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The Analysis of Indonesian Regional Websites with SEO Methods

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Abstract: Regional websites are a crucial element in the systematic implementation of e-government development through realistic and measurable stages, which leverage information and communication technology (ICT) to enhance interconnectivity between the government and stakeholders. In Indonesia, the websites for the regions of West Java, DKI Jakarta, and Central Java rank highly on Google when searching for "regional website." Therefore, to identify the advantages of websites in these regions, a search engine optimization (SEO) analysis was conducted using White Hat techniques to test six variables related to Meta Tags. Additionally, an analysis using Black Hat SEO such as Similarweb.com, Website.grader.com, and SmallSeoTools.com was performed to identify any illegal techniques. The result showed that the jakarta.go.id website outperformed the other two, ranking 3,305th globally and 72nd in Indonesia. However, it received a less-than-maximum score of 25/30 in the White Hat SEO category due to the absence of a Meta Description, with no illegal method detected in the Black Hat SEO analysis.

Keywords: e-government, website analysis, black hat search engine optimization, white hat search engine optimization.

印度尼西亚区域网站搜索引擎优化方法分析

摘要：区域网站是通过现实和可衡量的阶段系统实施电子政务发展的关键要素，它利用信息和通信技术增强政府与利益相关者之间的互联互通。在印度尼西亚，当搜索“区域网站”时，西爪哇、雅加达首都特区和东爪哇地区的网站在谷歌上排名靠前。因此，为了确定这些地区网站的优势，我们使用白帽技术进行了搜索引擎优化分析，测试了与元标签相关的六个变量。此外，还使用黑帽搜索引擎优化（例如Sametimeweb.com、Website.grader.com和SmallSeoTools.com）进行分析，以识别任何非法技术。结果显示，jakarta.go.id网站的表现优于其他两家，在全球排名第3,305位，在印度尼西亚排名第72位。然而，由于缺乏元描述，它在白帽搜索引擎优化类别中获得了低于最高分25/30的分数，并且在黑帽搜索引擎优化分析中没有检测到非法方法。

关键词：电子政务、网站分析、黑帽搜索引擎优化、白帽搜索引擎优化。

1. Introduction

Rapid technological advancements have created regional websites and e-government services, which have been implemented as a systematic strategy for development in Indonesia. According to The Ministry of Communication and Informatics, these efforts are designed to be realistic and measurable, with the goal of advancing e-government development since 2018. e-Government, which uses information and communication technology, seeks to improve connectivity between the government and other stakeholders [1]. This involves the automation and computerization of paper-based processes, resulting in new leadership patterns, alternative methods for strategic discussions, emerging mechanisms for business transactions, two-way communication between citizens and the government, as well as new platforms for organizing and delivering information. Regional websites can be easily accessed via search engines and are primarily used to gather information about a specific region.

Search Engine Optimization (SEO) is employed to optimize a website on search engines through White Hat SEO and Black Hat SEO [2]-[3]. White Hat SEO refers to the use of strategies in optimization, techniques and tactics that follow the rules of the search engine, such as Google [4]. Meanwhile, Black Hat SEO is a technique used to increase the ranking of a page or website by violating the laid down rules [5]-[6]. The methods of White Hat SEO and Black Hat SEO were described by Malaga [7]. The application of two White Hat SEO and Black Hat SEO methods simultaneously in implementing a website is rarely mentioned.

The analysis of the current conditions of e-Government development in Indonesia still uses the literature method. This analysis only answers how the state websites exist and how far the e-Government in Indonesia is implemented. Regional websites in Indonesia have not been created optimally and managed by appropriate e-Gov arrangements. SEO as a trend optimization method offers how a website is regulated optimally. Some of its derivatives are implemented in many websites worldwide and give insight to developers. SEO becomes crucial because it makes the website more visible, which means more traffic and opportunities to convert prospects into users.

Indonesian news websites were studied and found that detik.com is ranked first among the three websites analyzed using the White Hat SEO method. The second-ranked website is liputan6.com, while beritamerdekaonline.com came in last because it only excels in meta-tag assessment [8]. However, when assessed using similarweb.com and

website.grader.com, the website still lags behind the other two. Five points can be used to optimize news websites on search engines [9].

Research to analyze the development of e-government in Indonesia based on the four levels outlined in Presidential Instruction Number 3 of 2003 was conducted. The findings indicate that regional governments have achieved all four stages defined in the instruction. Among the four stages, the second (maturation) stage is the most widely attained, with 341 regional government websites. However, the fourth stage (utilization) has the lowest representation, with only four regional government websites [10].

Ten regency and city websites in East Java were analyzed using the White Hat SEO method and a content perspective approach to determine the advantages and disadvantages of regional websites. The Surabaya city website was found to have the highest rank in terms of SEO assessment. However, the analysis revealed errors in the metadescription and metaheading tag due to their absence on surabaya.go.id. In terms of content perspective, Surabaya city ranked at the bottom of the range value for the main commodity category and G2B. This is because there is only one main commodity information, namely food, such as palm oil, forestry, and plantations, while in G2B there are only two pieces of information, namely tourism and industry. Consequently, while the website attracts many visitors, information delivery still falls short [11].

Based on previous research [8]-[11], we are eager to analyze the advantages of regional websites in Indonesia, specifically those of West Java, DKI Jakarta as the nation's capital, and Central Java. These three websites were in the top rank using the keyword "regional websites" on the Google search engine. It used the White Hat SEO technique to analyze six variables, namely meta title, meta keyword, meta description, meta robot, meta viewport, and heading tag. Additionally, the research used Black Hat SEO analysis to determine whether these websites used illegal techniques such as keyword stuffing, buying backlinks, spam through comments, link farming, private blog networks, and non-quality content. The analysis results are expected to provide useful information for developing other regional websites.

The primary objective of this research is to analyze the top three regional websites in Indonesia based on their ranking on search engines using both White Hat and Black Hat SEO techniques. What advantages do the websites have, why do the websites to get a high ranking, and what criteria support them. Additionally, it determines the traffic system and how often websites are accessed using similarweb.com. This analysis can serve as a reference for other regional website

developers to identify the advantages of these three websites, particularly through the use of six metatags. Another goal is to determine whether the three websites use illegal methods to increase their search engine rankings, namely Black Hat SEO. This article provides rich references for website developers, steps, and how to assess and deal with their designs conforming or not to expected rules.

2. Research Methods

The research method in Fig. 1 is divided into the following five stages.



Fig. 1 Research scheme

The data collection with literature studies through books and articles. Collection of various data taken from several references used for literature studies. However, practice references to implement SEO methods using a tool are rarely given in detail. Most are discovered on blogs or directly on the tool website. It is hard to find them in the literature that explains step-by-step.

Table 1 shows some alternative SEO tools for analyzing website traffic, ranking data, and metatags.

Table 1 SEO tool proposed

Tool	Description
Alexa.com	Although the information provided is complete, its use requires creating a paid account
Similarweb.com	The information provided is complete and flexible and can be used freely through the website
Semrush.com	People should first enter their email to receive information
website.grader.com	It is easy to use, free of charge, and the information provided is fairly complete. However, it only provides Meta Description

with website performance

smallseotools.com The information provided includes the five metatags not provided by website.grader.com, and there are tools to check the use of Black Hat SEO, such as Backlink Checker

Criteria for selecting the tools are one that is easy to use, has an available complete required information, is free of charge, and does not require a login. SimilarWeb is a tool for estimating the amount of traffic on a web. Similarweb has been used to analyze websites with Google Analytics from 26 countries and 19 industry companies. The results show that the average similarweb is lower than google analytics for total visits and unique visitors but higher for average bounces and session time [12]. Similarweb is also used to measure the performance of academic websites in East Java. The results showed that the academic website has website traffic at a good level [13]. Website Grader is a free online tool for improving sites on several measurements, namely performance, mobile readiness, SEO, and security. Website graders have been used to optimize several web pages that contain text-based information [14]. Website graders can easily determine how good a site is [15]. Smallseotool is a tool for optimizing a site, apart from its ability to check plagiarism. Smallseotools is one of the nine tools recommended for optimizing a website [16]. This tool has more than 15 categories for optimizing websites and is free. This tool supports optimization from planning keywords, spelling and grammar checking, backlink analysis, image compression, and even the analysis and monitoring of your website [17]. Similarweb.com will be used for website traffic and ranking data. The information provided is complete, flexible and can be used freely through the website. Meanwhile, websites.grader.com and smallseotools.com will also be used for meta-tag analysis. It is easy to use, free of charge, and the information provided is fairly complete. However, website.grader.com only provides metadescription with website performance. Smallseotool includes five metatags and tools to check the use of Black Hat SEO, such as Backlink Checker.

Determination of the website being analyzed through the Google search engine with the keyword "Regional Website". The three highest results are websites belonging to West Java, DKI Jakarta, and Central Java. The websites jabarprov.go.id, jakarta.go.id and jatengprov.go.id were accessed on February 14, 2021. The results obtained can be used as recommendations for directing the development of other regional websites in Indonesia. Fig. 2 shows the three websites analyzed.

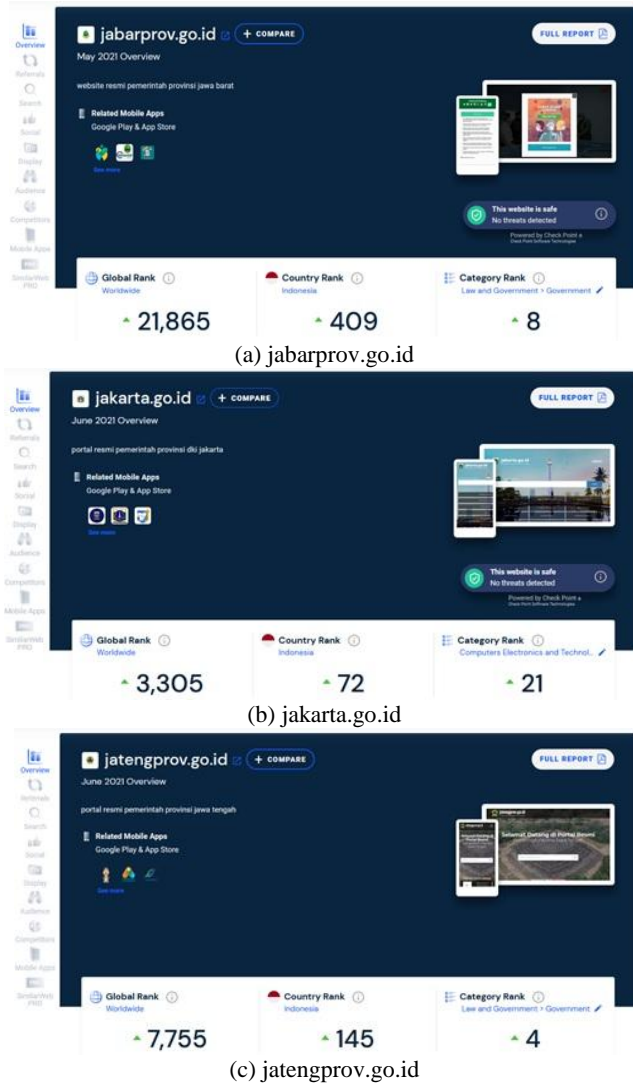


Fig. 2 Selected regional websites

Data processing using a predetermined tool comprising six metatag variables.

The data processing technique was carried out on three websites, namely jabarprov.go.id, jakarta.go.id, and jatengprov.go.id, using similarweb.com to determine the ranking in search engine results. Meanwhile, the website.grader.com and smallseotools.com tools were used to check the six metatags of the website. The research adopted both White Hat and Black Hat SEO methods. Six variables are tested for White Hat SEO, including metatitle, meta keyword, metadescription, meta robot, metaviewport, and heading tag. In contrast, Black Hat SEO methods analyzed include keyword stuffing, paid backlinks or buying backlinks, spam through comment columns, link farming, private blog networks (PBNs), and unqualified content.

2.1. Data Testing and Analysis

Testing is carried out on data processed previously by comparing data on each website analyzed using the White Hat and Black Hat SEO methods. The data tested and analyzed are then processed to become useful information.

The White Hat SEO method optimizes websites according to search engine regulations and does not violate the law. It is performed by optimizing the use of metatags on the back page of the website not visible to visitors [7]. There are six metatags whose function is to help provide additional information about the site page at the root of the search engine:

1. Meta Title is a title that optimization will help the performance of the SEO website created later. It is filled with a brief explanation of the theme or topic reviewed.

2. Meta Keywords are keywords representing the content of the website; therefore, they contain words related to the website's theme.

3. Meta Description briefly explains the website when the domain name is at the beginning of the sentence. A good metadescription length is between 80 and 160 characters.

4. Meta Robot determines which website pages are indexed by spiders, a software used to link pages and sites.

5. Meta Viewport tells the browser how to display a web page in simple terms on the device layer. This attribute is used to determine how much viewport size should be used to display the desired web page.

6. A Heading Tag is an HTML tag or code used to enlarge a text. It is used in creating document or article titles such as <h1>, <h2>, <h3>, <h4>, <h5>, and <h6>.

On the other hand, the Black Hat SEO method uses fraudulent or illegal techniques to increase search engine rankings. The use of this method can result in penalties to the website from search engines as follows:

1. Keyword stuffing fills many keywords on a page to increase its position on search engines.

2. Paid or buying backlinks by giving website goods or services in return for a backlink.

3. Spam through the comment column.

4. Link farming is a set of websites created to build backlinks. Websites created for link farming usually have unqualified content with many outgoing links.

5. Private blog networks (PBNs) are a group of highly authoritative websites used to build backlinks. Black Hat SEO actors usually buy expired domains and then revive them to provide backlinks to their main website.

6. Unqualified content. This process does not provide value to users. An example is copying and pasting content from other websites.

After testing the data using the tools mentioned, the analysis was carried out by distributing questionnaires to directly gather user feedback on the website's usability. The questionnaire contained ten questions about the website analyzed based on usability regarding efficiency, view, and satisfaction. The questionnaire results were calculated using a Likert scale [18]-[19].

3. Results and Discussion

The website analysis was carried out on July 6, 2021 for jabarprov.go.id and July 15, 2021 for _akarta.go.id and jatengprov.go.id. The analysis used the tools similarweb.com, website.grader.com, and smallseotools.com to find statistical data, with 6 White Hat SEO variables. The next section will illustrate the analysis process with these tools, and the West Java website (jabarprov.go.id) will be used to show the results. The West Java website is ranked 409th in Indonesia. Meanwhile, at the global level, the website is ranked 21,865th, and for the Government category, the website is ranked 8th. The West Java website experienced an increase in rankings in all three categories.

3.1. White Hat SEO

White Hat SEO is a practice method to achieve high search engine rankings. White Hat SEO is creating content for users and not search engines. White Hat SEO not only complies with search engine standards but also ensures that all content indexed is similar to the content a human user will see. Their objective is to promote accessibility. It focuses on readability, relevance of content, and well-structured and well-written content that will be useful to people who read it. It also focuses on cross-linking pages internally on a website, where appropriate, as building relevant inbound links from trusted sources.

The advantages of White Hat SEO are cost-effective, as SEO rules without risk are a long-term investment (it takes some time, but the results are very satisfying) and can adapt to algorithm changes at Google.

3.1.1. Similarweb.com on Jabarprov.go.id

Fig. 3 shows the number of website visitors totaling 2.01 million visitors, an increase of 10.35% from April with 1.8 million visitors. The average visit duration to access the website was 3 minutes 41 seconds. Then, pages per visit per visitor in one day as many as 6.43 pages. The last data provided is the bounce rate, that is 60.05%.



Fig. 3 Visitor data on jabarprov.go.id website

Fig. 4 shows the number of website visitors. The five countries with the highest number of visitors were Indonesia with the most visitors at 98.36%, Singapore, the United States, Turkey, and the Netherlands. The number of Indonesian visitors increased by 13.09% from the previous month.



Fig. 4 Traffic data on jabarprov.go.id website

Fig. 5 shows the sources of traffic or visitors to the jabarprov.go.id website based on five categories, namely Direct, Referrals, Search, Social, Mail, and Display. The biggest categories are direct and search.



Fig. 5 Traffic sources on jabarprov.go.id website

Fig. 6 shows the jabarprov.co.id website referral data. Referrals are the number of visitors who access the West Java website through links on other websites, the percentage is 1.17%. The top referring site is plb3.menlhk.go.id with a percentage of 32.17%. The top departure site with the highest rating is ppdb-production.s3.ap-southeast-1.amazonaws.com, with a percentage of 13.37%.



Fig. 6 Referrals data on jabarprov.go.id website

Fig. 7 displays the number of visitors accessing the West Java website using certain keywords.

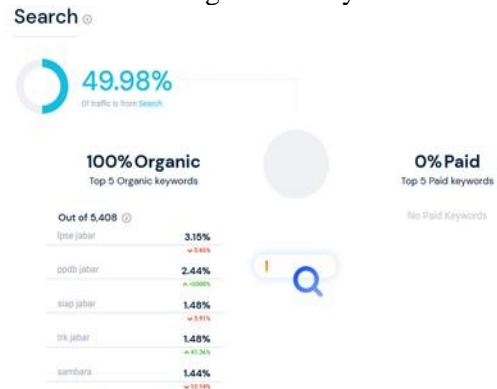


Fig. 7 Search data on jabarprov.go.id website

Fig. 8 showed that the Social category means the number of visitors accessing the West Java website through social media.

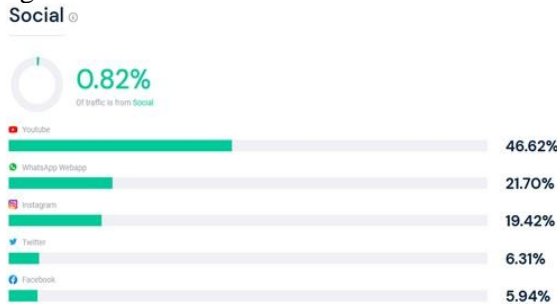


Fig. 8 Social data on jabarprov.go.id website

Fig. 9 shows that the West Java regional website does not use advertising services on other websites to attract users.

Display Advertising



Fig. 9 Display data on jabarprov.go.id website

Table 2 shows that the jakarta.go.id website is ranked the highest globally in Indonesia.

Table 2 Comparison of the three websites based on Similarweb.com

Website Aspect	jabarprov.go.id	Jakarta.go.id	jatengprov.go.id
Global Ranking	21.865	3.305	7.755
Country Ranking Origin	409	72	145
Total Visitors (Million)	2.01	10.27	5.18
Bounce Rate (%)	60.05	43.65	44.31
Daily Pages per Visit	6.43	11.11	7.89
Daily Average Visit Duration	00:03:41	00:06:27	00:03:55
The country of Visitors	Indonesia, Singapore, USA, Turkey, Netherlands	Indonesia, Singapore, USA, Netherlands, Australia	Indonesia, USA, Singapore, Japan, Vietnam
Search Visit (%)	49.98	40.75	46.96
Display Advertising	No	No	No
Social Media	YouTube, Whatsapp Webapp, Instagram, Twitter, Facebook	Whatsapp Webapp, YouTube, Twitter, Instagram, Facebook	YouTube, Whatsapp Webapp, Instagram, Twitter, Facebook

The following aspects affect the ranking of this website:

1. In the global ranking aspect, jakarta.go.id, jatengprov.go.id, and jabarprov.go.id are ranked at 3,305th, 7,755th, and 21,865th, respectively.
2. In Indonesia, jakarta.go.id, jatengprov.go.id and jabarprov ranked 72nd, 145th and 409th, respectively.
3. The total number of visitors to jakarta.go.id, jatengprov.go.id, and jabarprov.go.id are 10.27 million, 5.18 million, and 2.01 million.
4. The bounce rate is the ratio of visitors who leave the website after opening only one page. The smaller the percentage, the better the website visited. The jakarta.go.id website has the lowest percentage of 43.65%, followed by jatengprov.go.id and jabarprov.go.id at 44.31% and 60.05%.
5. Regarding the average number of pages visitors visit, the jakarta.go.id website has the highest number, followed by jatengprov.go.id and Jabarprov.go.id with

- 11.11 pages, 7.89 pages and 6.43 pages, respectively.
6. Regarding the average duration of visitors spending time on web pages, jakarta.go.id has the highest duration of 06:27, followed by jatengprov.go.id at 03:55 and jabarprov.go.id at 03:41.
7. Visitors to the three regional websites come from various countries, including Indonesia, the United States, Singapore, the Netherlands, Turkey, Australia, Japan, and Vietnam.
8. Next is the number of visitors who gain access through search engines. The jabarprov.go.id website has the highest percentage of 49.98%, followed by jatengprov.go.id at 46.96%, and finally, jakarta.go.id at 40.75%.
9. The three regional websites do not use advertising for promotion.
10. Finally, visitors to regional websites come from various social media, such as Whatsapp, Webapp, YouTube, Twitter, Instagram, and Facebook.

3.1.2. Website.grader.com on Jabarprov.go.id

The jabarprov.go.id website had a total score of 52 from the website.grader.com tool, as shown in Fig. 10.



Fig. 10 Total score on jabarprov.go.id website

Fig. 11 shows that the performance on the jabarprov.go.id website is very low, only 2 from 30.

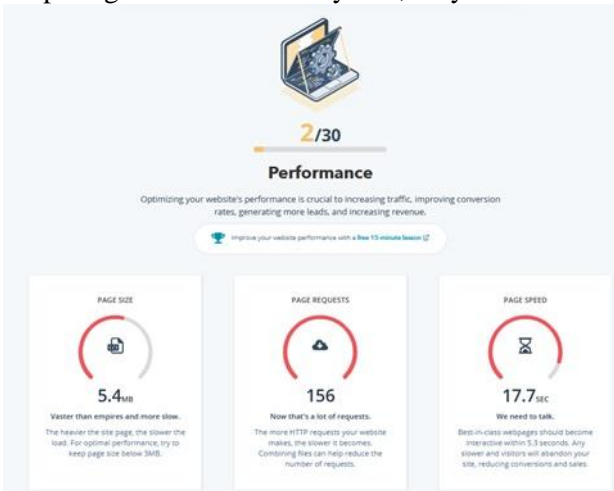


Fig. 11 Performance score on jabarprov.go.id website

Fig. 12 shows that the jabarprov.go.id website gets a perfect score of 30 from the SEO assessment.

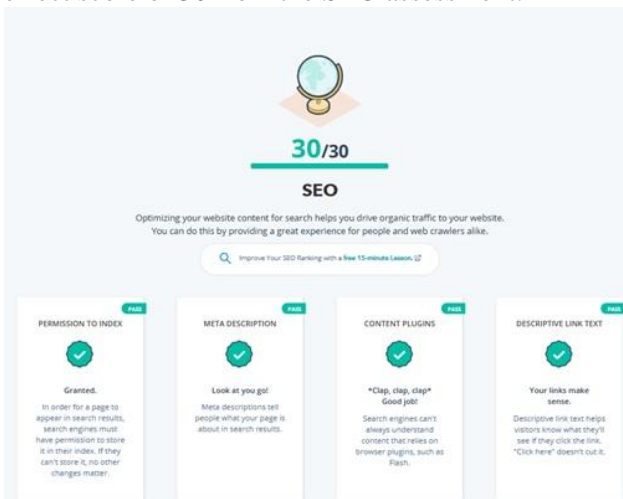


Fig. 12 SEO score on jabarprov.go.id website

Fig. 13 shows the score from a mobile display or on a mobile phone. In this assessment, the jabarprov.go.id website gets a score of 20 out of 30. Whilst from its security performance the score obtained very badly is 0 out of 10 illustrated in Fig. 14.

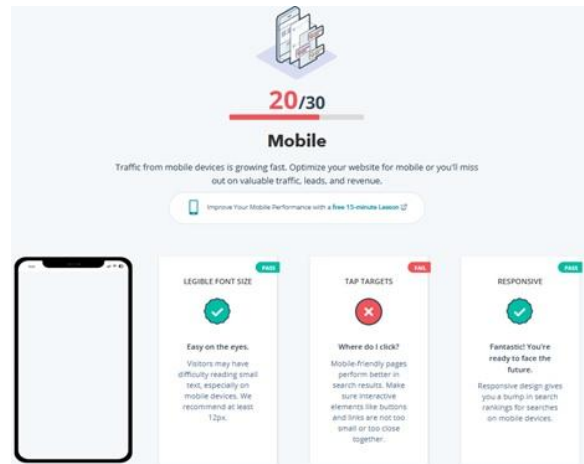


Fig. 13 Mobile performance on jabarprov.go.id website

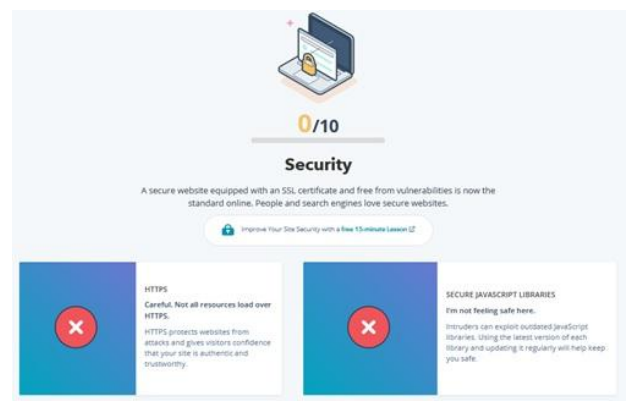


Fig. 14 Security performance on jabarprov.go.id website

Table 3 Comparison of the three websites based on website.grader.com

Website Aspect	jabarprov.go.id	Jakarta.go.id	jatengprov.go.id
Overall Score	53 (OK)	77 (Good)	71 (OK)
Page Size (MB)	5.4	4.2	3.3
Page Request	156	116	207
Page speed (seconds)	17.7	10.8	21.8
Permission to Index	Granted	Granted	Granted
Meta Description	Pass	Fail	Pass
Content Plugin	Pass	Pass	Pass
Descriptive Link Text	Pass	Pass	Pass
Legible Font Size	Pass	Pass	Pass
Tap Targets	Fail	Pass	Pass
Responsive	Pass	Pass	Pass
HTTPS	Fail	Pass	Pass
Secure JavaScript Libraries	Fail	Pass	Fail

Table 3 compares the websites jabarprov.go.id, jakarta.go.id, and jatengprov.go.id from the following aspects using website.grader.com.

1. The highest overall score is owned by the jakarta.go.id website (77), followed by jatengprov.go.id (71) and jabarprov.go.id (53).

2. *Page size*: jatengprov.go.id has the lowest size of 3.2 MB, followed by jakarta.go.id at 4.2 MB and jabarprov.go.id at 5.4 MB.

3. *Page request*: Jakarta.go.id has the least requests, followed by jabarprov.go.id and jatengprov.go.id with 116, 156, and 207, respectively.

4. *Page speed*: The jakarta.go.id owns the lowest time website for 10.8 seconds, followed by jabarprov.go.id and jatengprov.go.id for 17.7 seconds and 21.8 seconds, respectively.

5. The three websites allowed search engines to store their pages in the index; therefore, they all received a Pass grade.

6. The jakarta.go.id website does not have a Meta Description in it; therefore, it got a Fail rating.

7. All three websites received a Pass rating in the Content Plugin aspect.

8. The three websites also received a Pass in the Descriptive Link Text aspect.

9. In the Legible Font Size aspect, the three regional websites also received a Pass, which means that the fonts used are optimal.

10. The jabarprov.go.id website gets a Fail value in the Tap Targets aspect, meaning that the placement of the touch area of each menu on the website in the mobile version is not optimal.

11. All three websites have received a Pass in the Responsive aspect.

12. For the HTTPS aspect, the jabarprov.go.id website did not use a secure Hyperlink; therefore, it gets a Fail score.

13. Jabarprov.go.id and jatengprov.go.id did not use the latest JavaScript; therefore, they both received a Fail score.

3.1.3. *Smallseotools.com on Jabarprov.go.id*

Fig. 15 shows the results of the metatag variable analysis for White Hat SEO using smallseotools.com.

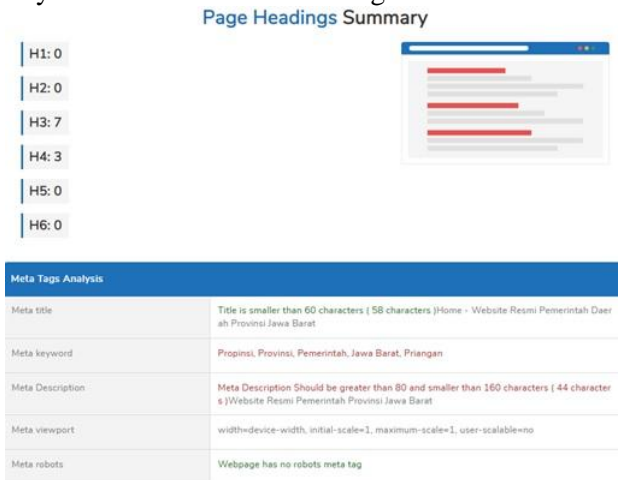


Fig. 15 Meta tag analysis on jabarprov.go.id website

Table 4 shows a comparison of the three websites. This showed that the jakarta.go.id regional website is more optimized than the other two websites.

Table 4 Comparison of the three websites based on website.grader.com – black hat

Website Aspect	jabarprov.go.id	Jakarta.go.id	jatengprov.go.id
Meta Title (character)	Optimized (58)	Optimized (7)	Optimized (31)
Meta Description (character)	Not Optimal (44)	Not Found	Not Optimal (44)
Meta Keyword	Error occurs	No Errors	Error occurs
Meta Robots	N A	N A	N A
Meta Viewport	Available	Available	Available
Heading Tag	Not optimized	Optimized	Already Optimized

A summary of the three websites is as follows:

1. The three Meta Title websites analyzed are not optimal because they have not met the criteria for making it equal to or less than 60 characters.

2. The three Meta Description of the regional website is still not optimal because it is not more than 80 characters and does not exceed 160.

3. The use of Meta Keywords on the jabarprov.go.id and jatengprov.go.id websites is not optimal because it is considered irrelevant to their content.

4. The Meta Robot of the three websites analyzed has been considered optimal because all three are not found using Meta Robot; therefore, the websites are easily found in the search engine index.

5. The three Meta Viewports have also been optimized, meaning that the website can adjust the display between desktop and mobile.

6. Meta Heading on the jabarprov.go.id website is not optimal because there is no heading 1 (h1 = 0).

Based on the assessment of the SEO value of the three websites using website.grader.com, jabarprov.go.id, and jatengprov.go.id received a perfect score of 30, while jakarta.go.id got 25 because it does not use Meta Description.

White Hat SEO is significant when the competition uses Black Hat techniques. The major search engines have processes in place to report Black Hat websites [7]. White Hat SEO is difficult to implement without resources and proper tools. It can take up to several months to determine results from White Hat SEO techniques. The developers must continuously update the website to maintain its position on the search engine results page. This lack is the number one challenge the developers face 32.9% by search engine journal research.

3.2. **Black Hat SEO**

The Black Hat SEO techniques cloak the link to get quick results. A case in 2005 called Traffic Power made Google ban many websites with their clients from using the Black Hat SEO method. Several researchers have prevented Black Hat SEO methods. Many Black Hat methods work somewhat well for White Hat SEO. Eventually, many Black Hat SEO tools may be worthwhile for White Hat SEO [7].

increase their ranking on search engines and found a group of websites with unqualified content as backlinks.

5. The three analyzed websites do not use the Private Blog Network (PBN) method to increase search

engine rankings.

6. Finally, the three websites analyzed were also found not to use unqualified content, all of which contained relevant information about the area.

Table 5 Comparison of black hat SEO usage of three websites

Website Aspect	jabarprov.go.id	Jakarta.go.id	jatengprov.go.id
Keyword Stuffing	Not Using	Not Using	Not Using
Paid Backlink	Not Using	Not Using	Not Using
Spam Through Comments	Using	Not Using	Not Using
Link Farming	Using	Not Using	Using
Private Blog Network (PBN)	Not Using	Not Using	Not Using
Unqualified content	Not Using	Not Using	Not Using

Based on the data processing obtained using the White Hat SEO and Black Hat SEO methods, the following results were obtained:

1. The Jabarprov.go.id website has three White Hat errors: Meta Description, Meta Keywords, and Heading Tags. The website also uses two Black Hat methods, including Spam through comments and link farming.

2. The Jakarta.go.id website has one error in the White Hat section, namely Meta Description, which was not found using the Black Hat method.

3. The Jabarprov.go.id website has two errors in White Hat, namely Meta Description and Meta Keywords. The website also uses the wrong Black Hat Link Farming method.

The website jakarta.go.id achieved a score of 25 out of 30 in the White Hat SEO category, indicating that it adheres to ethical and legitimate methods to optimize its content for search engines. Fortunately, the website did not receive any negative points in the Black Hat SEO category, indicating that it does not engage in any illicit or unethical practices to manipulate its search engine ranking.

Meanwhile, jabarprov.go.id received the lowest score in all categories, with three errors in White Hat SEO, including inadequate use of Meta Description, Meta Keywords, and Heading Tags. Furthermore, the website was found to employ two Black Hat SEO techniques-Spam comments and Link Farming-to enhance its Google search engine ranking. Another website, jatengprov.go.id, was also found to use the link farming method. It is essential to note that both White Hat and Black Hat SEO practices can significantly affect a website's performance.

The implications of Black Hat SEO are crucial for website developers. They must be aware of Black Hat SEO on two levels. First, they need to understand the competition when using the Black Hat method to achieve success. Second, the government as the proprietor should be alerted in hiring a search engine

optimizer.

Due to Black Hat SEO employing unethical SEO practices, a website's reputation can drop to zero, making it untrustworthy. A website can be exposed by counterfeiting because there are gaps that make the website vulnerable and could be hacked. And not to mention the risk of the website being banned. These drawbacks of Black Hat SEO are not covered.

3.3. The Likert Analysis

Data analysis was carried out using the results of a questionnaire to determine the assessment with three aspects, namely View, Efficiency, and Satisfaction of the website, which was further calculated using a Likert scale. The questionnaire was swiftly distributed through social media and completed by 30 respondents from diverse backgrounds. Table 6 displays the processed outcomes of the survey.

Table 6 Website average results

Website	Average Value	Result
jabarprov.go.id	75.94	Good
Jakarta.go.id	85.46	Very Good
jatengprov.go.id	78.22	Good

The website jabarprov.go.id has a good average score of 75.94 for its View, Efficiency, and Satisfaction metrics. Three answers get a very agree rating on the website in the information section about the latest regions with 80.7%. Furthermore, the website has achieved a high ranking of 83.3% when searching for regional websites on Google. Users have also reported that the regional website is running smoothly, with a satisfaction rate of 84%.

The jakarta.go.id website received the highest average score of 85.46 based on respondents' assessments. Furthermore, ten aspects were evaluated, and the website received a score of Strongly Agree in

all of them. Among the aspects evaluated, the interface appearance, page appearance, and up-to-date information about the region had the highest percentage of agreement, with each receiving 88%.

The jatengprov.go.id website has the second highest score of 78.22% after Jakarta.go.id, which is considered good. Similar to jabarprov.go.id, the jatengprov.go.id obtained three aspects that were strongly agreed, including the latest information, already appearing at the top of the rankings when searching for regional websites on Google, and the regional website visited was running well by 84.7%, 86%, and 84.7%, respectively.

4. Conclusion

Analysis of White Hat SEO and Black Hat SEO has revealed that the jakarta.go.id website surpasses the jatengprov.go.id and jabarprov.go.id. This analysis was conducted using tools such as similarweb.com, website.grader.com, smallseotools.com, and a Likert scale questionnaire. However, the analysis results indicate that two of three websites have resorted to Black Hat SEO techniques to boost their rankings. Given this situation, the Indonesian Ministry of Communication and Information should consider introducing regulations to govern the creation of regional websites.

In general, SEO research consists of some categories. First, a better understanding of which techniques give the best results for both White Hat and Black Hat SEO methods. Second, researchers play a notable role in helping improve the algorithm and develop other measures to deal with Black Hat SEO. Researchers can help the user understand the use of search engines.

In future research, alternative methods such as Grey Hat SEO, which improves search engine rankings without being subject to fines, should be explored. Additionally, a more thorough analysis of backlinks could be conducted to assess the quality of those used by websites focusing on backlinks with high domain values.

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