ANALYSIS OF THE PERFORMANCE OF FEW WEBSITES OF THE GOVERNMENT OF BANGLADESH

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ABSTRACT

This paper represents the basic performance errors of several government website of Bangladesh. There are so many websites with these errors left live and the paper exactly concern about those errors. How to overcome them and how one should develope websites avoiding these errors. Websites consisting of latest technology helps handling facts smartly but the fact is maximum government websites are developed using obsolete knowledges in that case we cannot re develop the websites but fix the errors of coding and it is possible to boost up the website performance to maximum and increase the efficiency level by doing so. We can improve website performance by taking care of errors and by having some sincerity we can develop complete and perfect websites. So how the errors can be solved and how much efforts will require doing this. This paper exactly provides this information.

Index Terms: Introduction, Performance analysis, Leverage Browser caching problem, Information and services in a single window Problems and solution etc.

INTRODUCTION

There are huge numbers of websites worldwide to serve people and fulfill their demand. Different types of websites provide various ways of usability depending on their users. Now a day's websites are the only media for exchanging ideas, expressing thoughts, retrieving information and communicating with the whole world in the shortest possible time. Web technology has made our life easier by allowing us to do our daily life works in a more flexible way like we can shop, do business, search for job, book tickets etc. And these technological innovations let us develop the global village which we can't deny. And the

government websites are playing an important role on the virtual world. Millions of people are being facilitate from the government websites with their services. About 25,000 Portals (information Hub) to bring all the central government offices representing Unions, Upazillas, Districts, Divisions in Bangladesh has been developed and currently in live. When NPF is implemented, the service delivery will be smooth and easy. This is a continuous process. In this process, starting from UISCs Entrepreneurs to Ministry/Division officials, about 50,000 staffs are involved.

The useful information and services provided by the Government website are

- Information & Services
- Agriculture
- Defense
- Disaster Management
- Environment & forests
- Education
- Health care
- Utility Services
- Recruitment
- Law & Order
- Transport & Communication
- Tour

Most Popular E-Commerce services provided by the Government Websites are

- Passport Form
- TIN Registration
- Railway Ticketing System
- National E-Service System (NESS)
- Union Information and Service Centres (UISC)
- Multimedia Classrooms
- Government Forms
- National Portal Framework (NPF)
- Infokosh - National Repository
- E-Healthcare
- Teachers Portal

Obviously these services provided by the government are very effective and appreciating but if the website performance and efficiency are low then the whole hard work will be worthless.

PERFORMANCE ANALYSIS

Website of Education Board Bangladesh

Site Address - www.educationboard.gov.bd

Leverage Browser Caching Problem

Education Board website has no leverage browser caching enabled, leverage browser caching obtained zero on 100, which is alarming for the website performance. Other necessary issues are well settled but the sites performance fall down for this one particular problem.

Fig. 1: Page speed performances.

Fig. 2: Google guidelines problem.

2.2 Mobile Issues

No viewport decleared.

Fig. 3: Google guidelines problem.

Ministry of Information
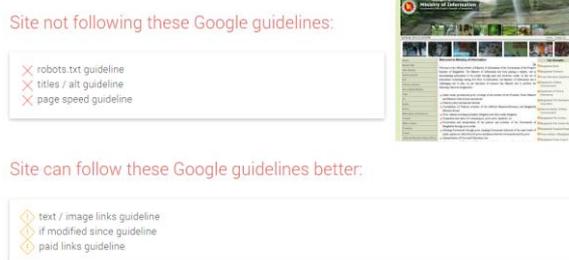
Site Address - http://www.moi.gov.bd

Leverage Browser Caching Problem

Ministry of Information website has no leverage browser caching enabled, that leads the website to a zero grade on 100.

Fig. 4: Page speed performances.

2.3 Google guidelines problem

Fig. 5: Google guidelines problem.

INFORMATION & SERVICES IN A SINGLE WINDOW

Site Address: http://www.bangladesh.gov.bd/

Leverage Browser Caching

Information & services in a single window website has no leverage browser caching enabled, that leads the website to a 73 grade on 100.

Google Guidelines Problem

Should Fix

- Eliminate render-blocking JavaScript and CSS in above-the-fold content
- Enable compression

Consider Fixing

- Optimize images
- Leverage browser caching
- Minify JavaScript
- Minify CSS
- Minify HTML

3 Passed Rules

- Avoid landing page redirects
- Prioritize visible content
- Reduce server response time

Mobile Issues

Rating 58/100 Speed

Should Fix

- Eliminate render-blocking JavaScript and CSS in
- Above-the-fold content
- Enable compression

Consider Fixing

- Leverage browser caching
- Optimize images
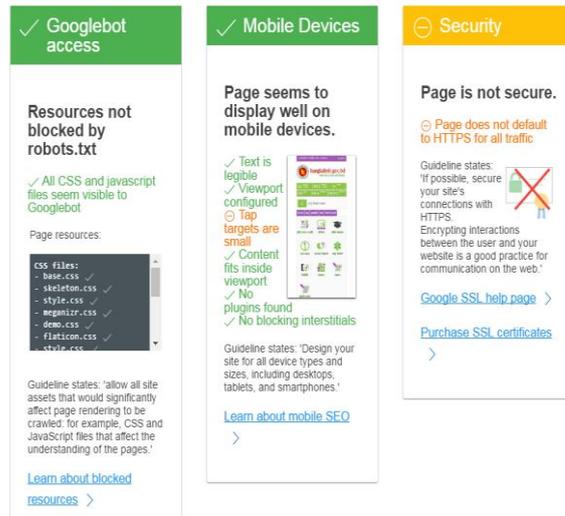- Minify JavaScript

- Minify CSS

- Minify HTML

Fig. 5: Webmaster guidelines.

3 Passed Rules

- Avoid app installs interstitials that hide content

- Avoid plugins

- Configure the viewport

- Size content to viewport

- Use legible font sizes

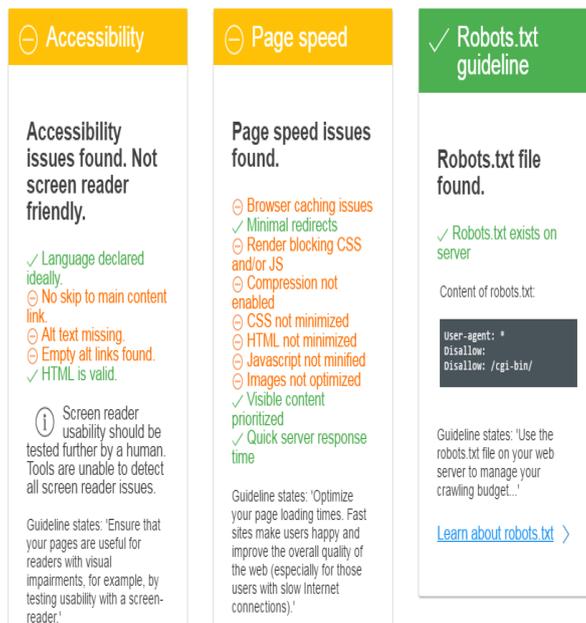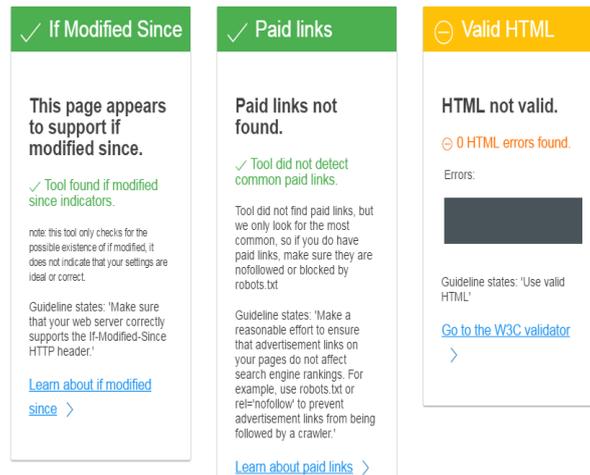### GOOGLE WEBMATER GUIDELINES

Fig. 6: Webmaster guidelines.

Fig. 7: Webmaster guidelines.

WHATS & WHY

Leverage browser caching

When a web browser displays a webpage it has to load several things like logo, CSS file, and other resources. What browser caching does is "remember" the resources that the browser has already loaded. When a visitor goes to another page on the website, the logo or CSS file does not need to be loaded again, because the browser has them "remembered". The end result is that the pages load much faster.

When the server returns a response it must provide the Cache-Control and ETag headers:

- Cache-Control defines how, and for how long the individual response can be cached by the browser and other intermediate caches.
- ETag provides a revalidation token that is automatically sent by the browser to check if the resource has changed since the last time it was requested.

Reason

1. Makes a website load time really fast that effects the website performance.
2. This is one of the crucial guidelines put by the Google guidelines.

Robots.txt file

Search engines have crawlers' by whom they search and look for files/information/data etc. A robots.txt file contains some instructions like what to crawl and what to not, sometimes there are some specific instructions for any certain crawlers. So there are three basic categories of instructions a robots.txt file can have and these are following.

Full allow: All content may be crawled.

Full disallow: No content may be crawled.

Conditional allow: The directives in the robots.txt determine the ability to crawl certain content. Here is an example of the conditional allow.

User-agent: *

Disallow: /photos

Allow: /photos/vubondanga.jpg

This portion of robots.txt content means that the crawler will not be able to visit the photos folder and the photos kept inside it except the photo named 'vubondanga.jpg'.

Reason

1. To keep files hidden from search engines.

2. To instruct robots for any specific purposes.

TABLE 1: PROBLEMS & SOLUTIONS

Sl	Problem	Solution
1.	Leverage Browser Caching	To solve leverage browser caching problem simply add the codes below in the .htaccess file of the server of the website. Code starts from here: ## EXPIRES CACHING ## <IfModule mod_expires.c> ExpiresActive On ExpiresByType image/jpg "access 1 year" ExpiresByType image/jpeg "access 1 year" ExpiresByType image/gif "access 1 year" ExpiresByType image/png "access 1 year" ExpiresByType text/css "access 1 month" ExpiresByType text/html "access 1 month" ExpiresByType application/pdf "access 1 month" ExpiresByType text/x-javascript "access 1 month" ExpiresByType application/x-shockwave-flash "access 1 month" ExpiresByType image/x-icon "access 1 year" ExpiresDefault "access 1 month" </IfModule> ## EXPIRES CACHING ##
2.	Robot.txt file	Make a robot.txt file in your web server. Normally there is a robots.txt file available in the server you have to just write some lines on that text file. Robot.txt file contents –

		User-agent: * Disallow: /wp-admin/ Disallow: /wp-includes/
3.	Enable compression	Compressing resources with gzip or deflate can reduce the number of bytes sent over the network.

3. To keep a live site not indexed, because are still working on that site.

4. Least but not the least reason is having a robots.txt file is one of the Google guidelines, and why not follow the guidelines by the best search engine?

PageSpeed Insights

Page Speed Insights measures the performance of a page for mobile devices and desktop devices. It fetches the url twice, once with a mobile user-agent, and once with a desktop-user agent.

The PageSpeed Score ranges from 0 to 100 points. A higher score is better and a score of 85 or above indicates that the page is performing well. Please note that PageSpeed Insights is being continually improved and so the score will change as we add new rules or improve our analysis.

PageSpeed Insights measures how the page can improve its performance on:
● *time to above-the-fold load*: Elapsed time from the moment a user requests a new page and to the moment the above-the-fold content is rendered by the browser.
● *time to full page load*: Elapsed time from the moment a user requests a new page to the moment the page is fully rendered by the browser.

PROBLEMS & SOLUTIONS

We have seen the problems of the maximum website are almost same and some specific, so to get rid of this problem and have a fast website we can just fix them, I have attached solutions relating to those problems here in the problem and solution table.

Robots.txt Guideline

"The robots.txt file on a web server tells crawlers which directories can or cannot be crawled. Make sure it's current for a site so that accidentally the Googlebot crawler is not blocked.

Sitemap for search engines guideline

"Google uses Sitemap to learn about the structure of a web site and to increase the coverage of Web Pages".

CONCLUSION

Thanks to Bangladesh government for they are providing with a lot of information through their websites yet they have a lot of things to fix. In this paper we examined several government websites of Bangladesh. We are able to see that Leverage Browser Caching and Google Guidelines Problem are very common to the web sites and we have also provided how the government can overcome these problems.

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