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STUDY OF API FOR WEB APPLICATIONS

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Abstract: In computer programming, an application programming interface (API) is a set of routines, protocols, and tools for building software applications. An API expresses a software component in terms of its operations, inputs, outputs, and underlying types. An API defines functionalities that are independent of their respective implementations, which allows definitions and implementations to vary without compromising each other. A good API makes it easier to develop a program by providing all the building blocks. A programmer then puts the blocks together. In addition to accessing databases or computer hardware, such as hard disk drives or video cards, an API can ease the work of programming GUI components. For example, an API can facilitate integration of new features into existing applications (a so-called "plug-in API"). An API can also assist otherwise distinct applications with sharing data, which can help to integrate and enhance the functionalities of the applications.

Keywords: API, maps

I. INTRODUCTION

The Web APIs are the defined interfaces through which interactions happen between an enterprise and applications that use its assets. An API approach is an architectural approach that revolves around providing programmable interfaces to a set of services to different applications serving different types of consumers. When used in the context of web development, an API is typically defined as a set of Hypertext Transfer Protocol (HTTP) request messages, along with a definition of the structure of response messages, which is usually in an Extensible Markup Language (XML) or JavaScript Object Notation (JSON) format. While "web API" historically has been virtually synonymous for web service, the recent trend (so-called Web 2.0) has been moving away from Simple Object Access Protocol (SOAP) based web services and service-oriented architecture (SOA) towards more direct representational state transfer (REST) style web resources and resource-oriented architecture (ROA). Part of this trend is related to the Semantic Web movement toward Resource Description Framework (RDF), a concept to promote web-based ontology engineering technologies. Web APIs allow the combination of multiple APIs into new applications known as mashups.

Mashup, in web development, is a web page, or web application, that uses content from more than one source to create a single new service displayed in a single graphical interface. For example, you could combine the addresses and photographs of your library branches with a Google map to create a map mashup. The term implies easy, fast integration, frequently using open application programming interfaces (open API) and data sources to produce enriched results that were not necessarily the original reason for producing the raw source data. The term mashup originally comes from British - West Indies slang meaning to be intoxicated, or as a description for something or someone not functioning as intended. In recent English parlance it can refer to music, where people seamlessly combine audio from one song with the vocal track from another—thereby mashing them together to create something new.

The main characteristics of a mashup are combination, visualization, and aggregation. It is important to make existing data more useful, for personal and professional use. To be able to permanently access the data of other services, mashups are generally client applications or hosted online.

In the past years, more and more Web applications have published APIs that enable software developers to easily integrate data and functions the SOA way, instead of building them by themselves. Mashups can be considered to have an active role in the evolution of social software and Web 2.0. Mashup composition tools are usually simple enough to be used by end-users. They generally do not require programming skills and rather support visual wiring of GUI widgets[1].

II. API HISTORY

History of APIs

The history of APIs is something discussed a lot. The history of modern web APIs is something which includes in all my talks, and always surprised by how. Little people understand some of the more popular APIs that got us to where we are at.

While modern web APIs were officially born with Roy Fieldings dissertation Architectural Styles and the Design of Network-based Software Architectures in 2000--Web APIs

first appeared in the wild with the introduction of Salesforce on February 7th, when the company officially launched its API at the IDG Demo 2000 conference.

Later in the year, on November 20, 2000, eBay launched the eBay Application Program Interface (API), along with the eBay Developers Program--which was originally rolled out to only a select number of licensed eBay partners and developers.

Then on July 16, 2002, Amazon launched Amazon.com Web Services allowing developers to incorporate Amazon.com content and features into their own web sites. Amazon.com Web Services (AWS) allowed third party sites to search and display products from Amazon.com in an XML format.

In February 2004 the popular photo sharing site Flickr launched. Six months later they launched their API, and six months after that, they were acquired by Yahoo. The launch of the Restful API helped Flickr quickly become the image platform of choice for the early blogging and social media movement by allowing users to easily embed their Flickr photos into their blogs and social network streams. While allowing Flickr to focus on a new approach to business development using web APIs.

Then on August 15th 2006, Facebook launched its long-awaited development platform and API. Version 1.0 of the Facebook Development Platform allowed developers' access to Facebook friends, photos, events, and profile information for Facebook.

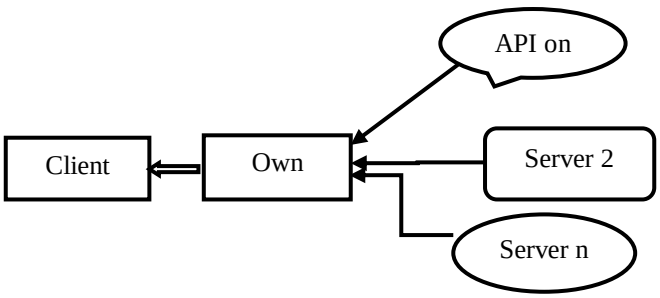
API Types

- Feed API – The Google Feed API lets you download any public feed (including RSS, Media RSS, and Atom) and then combine them into mashups. It simplifies the mashup process by using JavaScript rather than more complex server-side coding.
- Places API – Google Places is a large directory of local businesses and attractions all around the world. The Places API lets you access that information and display it on your website, as well as display check-ins by users.
- Geocoding API – The Geocoding API lets you convert any address into geographic coordinates, which can then be used to place markers on a map.
- Tasks API – The Tasks API offers endpoints for reading, searching, and updating Google Tasks content and metadata.
- Analytics Management API – The Analytics Management API gives improved access to your Analytics data, and lets you fine-tune your requests to just pull the information and reports you need for your application.
- Blogger Data API – The Blogger Data API lets your application create and post new blog posts, edit or delete existing posts, and search for posts based on specific criteria.
- Books API – The Google Books API lets you integrate book searches into your application, and embed book previews on your site.
- Calendar API – The Calendar API gives access to many of the standard web interface tools and operations to your web app. Public calendar events can be searched and viewed without authentication, while authenticated sessions can access private calendars, as well as edit, create, or delete those calendars.
- Moderator API – Google Moderator is a tool for collecting ideas, questions, and recommendations from any size audience. The API allows your website or application to do the same.
- Prediction API – The Prediction API helps you make smarter apps that can analyze historic data and predict future outcomes. It can be used for things like recommendation systems, spam detection, upsell opportunity analysis, and more.
- Picasa Web Albums Data API – The PWA Data API can be used to create albums and upload, retrieve, or comment on photos, among other features. It's been used for everything from powering digital photo frames to full-featured mobile clients and more.
- Static Maps API – You don't always want an interactive map on your site. Sometimes a static map is just what you need. The Static Map API lets you embed static Google Maps onto your site, including custom styled maps.
- Directions API – The Directions API lets your users get directions from one point to another using a variety of travel modes from within your site or app, and doesn't require a Google Maps API Key.
- YouTube APIs – YouTube has two APIs available: Player APIs and Data API. The Player APIs allow you to have an embedded player, or a chromeless player that you can then customize within HTML or Flash. The Data API lets your app perform a lot of the operations available on YouTube, including uploading videos and modifying user playlists.
- Webmaster ools API – The Webmaster Tools API lets your client application use a variety of Webmaster Tools functions, including viewing sites, adding and removing sites, verifying site ownership, and submitting and deleting Sitemaps.
- Google Web Fonts API – The Web Fonts API makes it easy to add free web fonts to your website or application. Their collection of fonts grows on a continuous basis and already includes a huge variety.
- OpenSocial – OpenSocial can be used for building social applications, creating social app platforms, and sharing and accessing social data.

- Answers API – The Answers API lets you access the collective knowledge contained within Yahoo! Answers. You can search Answers based on a variety of criteria (including specific user, category, and more), set your app to watch for new questions in the categories you choose, and track new answers from specific users.
- Contacts API – The Contacts API lets you access relationships in your Yahoo! address book. It reads a user's Contacts information while respecting user privacy and permission settings.
- Delicious API – The Delicious API gives read/write access to Delicious bookmarks and tags.
- Fire Eagle Developer API – The Fire Eagle API helps you create location-aware websites and applications.
- Flickr API – With the Flickr API you can view, search, and manipulate photo tags, display photos from a specific user or group, and more.
- Local API – The Local API lets you access location-based information and user-contributed content.
- Maps APIs – Yahoo! offers a number of APIs for their Maps services, including an Ajax API, a REST API, and a No Coding API.
- Meme API – Meme is a multimedia light-blogging platform. The API lets you create apps that can read, post, and repost content through Meme.
- PlaceFinder – The PlaceFinder API, similar to Google's GeoCoding API, and lets you convert a street address into geographic coordinates.[2]

III.API IN WEB APPLICATION

Application developers are the customers of a Web API. Success is measured by how quickly app developers enjoy success using your API in their applications. And rapid adoption of a Web API is all about design. This project will help us to make design choices from the application developer's point of view so that the benefits of proven design principles and best practices will make our initiative a success. It's cleaner, easier and more intuitive for developers who you want to build cool apps using your API.[5]



The problem of the project is to develop a web application by using API tools, where the web developers and web users can make it easier. The goal of our system development is to develop and implement using API tool. It is user friendly and most suited to the user's analysis is the heart of the process .To create user interface layer, we used JAVASCRIPT programming with web application and PHP for implementation of the program, HTML-Hyper text markup language is used.

Web APIs are the defined interfaces through which interactions happen between an enterprise and applications that use its assets. An API approach is an architectural approach that revolves around providing programmable interfaces to a set of services to different applications serving different types of consumers. When used in the context of web development, an API is typically defined as a set of Hypertext Transfer Protocol (HTTP) request messages, along with a definition of the structure of response messages, which is usually in an Extensible Markup Language (XML) or JavaScript Object Notation (JSON) format. While "web API" historically has been virtually synonymous for web service, the recent trend (so-called Web 2.0) has been moving away from Simple Object Access Protocol (SOAP) based web services and service-oriented architecture (SOA) towards more direct representational state transfer (REST) style web resources and resource-oriented architecture (ROA). Part of this trend is related to the Semantic Web movement toward Resource Description Framework (RDF), a concept to promote web-based ontology engineering technologies. Web APIs allow the combination of multiple APIs into new applications known as mashups.[7]

Java Script

JavaScript is a versatile language. It can be used to create menus, validate forms, provide interactive calendars, post the current day's headlines, produce background effects on a Web page, track a visitor's history on your site, and play games, among many other things. That's probably why it's one of the most popular languages on the World Wide Web.

Netscape created JavaScript in 1995. Originally called "Live Script," it was designed to make Web pages more interactive. In the beginning the language was plagued with security problems, which, for the most part, have been overcome. Today, there is a lot more that JavaScript can do and as a result, we have decided the time has come to learn it. Our intention is not to become a JavaScript guru or programming genius but to be able to write scripts that we can use in our work, and perhaps share with others.[6]

JavaScript seems to be a monumental task. When you look at some of the JavaScripts out there, they can seem pretty intimidating. And that's true with most things that are new.

To give us some insight into our webpage background, we have learned HTML, XHTML, and a few other things on my own using books, Web sites, existing examples, and by

asking questions. That's how many of the people who design Web sites today got their start.

JavaScript is an interpreted scripting language commonly used on the Internet for creating Web pages that respond to user actions, such as when a user moves a mouse pointer over an image or clicks a form button. Combined with HTML and CSS, JavaScript allows you to create Dynamic HTML pages.

JavaScript is generally used for client-side scripting; as a result, users can easily view JavaScript code along with the HTML code in a page. Although it may be used for server-side scripting, JavaScript works best for visual animation (such as changing an image when a user moves the mouse pointer over it) or for validating form fields.

Various browsers may implement the JavaScript scripting objects differently, but most popular browsers support JavaScript.

The biggest disadvantage of JavaScript is that users can turn it off in the browser, which makes pages that use it not function as expected. JavaScript is not Java. Java script is a compiled language.

This means that the Java code must be transformed ("compiled") into a high-level programming language before it can run. JavaScript is an interpreted language. It doesn't need to be compiled before it is run. In an interpreted language the instructions are parsed (divided into small components that can be analyzed).

Sl. No.	Year	No. of API
1	2000	25
2	2002	40
3	2003	70
4	2005	105
5	2006	252
6	2007	601
7	2008	1116
8	2009	1628
9	2010	3200

Table 1.1 Open Timeline of API's on Web

For instance, as the browser "reads" this page, it breaks down each of the page's components into individual components and interprets each component as it moves down the page. In linguistics it means to divide language into small components that can be analyzed.

The Table 1.1 shows open timeline of API on Web. The API explosion means that it is feasible to create products which meet customers' expectations and desires more accurately. It may be to meet their use case in a small market niche, or to have access to data in a unique context, or to meet their preference to interact from a Smartphone device. Ultimately it provides companies with the flexibility to design completely new business models.

IV. FEATURES OF API SYSTEM

Example a library website holds 30,000 books in a table; it is very difficult to see it by scrolling the table. It was irritating the users more and more. Another disadvantage of using table is, it occupies a lot of pages for one table.

To avoid this process we had put all 30,000 books details in a single grid. By using this grid it was mainly used to minimize the space and saves more time also. A grid occupies a single page only. Then we create a bar chart and pie chart for counting the number of books for each department dynamically. If we can add any books in the library means, bar chart and pie chart can automatically change its shape and size and also the newly added books were included in the database.

We are including another component of API namely Map API. Usually if we search for any location map in any search engines it shows map only. But we gave the map and code for that given location by using PHP coding.

Map Generator

This module will allows the user to get user required location name, latitude, longitude, zoom level, width and height of the map display area. The user entered data posted into PHP page. The next page merge given data into java script API and display map and show preview the map code. The copy button allows the user to copy the produced code into computer clipboard. The following diagram shows map generator module steps. The following link is gives to (http://maps.googleapis.com/maps/api/js) code for the map.

Grid API Generator

This module will reads book title from user and posted it into next PHP page. The next page reads books details from book database and merges the data into java script API and display grid and show preview the grid output code. The copy button allows the user to copy the produced code into computer clipboard. The following diagram shows grid generator module steps. We have taken prototype of grid API from www.activewidgets.com/grid/ link.

Bar and Pie Chart Generator

This module will create API code for bar and pie chart. The copy button allows the user to copy the produced code into computer clipboard. The following diagram shows bar/pie generator module steps. The following link is gives to (https://developers.google.com/chart/interactive/docs/gallery/barchart) code for the chart.

V. CONCLUSION

API Support for multiple tasks, with varying priority levels. Then it Support for semaphores and mutexes. It has Message queuing functionality and also the ability to control many of the receiver's general purpose input/output (GPIO) lines and more. API is fully based on the java script programming language. For this reason, if java script was not enable in some browser, API doesn't work. API is highly depending on the third party server. Generated codes are in the form of text file. They user may modify their coding according their convenience. This will helpful for software developers.

VI.REFERENCES

[1] Sweave: Dynamic Generation of Statistical Reports Using Literate Data AnalysisFriedrich Leisch.

[2] Friedrich Leisch, Using the Google Visualisation API with Rby Markus Gesmann and Diego de Castillo, March 2002.

[3] Yuri B Danilchenko, "Automatic Code Generation Using Artificial Intelligence."

[4] Krešimir Fertalj, Damir Kalpić, Vedran Mornar, "Source Code Generator Based on a Proprietary Specification Language", 0-7695-1435-9/02 $17.00 (c), IEEE, 2002

[5] Muhammad Usman, and Aamer Nadeem, "Automatic Generation of Java Code From UML Diagrams Using UJECTOR", International Journal of Software Engineering and its Applications, Vol.3, No.2, April 2009.

[6] Rashmi Sinha and Ashish Dewangan, "An Approach for Code Generator- ENUM," ISSN (Print) : 2319 –2526, Volume-2, Issue-5, 2013.

[7] Amit Barve and Brijendra Kumar Joshi, "Automatic C Code Generation for Parallel Compilation", Page 1, ISSN (Print) : 2319 – 2526, Volume-2, Issue-4, 2013.

