

Internet Application Development Tools-A Comparative Study

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Date of Submission: 15-09-2022

Date of Acceptance: 24-09-2022

ABSTRACT

Rapid growth of Internet has given user an easy way of accessing information and services. World Wide Web (WWW) is considered, as the main application of Internet. The www is a system of interlinked, hypertext documents that runs over the Internet. The main aim of the paper is to compare the most important web programming languages. The research paper throws light on the significant features of different languages and their advantages and limitations are compared. The study also finds the suitability of different programming languages for specific applications. The content and structures of different web programming languages are analyzed with the parameters like ease of programming, user interface, built-in facilities. Expert interview was also carried out to find out the popular web programming languages used currently and to substantiate the derived results. The researcher has found that presently Ajax (Asynchronous JavaScript And XML) is the new and hot technology used for creating Rich Web Application. Pages created in Ajax works more dynamic and interactive. However different programming languages are used for different applications. ASP and ASP.NET is the widely used popular language on the enterprise level because of the widely used Windows operating system. It is also found that the largest obstacle facing a web programmer is choosing the right language for the job. Thus, not only the language must fit the job but it also must fit the programmer, thus every programming language has its own advantages and limitations.

I. INTRODUCTION

There are many ways available in world wide web to have some form of interactivity but most cases it involves programming of some type to process the user's request and provide the information the user has asked for. Today, people expect more from sites that support web pages, including text, graphics and other multimedia content. Usually the main goal of web programming is to create dynamic web pages,

which interact with the user in some way. back-end programs are web programs that do not interact with user directly. A typical program of this kind is one that analyses the activity of a site. There are many different application environments and programming that can be used for web programming. Each language in wide use for applications has its own advantages and disadvantages. The aim of this research paper is to do a comparative study on internet application development tools with special references to World Wide Web. It is aimed to analyze different web programming languages and find out the best programming method for creating/designing the web page or websites.

II. METHODOLOGY

Methodology refers to more than a simple set of methods; rather it refers to the rationale and the philosophical assumptions that underlie a particular study. Methodology is defined as the analysis of the principles of methods, rules and postulates employed by a discipline. It is also referred to as the development of methods to be applied within a discipline. Research methodology could be quantitative or qualitative research method, including case studies, in-depth interviews, survey techniques and content analysis. This research paper adopts Content Analysis to compare widely used web programming languages. The study analyzes the content, facilities, user interface, and user friendliness of the different web programming languages. The languages taken for comparison includes C, C++, Java, Java Script, Asp, PHP, HTML and Ajax. The comparison is made on few important parameters and techniques followed in web development cycle. Expert Interviews from web developers and web designers were obtained.

Content Analysis

The comparison of different internet development tools were carried out by the content analysis method. The parameters chosen for the content analysis are: Application Development,

Ease of programming, Built-inFacilities, Web Platform, CPU Execution Time, Lines of Source Code, Data Typing, Memory Management,

Compilation or Interpretation, Look and Feel of a Web site, User interface, and Browser integration.

❖ Markup Languages Comparison

HTML	DHTML	XML	CFML
Hypertext Markup Language (HTML) is the used to create Web pages. HTML is only a collection of tags which, when inserted into regular text, tell a Webbrowser how to format text, insert multimedia, link to another location, or link to other programs written inVRML, Java, JavaScript, or other languages.	DHTML orDynamically HTML is a combination of HTML, CSS, Java Script, and DOM model. It is used to create web page more interactively and is also possible to animate the objects. Using DHTML it is feasible to load the webpages ynamically The basis of AJAX is the dynamic html.	eXtensible MarkupLanguage or XML allows new tags to be defined by the developer for new data types thus dramatically panding the variety of information that can be handled in a webpage. XML is a platform-independent Web document formatting language.	ColdFusion is a tag based server-side scripting language. Here the information is retrieved by ColdFusion server and sent back to the web server as an HTML page.

❖ Scripting / General Languages Comparsion

It is impossible to find or define a single comparison structure for comparing web

programming languages. Therefore the researcher shows different methods and point of views to demonstrate different comparisonstrategies.

Language	C, C++	Java	ASP	Java Script	PHP
Data Typing	Statically typed languages	Statically typed language	Dynamically typed language	Dynamically typed language	Dynamically typed language
Memory Management	Mannual	Automated	Automated	Automated	Automated
Compilation/ Interpretation	Compillation	Hybrid	Interpretation	Interpretation	Interpretation

The strong data typing or statically typed language requires the programmer to define the type used thereby helps to improve the program performance and reliability. These languages require more effort from the programmer. Loose (weak) data typing or dynamically typing language, on the other hand, provides automatic detection of the type of data being used but can cause programming errors when used carelessly and sometimes the finished program is less efficient. Examples of programming languages require strong data typing are C,C++ and Java while JavaScript, VBScript, ASP scripts and PHP belong to the loose (weak) data-typing category.

Dynamic typing almost always requires a language to be interpreted rather than compiled, since the type of the variable cannot be determined until program execution. For complex algorithms and data structures, the strong typing of a systems programming languages makes programs easier to manage. In scenarios, where the execution speed is key, a system programming language can often run faster that a scripting language. When the languages are compared in terms of mail transfer, JavaScript doesn't have any support to send mails. The languages like Java and PHP has a single line built-in functions, whereas the languages ASP and Perl has inbuilt Multi-line functions.

❖ Test Result of Fibonacci Algorithm in Different Languages

Language	C	C++	Java	Java Script	PHP
CPU Execution Time (sec)N=8	0.01	0.01	0.45	0.15	0.05
Lines of Source Code	15	14	10	13	8

Ease of Programming

While the frameworks are pretty equal as to what they can do, the amount of knowledge needed to accomplish the various tasks can vary greatly between the different languages. For example, Perl is a much lower level language compared to Visual Basic which makes the learning curve a little steeper. While a lot of programmers prefer the C type syntax of languages like C++, Java, and PHP, others find more wordy languages like Visual Basic or Cold Fusion a lot easier to work with. Some of the frameworks such as PHP and ASP are really easy for developers to get started. Again, for the most of them, it really comes down to preference and the amount of time the developer is willing to spend to learn the more robust frameworks.

Built-in Facilities

Unlike Perl, which is a general purpose scripting language that can be used for a wide variety of purposes (and not just generating web pages), PHP was designed from the ground up to be used for scripting web pages. As a result, it has lots of facilities built into that you may have to write yourself or use some pre-written module if you were using Perl. Since PHP was specially designed for a website, the facilities that web designers typically want in a scripting language are built into it. JavaScript also follows the same techniques as Perl, where the code has to be written separately. ASP with the integration of .NET gives the flexibility of using readymade command and high control over the source code

Web Platform

The two main platforms to be considered are the Microsoft set of tools (.NET, Windows XP, IIS, ASP) and the open source flavor of the same (J2EE, Linux, Apache/Tomcat, Java, JSP, PHP). The bundle of Apache, MySQL, PHP and perl has helped the rapid uptake of PHP on platforms, helping to replace the IIS server. Since none of Apache, MySQL or PHP requires any form of commercial license and all are battle-proven on high volume websites, these are very attractive options for those who come from the world of highly-priced proprietary packages. The world-

leading Apache webserver is usually shipped with a built-in interpreter for PHP (a module called mod_php) and Perl (mod_perl). The open source languages JavaScript, Perl and PHP can work on cross platform.

Look and Feel of a Website

Webpages tend to be lifeless and flat unless you add animated images or more bandwidth-intensive content such as Java applets or other content requiring plug-ins to operate (ShockWave and Flash for example). Embedding JavaScript into an HTML page can bring the page to life in any number of ways. Perhaps the most visible features built into pages recently with the help of JavaScript are the so-called image rollovers. JavaScript along with XML, CSS, and DOM forms a new technique called AJAX - Asynchronous JavaScript and XML. Ajax is a web development technique for creating interactive web applications. The intent is to make web pages feel more responsive by exchanging small amounts of data with the server behind the scenes, so that the entire web page does not have to be reloaded each time the user requests a change. This is meant to increase the web page's interactivity, speed, and usability. The Ajax technique uses a combination of XHTML (or HTML) and CSS, for marking up and styling information. The DOM accessed with a client-side scripting language, such as JavaScript and JScript, to dynamically display and interact with the information presented. Ajax is not a technology in itself, but a term that refers to the use of a group of technologies.

Expert Interview

Expert Interview was also carried out to find the popular web programming languages used currently and to substantiate the derived results. The Interview was obtained from two Web developers and web designers each. From the interview, it is derived that Microsoft is the most commonly used operating system in India. Therefore, people find it easy to work in Microsoft products in its platform. Asp.net gives the developer the integration of other programming language. Since the developers can get the licensed copy of software's and platform it is easy for

developers to get updated regularly and also to keep on touch with Facilities available.

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- PHP has integration of many readymade library files and also its open ended. It has a wide database support.
- Combination of Flash with ASP and Photoshop gives the flexibility to create highly interactive and flashy website. Integration of asp.net helps the developer to minimize the coding works.
- ASP.Net is highly secure coding language with a support from Microsoft, where all/some of the other open source language lack support.

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- The developers mainly use Ajax along with Asp to create the Webpages. Asp is best suited for any

III. CONCLUSION

The largest obstacle facing a Web programmer is choosing the right language for the job. Not only the language must fit the job but it also must fit the programmer. The most common deciding factor typically centers on the developer's familiarity, an extremely subjective measurement. If an expert developer from each platform were asked which is the easiest to use, each would site his or her own. Each programming languages has itsadvantages and limitations. Thus, the Internet Application tools are compared and the results are discussed. The pros and cons of Web programming were discussed comparing the languages based on certain parameters. Choosing the right language purely depends on programmers compatibility with particular language, for what job the programming language is used.

REFERENCES

- [1]. John, B. Goodenough. (1986). The Comparison of Programming Languages: A linguistic approach., Proceedings from

ACM Annual Conference, Association of Computing Machinery.

- [2]. Wendy Willard. (2001) HTML: A Beginners Guide. Osborne McGraw Hill.
- [3]. Robert Sebesta. (2002) Programming the World Wide Web, Addison Wesley.
- [4]. Nicholas C. Zakas, Jeremy McPeak. Joe Fawcett, Professional Ajax (Programmer to Programmer, WROX Publishers.
- [5]. Isaac Hunter Dunlap. (2006). Open Source Database Driven Web Development – A Guide for Information Professional, Chandos Publishing.