

A SURVEY ON THE LATEST WEB TECHNOLOGIES

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Abstract— Technology is taking long strides in terms of web development. The web has changed a lot since its inception and technological advancements have been enormous. In order to keep your website up to date, it is necessary to have comprehensive knowledge about web technologies

Index Terms— web technologies; programming languages; Java; PHP; Ruby on Rails; Perl; HTML5; .NET; AngularJS.

I. INTRODUCTION

Anything that helps the user interact with the massive World Wide Web, more commonly known as the Internet is called a web technology.

Now-a-days everything has become web-based, making web technologies essential for interaction between clients and servers. As a result, newer technologies are coming into play while the older ones are evolving rapidly to incorporate wider functionalities.

II. OVERVIEW

There are many different types of web technologies like programming languages, frameworks, web crawlers, content management services and many more, some of which can be classified into the following categories:-

A. Markup Languages

Markup is used in text and word processing documents to describe how a document should look when it is displayed or printed. Markup is used by the Internet to define how Web pages should look when they are displayed in a browser. It also defines the data contained within a Web document.[5]

B. Programming Languages

Programming languages are the rudimentary entities that enable you to create custom applications and facilitate addition of functionalities that previously were not a part of the application. Moreover, on the Internet, programming languages equip you to create visual animations, react accordingly to user actions, interact with databases, validate forms and provide e-commerce solutions.[5]

C. Web Servers and Server Products

Any computer which hosts a Website is called a Web server. A Web Server is connected directly to the Internet and on requests from a client, sends the hosted Web pages to them using the Hypertext Transfer Protocol (HTTP). If you want to host your own Website through an Internet service provider (ISP), a Web presence provider (WPP), or a Web host provider (WHP), you may have access to several different types of Web servers. The most common Web servers currently available are the Windows-based servers running Microsoft Internet Information Services (IIS) and UNIX-based servers running Apache.[5]

D. Framework

A web application framework is a type of a framework or a foundation that is specifically designed to help developers build web applications. Typically, these frameworks provide the core functionalities generic to most web applications, such as data persistence, user session management and template creation systems. Developers can save a significant amount of time while building a web site if they use an appropriate framework.[11]

III. SOME WIDELY USED WEB TECHNOLOGIES

A. Java

Java is the foundation for virtually every type of networked application and is the global standard for developing and delivering embedded and mobile applications, Web-based content, interactive games and even enterprise software. Having more than 9 million developers worldwide, Java helps you to efficiently develop, deploy and use a variety of applications and services. [1]

The popularity of Java can be attributed to its platform independence which is achieved by conversion of Java code to byte code which can run on any Java Virtual Machine irrespective of the system on which the code is executed.

B. Why choose Java?

Java has been tested, polished, extended, and proven by a diligent community of Java developers, architects and enthusiasts. Java has been designed to aid the development of portable as well as high-performance applications for the widest range of computing platforms possible. Since Java applications are available across heterogeneous environments, businesses get the opportunity to provide more services and consequently boost the end-user productivity, communication, and collaboration along with a dramatic reduction in the cost of ownership of both enterprise and consumer applications.[1]

Applets are small Java programs that can be downloaded from the web server and executed in the browser. Servlets are Java's server side web technology, which along with JSP - Java Server Pages makes it very easy and convenient to embed it with HTML.

C. HTML5

The World Wide Web's markup Language has always been HTML. HTML5 is the latest upgrade of HTML which incorporates many extended functionalities and standards that are better than its predecessors. An important issue that is addressed by HTML5 is the easier incorporation (embedding)

of multimedia and graphical content. Furthermore, the new local storage feature of HTML5 makes storing temporary content quite convenient.

D. Why choose HTML5?

HTML5 is faster and cheaper - it reduces development time by focusing on latest browsers and not being held up on old ones. Thus developers can focus on writing functionalities that work, look good, while using latest tools. HTML5 works with CSS3 which makes possible better styling effects with fewer lines of code thus you get lightweight websites with reduced number of files and images that need to be downloaded for the site to look good. All this makes sites to load faster improving response and enhancing user experience. While the smartphone market is diverging with different supported operating systems and native applications, HTML5 is a language that is supported throughout the entire spectrum of mobile vendors thus allowing delivery to a wide array of customers. [2]

E. .NET Framework

.NET Framework is a software framework developed by Microsoft that runs primarily on Microsoft Windows. It includes a large class library known as Framework Class Library (FCL) and provides language interoperability (can use code written in other languages) across several programming languages. Programs written for .NET Framework execute in a software environment known as Common Language Runtime (CLR), an application virtual machine that provides services that include memory management, security and exception handling. FCL and CLR together constitute .NET Framework.[3]

F. Some features of .NET

The .NET Framework Class Library (FCL) provides user interface, web application development, cryptography, numeric algorithms, data access, database connectivity, and network communications. Programmers produce software by combining their own source code with .NET Framework and other libraries. The .NET Framework is deliberated to be used by most new applications created for the Windows platform.

Additionally, Microsoft also produces an integrated development environment largely for .NET software called Visual Studio. [3]

.NET contains framework class library having a variety of functions that can be modified by the programmer to suit the needs of their application.

G. Perl

Perl is an interpreted scripting language that can also be compiled into executable files. Although it can also run on Windows-based servers, Perl scripting is often used for CGI programming on UNIX-based servers. [5]

H. Some features of Perl

Perl has a very open syntax which in spite of being complex, is also very forgiving. CPAN (Comprehensive Perl Archive Network) is a huge and freely available library on the Perl language that covers almost every imaginable area of programming and makes it exceedingly simple to create useful programs, whatever your need.[4]

Perl is implemented as an interpreted (not compiled) language. Therefore, the execution of a Perl script is prone to use more CPU time than a corresponding program in C, for instance. On the other hand, the processing on computers tends to get faster and faster, and subsequently, writing something in Perl instead of C might save time.[6]

Perl can be used for performing functions similar to those of shell scripts in UNIX with a code that is much more compact.

I. PHP

PHP, short for Hypertext Preprocessor is a server side scripting language which allows web developers to create dynamic content that interacts with databases. Basically, PHP is used for developing web based software applications.

J. Some features of PHP

One of the primary advantages of PHP is that the client shall only receive the results after the execution of a script which itself is invisible to the user. The perks of using PHP include the fact that it is extremely simple for a newcomer, but at the same time, it offers many advanced features for a professional programmer. [8]

PHP helps reduce the time to create large websites, to create a customized user experience for visitors based on information that you have gathered from them and open up thousands of possibilities for online tools.[9]

K. Ruby On Rails

Ruby on Rails, sometimes known as "RoR" or just "Rails," is an open source framework for Web development in Ruby, an object-oriented programming (OOP) language similar to Perl and Python.

L. Why Ruby On Rails?

The principle difference between Ruby on Rails and other frameworks for development lies in the speed and ease of use that developers working within the environment enjoy. Modifications made to applications are immediately reflected, hence obviating the time consuming steps normally associated with the web development cycle. David Geary, a Java expert, claims that the Ruby-based framework is approximately five to ten times faster than comparable Java-based frameworks. Moreover, in a blog posting, Geary predicted that Rails would be widely adopted in the near future.[10]

Rails is a framework that is built on the object oriented language ruby, which means that one has the advantages of framework as well as an object oriented language in one. Ruby on rails offers reusability of code which makes iteration and experimentation easier.

M. Angular JS

Angular JS is a framework that can be called an extension of HTML. It provides directives that simplify the creation of dynamic and interactive web pages tremendously. Backed by Google and having a large number of active contributors, Angular JS is fast becoming a widely prevalent web technology.

N. Why Angular JS?

First and foremost, Angular JS is both, concise and spontaneous i.e. the code size is smaller and it reacts to user actions immediately, without the need for explicit calls. Secondly, its Model View Control

(MVC) and Model View View-Model (MVVM) architecture simplifies development and testing.

Angular JS allows the creation of custom directives and filters which, paired with its facility of dependency injection, allow developers to write a code tailored to their needs. Because Angular JS abstracts out the DOM manipulations, it allows the user interface designers to focus on the view without distractions.[11]

Angular JS puts markup directly to the HTML document. This approach has three major advantages, namely easy integration with existing apps - Angular only starts evaluating the page at the end of the loading process, simplicity - it does not need any web server or template build process and extensibility - it allows you to create a library of your own reusable components.[12]

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