

Analysis of Different Websites' Cross-Browser Compatibility as a Design Issue

***Dr. Kulvinder, #Mr. Mohd. Aslam**

** Assistant Professor(Computer Science), Tantia University, Sri Ganganagar(Raj.), India*

Mr. Mohd. Aslam (Scholar, Computer Science), University, Sri Ganganagar(Raj.), India

Abstract

Websites are a crucial part of communication in the modern era of information technology. It takes a lot of work from various institutions and organizations to present comprehensive information on attractive websites. Websites serve as an online agent that enables users to complete their tasks without physically visiting the businesses. The designer of a website gives it a highly critical inspection so that users can access all of the services of the relevant institutions or organizations online.

The obligation of the website designer and the relevant institutions/organizations multiplies in order to ensure websites behave similarly across all of the various browsers used by the various kinds of visitors.

In order to explore cross-browser compatibility as a Design issue in several types of websites, such as job portals, government, educational, commercial, and social networking, the author of this research paper created an online tool utilizing the.NET Framework and C#. The automated tool created by the author operates in accordance with the various standards outlined in the W3C guidelines document UAAG 2.0, acts as a parser, renders the entire website's source code, and generates results based on how websites behave in the five most popular and widely used browsers, including Internet Explorer, Chrome, Safari, and Firefox. Every Browser is tried based on the five boundaries which are remembered for the parser are Blinking, Active X control, Site Resolution; picture Formats, HTML Tag mistakes. The results acquired subsequent to testing five unique classes of sites shows that instructive and long range interpersonal communication locales shows least similarity in numerous programs where as work gateways, business and government sites shows 100 percent consistence to the web composition principles suggested by W3C w.r.t. program similarity of various sites on different perusing stage.

INTRODUCTION

Site is a mix of interlinked and related pages dwelling on a solitary server and cut off to the client through single area. There are various classifications and wide assortment of the sites accessible nowadays; however the most generally available classifications of the sites incorporate social organizing, Commercial, Government, Educational and work entrances. With the headway in advances and fulfillments of offering a wide range of assistance to the resident on the web, it has become compulsory as well as vital for various associations (enormous or little) to foster site for delivering every one of its administrations online to the client at worldwide level through networks. To offer better types of assistance online the sites are expanding in number in an extremely limited capacity to focus time. With expansion in the quantity of sites its ubiquity and take care of the need of the multitude of various classes of the clients it becomes compulsory for various associations to put parcel of endeavors to plan sites cautiously with the goal that it can undoubtedly be open for various administrations. Number of various sites configuration issues is there which should be kept into originators thought while planning sites.

Program similarity is one of the main issues among all sites plan boundaries. Nowadays various programs are being drilled by the various clients for getting to sites. With the appearance of numerous programs it becomes obligatory for a site to act comparable when open in numerous programs. There are various associations which are answerable for advancement also, proposals of various web architecture norms. For assessing web composition according to the various guidelines so that it act comparable in every one of the various programs accessible, the quantity of various mechanized instruments are accessible on the web. Each accessible internet based instrument test the sites on its own standards also, supply the outcome as needs be. To test the sites plan (Browser similarity) w.r.t. the guidelines suggested by W3C, the mechanized apparatus is plan and formed by thinking about the boundaries which are not tried by any mechanized device accessible web-based till date.

The computerized instrument, created will accept site URL as information and afterward parse the site total code provided by the server in the wake of presenting the ideal solicitation through its interface. The HTML code provided by the server will be contrasted and the current principles suggested by the W3C and implanted in the computerized apparatus for its consistence. The working of the computerized apparatus plan and created by the creator is given underneath in Figure 1. The parser of the mechanized apparatus will accept site URL as information and send same to the server as solicitation for getting the sites HTML code. The server inside no time sends back the HTML code of the site to the connection point of the robotized instrument for its examination with the current guidelines. The calculation of the online robotized apparatus created by the creator is given underneath:

Calculation 1: To decide program similarity of a site.

Input: Website URL

Yield: Compatibility status of site w.r.t unique highlights for different programs.

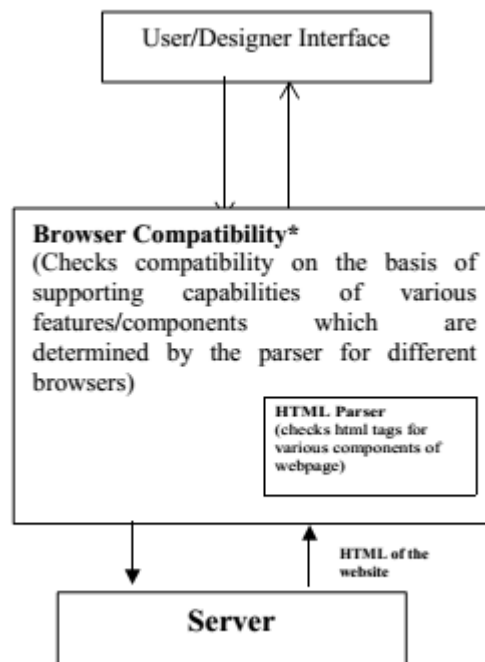


Figure 1: Block diagram of Browser Compatibility Parameter

Method:

Begin

Step I: Generates request for obtaining HTML file of the website by passing url to the server.

Step II: For each feature considered for determining compatibility

Flag=0;

(i) Check for the presence of the feature in the website by

a look out of the HTML file.

(ii) Determine the compatibility of the feature w.r.t different browsers.

If (feature isn't supported by any browser)

Set flag=1;

Step IV: if (flag==0)

Website is compatible for all browsers

else

Website isn't fully compatible.

End

LITERATURE SURVEY

All however many individuals have worked in area of site plan and improvement yet the ideal characteristics of a site has not been accomplished. Still sites neglects to convey the ideal objectives as is apparent from the writing accessible. A subtleties survey of writing with respect to the concerned subject of research has been finished through various wellsprings of Literature like diaries, research papers, books and article with Internet as the significant wellspring of this writing. That's what most architects feel they ought to be supporting all or if nothing else however many programs as they can. In any case, truly, this is unimaginable. On the off chance that there are 5 significant programs, IE has more than 7 renditions, Fire fox has north of 3, Drama has north of 9, Safari more than 3, and presently Chrome has come out. So regardless of whether you attempt to help simply the 2 most recent renditions of every normal program you're taking a gander at 10 programs, 8 of which you'll need to test on both Macintosh and Windows – so that is 18 tests for each page. Also, that is way off the mark to all or on the other hand even most, of the programs accessible. At the point when there are almost 100 internet browsers accessible today, every program parses a web code another way. It turns out to be undeniably challenging for an originator to plan sites which shows comparative conduct in every program utilized by the client. . On the off chance that we are utilizing java contents or AJAX calls for UI usefulness, performing security checks or approvals then, at that point, give more weight on program similarity testing of our web application. The parts of site pages like flickering, dynamic X controls, goal, picture organizations and HTML label blunder (like video tag), Ajax, Flash, and occasion taking care of for dynamic HTML and so on straightforwardly affect the cross program similarity of a site. These elements are upheld to various levels by different sorts of prominently known web programs or their adaptations. For example the similarity of squint tag by different programs is displayed in table 1 underneath. Subsequently to stay away from loss of business and notoriety it is very critical to focus on cross program issues. W3C rules archive UAAG 2.0 states that sites must keep the greatest guidelines to make site conduct comparable in all perusing stages. There are different classes of highlights that upset the similarity of sites over the normally utilized programs which incorporate Different Programs, Different Browser Versions, Different Computer Types, Different Screen Sizes, Different Font Sizes, and HTML Errors, Browser Bug, Add-ons and Third Party substances. In not so distant future the different government associations are going to give all offices through web and they are accessible once the client visited there sites through its program. Electronic applications are very useful in upgrading the achievement pace of any association.

The sustenance of High level Process maturity can be achieved by adopting web application technology. As already discussed the technology also plays vital role on making websites compatible with different browsing platforms. Government organizations are putting lots of efforts to provide different services in the Directorate General of Foreign Trade (DGFT): e-licensing, e-BRC, e-tendering, e-monitoring, e-meeting e-delivery, e-PRC, e-grievance re-addressal etc. regarding the implementation of ICT and different user's access information from different browsing platforms. The continuous evolution of the Internet has opened unimaginable opportunities and challenges in web based education and learning. Each and every person these days is getting all his work done by the use of web based system which is accessible through one oir the other browsing platforms. Just Workplace (office, school, school and so forth) was viewed as the most widely recognized place for web access. Most workplaces and schools give web (broadband) access; consequently individuals enjoy web exercises at work, as it were 22% of the respondents didn't have web office at work. So consideration should be paid to the plan of the sites to make uniform ways of behaving of all the sites in various generally utilized programs.

S. No	Web Browsers	Compatibility for Blink Tag
1.	Internet Explorer[7,8,9]	Not Supported
2.	Chrome	Not Supported
3.	Safari	Not Supported
4.	Fire fox	Supported

Table 1: Browsers compatibility with blinking tags

METHODOLOGY

a. Problem Identification

A good web design aims to give a uniform look to the website, viewed from any web browser. Thus, a good website should be viewable in its full functionality on any web browser. Since every webpage is built up of various components with their own characteristics and these characteristics affect the performance of a webpage in different contexts. Like other measures of performance evaluation the browser compatibility feature of websites is also affected by the various components of a webpage either directly or indirectly. It is also dependent on the type of technology used in building websites like AJAX as already discussed in literature review. Different technologies sometimes also create the compatibility problem. So during the design phase of the websites they must be tested rigorously for its compatibility at different browsing platforms As already discussed in literature review, different components of web pages like blinking, active X controls, resolution, image formats and HTML tag error (like video tag), Ajax, Flash, and event-handling for dynamic HTML etc. have a direct effect on the cross browser compatibility of a website. These features are supported to different levels by various types of popularly known web browsers or their versions. The compatibility of blink tag by various popularly known browsers is already in table discussed in literature review.

Essentially, different elements portrayed above offer various degrees of similarity clashes to different levels when sites are opened on unmistakable internet browsers or their variants. These highlights are the reason for ordering sites for their cross program similarity capacities.

b. Online apparatus for testing website pages

The mechanized instrument planned and created by the creator for testing different classifications of the sites to review the deviation from plan principles by the fashioner incorporates five various boundaries. For testing program similarity boundary the elements (or measures) which are considered by computerized device in deciding the similarity of a site on different generally utilized programs like Internet Explorer, Google Chrome and so on are:

- 1) Blinking
- 2) ActiveX Controls
- 3) Website Resolution
- 4) Image Formats
- 5) HTML Tag Error

The test for different sites is completed based on the above highlights to decide similarity clashes. This online web indicative device gives a total measurements of the program similarity in view of the highlights which are considered for the reason.

c. Sample Data

The Sample of information attempted to concentrate on Browser similarity as plan and improvement issue in different sites is given underneath in table 2. The five distinct classifications of the sites which are generally utilized and gotten to by the clients were chosen which incorporates government sites, business sites, work entries, person to person communication and instructive sites. The different class of the sites attempted by the creator assists the creator with grasping about variety in site plan in a superior and productive manner. Absolute 100 sites having a place with various classes was taken for testing which incorporates

20 sites from every classes referenced previously. The various sites are planned in thought with different plan requirements and they are applying explicitly to every class embraced for testing. Besides, it helps a part to concentrate on different nature of the web architecture to the extent that program similarity on various perusing stage is concerned.

d. Results and Discussions

The Sample information attempted to concentrate on cross program similarity as web architecture issue in different sites is displayed in underneath given Table 2 and the outcomes acquired are shown by outlining the examination into a chart displayed in beneath given figure A.

In light of the diagram displayed in fig.(A) above, it tends to be dissected that the site classes that have greatest help in rate for different sorts of usually utilized programs have a place with e-government sites, online business sites and work entries and the sites which shows least consistence to the different perusing stages has a place with long range informal communication It has been seen from the outcomes got that out of the five unique classes of the sites taken as an example information for testing the e-administration, online business and occupation gateways observes the limit of the guidelines suggested for the sites plan w.r.t. conduct of the sites in various perusing stages

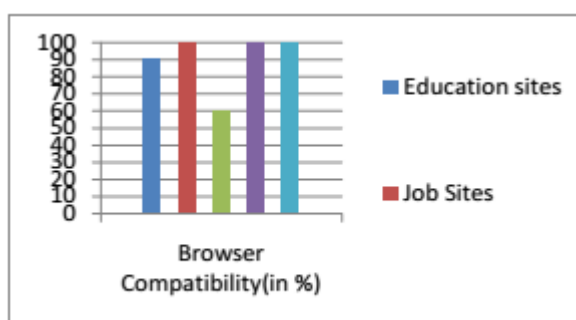


Figure 2: %age for Browser Compatibility

CONCLUSION

Planners can't expect that their application will run fine furthermore, show and work for every one of the programs without cross program testing. The associations should invest loads of amounts of energy in planning sites to keep away from loss of business and notoriety. The investigation did on the cross program similarity component of sites above utilizing the internet based web symptomatic apparatus Website Design Evaluator plainly demonstrates that

sites are dismissing rules that generally should be considered for complete cross program similarity in demonstrate hatred for of the internet browser utilized. By assessing the various classifications of the sites on the robotized apparatus plan and created by the creator it has been seen that sites are not fulfilling the various guidelines suggested by the different standard association (for example W3C) for the plan and improvement of different sites for example, squint tag for IE and Mozilla, video tag for IE8 and prior adaptations and so on. The aftereffect of this study affirms that the designers of the sites some way or another can't totally adhere to the guidelines suggested. It is obvious from the outcomes that more endeavors are expected to follow sites plan norms to make sites 100 percent viable in various perusing stages.

CONSTRAINTS

Appendixes, notwithstanding the elements considered for similarity test, there are additionally different elements for deciding program similarity that can be remembered for request to extend the cross similarity check to all the more likely assistance engineers/originators to fabricate sites that have expanded similarity abilities. The elements considered are not sufficient to decide the similarity capacities completely of a site. There are different classes of highlights that prevent the similarity of sites over the usually utilized programs for example:-

- a) Different Browsers
- b) Different Browser Versions
- c) Different Computer Types
- d) Different Screen Sizes

- e) Different Font Sizes
- f) HTML Errors
- g) Browser Bug
- h) Add-ons and Third Party entities

FUTURE SCOPE

In future more number of measures will be added to program similarity boundary to assist the planners with making page that are more productive, client driven and keep the guidelines given by concerned associations in a more suitable way. The boundaries that are getting looked at to be remembered for the boundary have a place with classes like variety in internet browser forms, other HTML label mistakes, and screen sizes and so on. This large number of elements are getting looked at and will be remembered for the device to upgrade its capacity to actually look at sites for more number of configuration issues with respect to cross Browser similarity issue.

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