Irwin, Software Samurai

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Originally Answered: In layman's terms, what is an API?

In layman's terms, an API is an agreement between two people stating: "If you give me this instruction, I will perform this action, or return this information"

An API is an Application Programming Interface. Many things have APIs. A lot of the answers so far are focusing on Web APIs, but there are plenty more. Your operating system of choice has a really big list of APIs. Your smartphone has a bunch of APIs too. Websites can have APIs as well. There are many ways to present a web API to a computer.

Lets use your smartphone as an example. For the sake of the discussion, lets assume that you are running a smartphone OS that multiple device manufacturers use.

There is an API to interact with the GPS on your phone. Regardless of vendor or version, there is a "Give me the GPS Coordinates" API call on the phone which programmers can

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Jeff Standen, web developer since 1997

22.1k Views

Originally Answered: In layman's terms, what is an API?

You can consider an API as the alternative "user interface" that software uses to interact with other software.

We humans are familiar with user interfaces that have fancy layouts with buttons, fonts, colors, graphics, etc; and most of that is unnecessary to a machine. Machines wouldn't open up a program or website, take a screenshot of that section of the monitor, and then try to parse its meaning visually like a human would.

Machines just need a shorthand way to do things like checking the current weather or adding an event to your calendar. That's what an API provides.

APIs can be web-based, or specific to a platform. Google has APIs for search, calendars, translations, etc. Facebook and Twitter have APIs that allow software to automatically post status updates. Apple provides many APIs for building iPhone apps.

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Katy Levinson

36.5k Views

Originally Answered: In layman's terms, what is an API?

This is an API



This API takes circles, triangles, and squares and lets them into the box. It forces the user or client program to organize the inputs going into the box to the designer's liking, presumably so they're easier to work with.

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elves push the shapes back out of the holes. This would be useful to the user/client program because now the outputs would come out in the way users expect them to. We would expect squares to come out of the square hole and not circles, and this example API would always do that.

APIs have many advantages. For security/sanity reasons, you generally do not want to not have a lid on your box. People could begin pushing star blocks or perhaps live sharks into the box, and this might be disagreeable to your magic elves. Conversely, perhaps one day you want to rearrange the insides of your box. This would be disagreeable to your users who would have to re-learn how to interface with your box. With this special lid on here, your users can not put anything in the box your elves do not like, and how you arrange the org chart of your magic elves inside remains inconsequential to your users.

In this way, an API forces structured data-based (or, in this example, block-based) exchanges between what the designer made and the outside world which wants to use it.

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Jonathan Kang, CPU Designer

51.7k Views

Originally Answered: In layman's terms, what is an API?

An API is a list of commands as well as the format of those commands that one program can send to another. It is used so that individual programs can communicate with one another directly and use each other's functions.

For instance, Notepad can communicate with the operating system (Windows) by telling it to print a document. It can do this in a number of ways but the most basic form is:

```
print(document);
```

This ability is useful in many ways. For one, it allows the Notepad program to be able to print without having to communicate directly with the printer. All the work in communicating, sharing and allocating what gets to print what is done by Windows. All an individual program needs to do is execute the print() command.

This ability is also useful in that Windows can easily change how it deals with different prints or whether it actually prints at all (rather than, say, save to a PDF document) without having to make any changes to Notepad.

API's are provided by any program that allows interaction with other programs. People who write programs but wishes to use the functionality that already exist in other programs can simply look at the API documentation to find the list of commands available to them.

In the context of the web, the API's generally allow you to send commands to programs running on the servers that you connect to from your browser or with the browser itself. This allows you to access resources only available on the server (for instance, logins and passwords).

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Andy Cheung, sorta competent

123.7k Views · Upvoted by Tapasweni Pathak, Developer @SAP Labs, Involved with open sources, Feminist. and Phil Darnowsky, I have learned a great many programming languages over the past 30-odd years

Originally Answered: In layman's terms, what is an API?

Imagine you've got a black box with a big red button on top. When you press the button, the black box lights up.

In this example, *pressing the red button means the black box will light up*. There is an understanding between you and the box that says "if I press the button, the box will light up."

Think of an *interface* as the understanding between you and the box. Now let's extend the

metaphor:

Instead of your finger, you've got a computer with - you guessed it - a mechanical finger. You can tell the computer to press the button, and the box will light up. See how this is still functionally the same? You told a computer to do your bidding, instead of your finger.

Let's extend even further: instead of hitting a mechanical button, let's pretend that you have to say "Light Up!" to the box in order to light it up. If you could program your computer to say this, the black box will light up. Still functionally the same thing.

Now imagine instead of *saying* this verbally, you write it out as a written command for the box. And - this part is the most critical - the black box tells you the exact wording to use: **lightMeUp()**. The box also has an instruction manual on how to submit this command to the box.

API stands for Application Programming Interface. In this example, the application is the box itself. The interface is the understanding between you and the box. In other words, it is an interface for programming the application (the box). The API, therefore, lets you know how to write out the commands to make the box do stuff.


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