



UTM

UNIVERSITI TEKNOLOGI MALAYSIA

ASSIGNMENT 1 - Website performance between Local Malaysian Banks and Foreign Banks



standard
chartered



Maybank

SECV2223 - WEB PROGRAMMING
SEMESTER II, SESSION 2023/2024

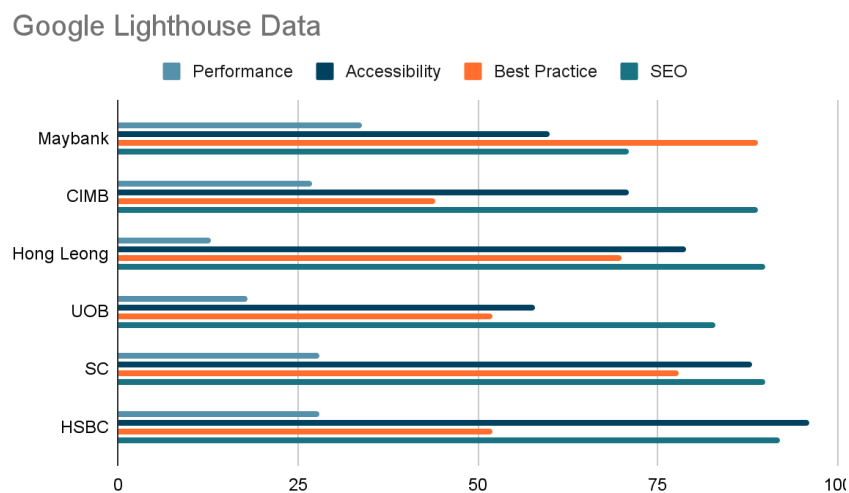
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1. Introduction

In comparing website performance between local Malaysian banks and foreign banks, we focus on key metrics: Performance, Accessibility, Best Practices, and SEO(Search Engine Operation). We'll assess loading speed, mobile responsiveness, and user experience to gauge performance. Accessibility will examine inclusivity for all users. Best practices will evaluate security measures and intuitive design. Finally, SEO will determine visibility and search engine ranking. Through this analysis, we aim to uncover which banks excel in optimizing their online platforms for customer satisfaction and trust.

2. Analysis



Here we have chosen 3 Local Malaysian banks (Maybank, CIMB, Hong Leong Bank) and 3 Foreign banks (UOB, Standard Chartered(SC), HSBC) as our examples. From the data we can see that Maybank has the best Performance and Best Practise scores among the rest even though it has the worst Accessibility Score. HSBC on the other hand has the highest Accessibility and SEO score among the 6 banks. In overall, Maybank stands out as the best banking system to perform online as it surpasses all other banks in term of performance.

3. Results and Discussion

From the data collection that we obtained on April 16, 2024, the analysis and testing process were conducted by using a web performance audit tool which involves the utilization of Google Lighthouse:

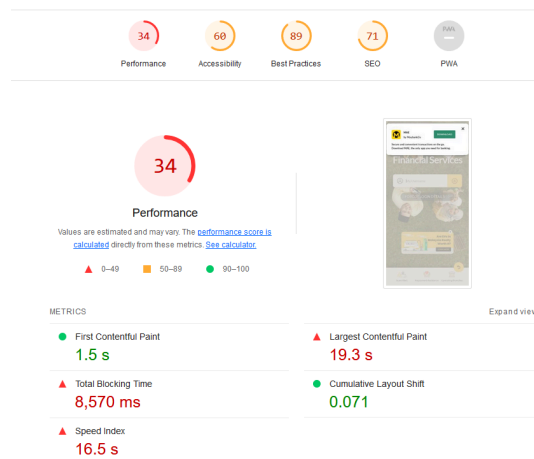


Figure 2: Maybank Audit Results

Based on the results of the web performance audit conducted on the Maybank website, it is shown that the performance is quite low with the red value, 34. This can be optimized by reducing the total blocking time of 8570 ms, largest contentful paint of 19.3 s, and speed index of 16.5 to be more optimal in terms of the performance. Accessibility on the other hand has a higher value than performance which is 68, which can be optimized by making a change on the buttons that do not have accessible name, links that do not have a discernible name, and select elements that have associated label elements. Best practice shows the highest value in Maybank websites with the yellow value, 89. Lastly SEO shows 71 values which can be optimized by ensuring that the links have descriptive text, and image elements have attribute.

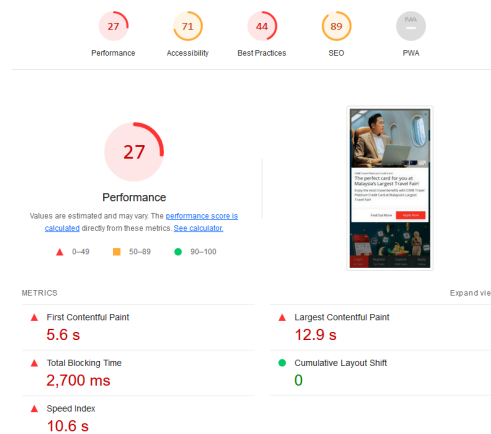


Figure 3: CIMB Bank Audit Results

Next, as for the CIMB Bank Audit result, it is found that the performance also has a low red value which is 27. The performance can be optimized by reducing the first contentful paint of 5.6s, total blocking time of 2700 ms, speed index of 10.6 s, and largest contentful paint of 12.9 s. The accessibility of the CIMB website shows a higher value than the performance which is 71. This can still be improved by ensuring that the image elements have [alt] attributes and elements with `role="dialog"` or `role="alertdialog"` have accessible names. Best practice shows a low value of 44 due to the usage of deprecated APIs and third-party cookies, as well as registers an unload listener. Lastly, the SEO has the highest value which is 89, that can be improved by ensuring that the tap targets are sized properly.

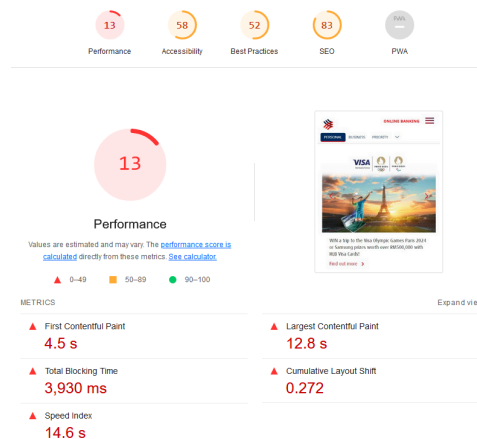


Figure 4: Hong Leong Bank Audit Result

Meanwhile, the Hong Leong banking platform shows a similar result as the previous 2 banks in terms of the performance which is red value, specifically 13. The performance can be optimized by minimizing the first contentful paint of 4.5s, total blocking time of 3930 ms, speed index of 14.6 s, largest contentful paint of 12.8s, and cumulative layout shift of 0.272. The accessibility value is 58 while the best practice value is 52. This is due to the browser errors being logged to the console and issues being logged in the Issues panel in Chrome Devtools. Lastly, SEO shows the highest value among all other categories which is 83. It can be improved by ensuring that the links are crawlable and the image elements have [alt] attributes.

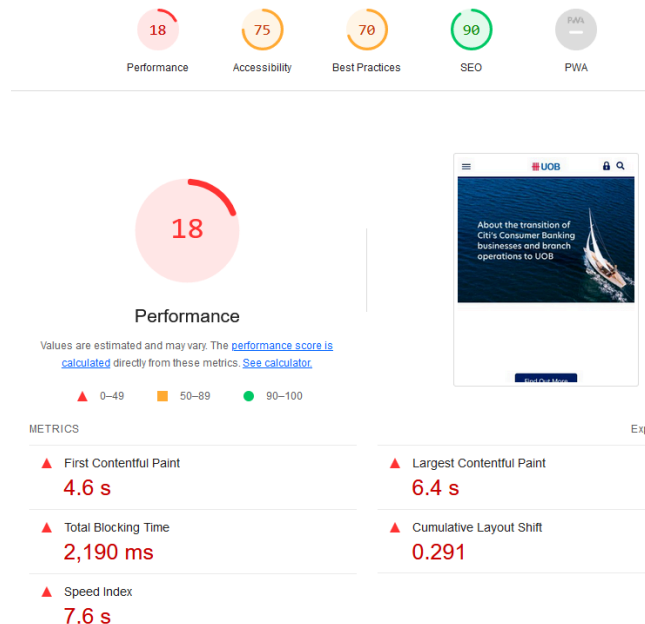


Figure 5: UOB Bank Audit Result

Next, for the UOB Bank audit result, the performance has a low value of 18, which can be optimized by reducing the first contentful paint of 4.6 s, total blocking time of 2190 ms, speed index of 7.6s, largest contentful paint 6.4 s, cumulative layout shift of 0.291 to the optimal value. The accessibility value is 75 which can be improved by ensuring that [user-scalable="no"] is not used in the <meta name="viewport"> element or the

[maximum-scale] is more than 5. Best practice value is 70 while the SEO has the highest value of 90, which is also a green value. SEO has 12 passed audits includes having a `<meta name="viewport">` tag with `width` or `initial-scale`.

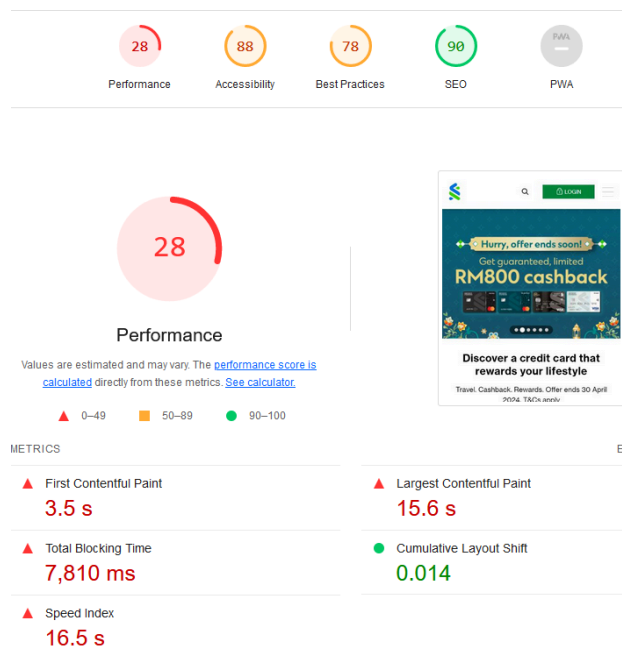


Figure 6: Standard Chartered Audit Result

Moving on to Standard Chartered, the performance value of 28 can be optimized by reducing first contentful paint by 3.5s, total blocking time by 7810ms, speed index by 16.5s, largest contentful paint by 15.6s and cumulative layout shift of 0.014. The accessibility value is 88 with 78 of best practices and have a good SEO with 90.

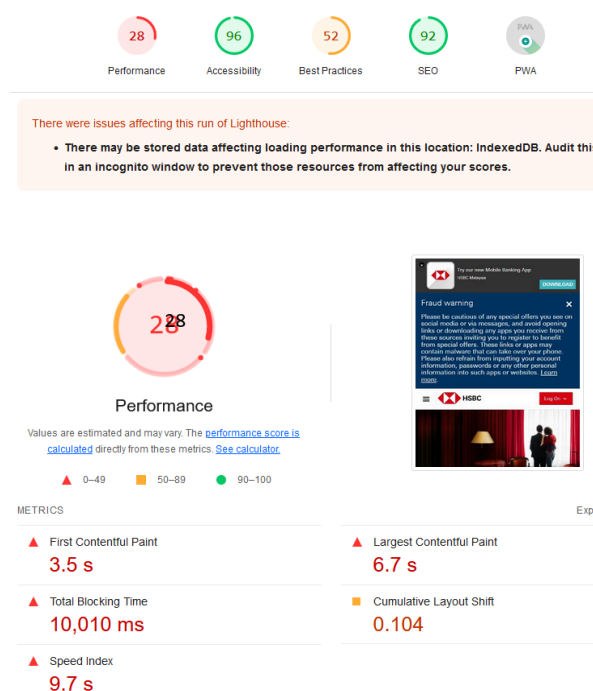


Figure 7: HSBC Audit Result

Lastly for HSBC bank the performance value is quite low with the value of 28 that can be optimized by reducing first contentful paint by 3.5s, total blocking time of 10,010ms, spend index by 9.7s, large contentful paint of 6.7s, and cumulative layout shift by 0.104. The accessibility value of 96 prove that it is the best banking performance of the foreign bank. Best practices value is 52 with the SEO of 92 which indicate the online banking performance for HSBC is the best compared to other foreign bank.

4. Conclusion

Based on the analysis carried out using Google Lighthouse on the 6 different types of bank which consists of 3 local and 3 foreign. It is tested based on the website performance, accessibility, search engine operation and speed indexes to determine the best user experience banking system to use and we are comparing it with 3 local Malaysian banks and 3 foreign banks. It is proved that Maybank has the best user experience and the website perform better than the others. Maybank demonstrates strong adherence to best practices in overall. Maybank SEO stands out as the top performer which will improve user experience and enhance the online system. As stated in a research

(https://ir.upsi.edu.my/files/docs/2020/4192_4192.pdf) 50% of their respondents were attracted with the online banking system. While CIMB and Hong Leong bank mildly perform in certain aspects, they lack in comparison with Maybank in terms of performance and best practices. For the foreign banks, HSBC, Standard Chartered and UOB bank may demonstrate certain competitive features but none of it can surpass Maybank overall performance and best practice scores. In conclusion, Maybank is set as a benchmark for other banking system to satisfy user experience by optimizing their online platform with success. Overall, being a foreign bank does not mean that they are better in terms of making a website than Local banks.

5. References

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