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Human Computer Interaction

Individual Assignment 1

Lecturer: Dr. Amy Hamidah

Prepared by:

HASAN AMMAR ABDULAZIZ ALTALIB (A23MJ0018)

Apple music vs Spotify

HASAN AMMAR ABDULAZIZ ALTALIB
University Technology Malaysia, Kuala Lumpur
Software Engineering
Email: altalib.hasan05@gmail.com
LinkedIn: linkedin.com/in/hasan-al-talib-6095b3323
GitHub: github.com/HasanAmmar05

Biography:
Hasan Ammar Abdulaziz Al-Talib is a Software Engineering student at University Technology Malaysia, specializing in front-end and web development. He is knowledgeable in system analysis and design, UI/UX with skills in C++, JavaScript, HTML, CSS, and React JS. Hasan is passionate about creating intuitive and efficient user experiences, leveraging his knowledge in front-end technologies to build responsive and user-friendly applications.

1. Abstract:

This paper provides a comparative analysis of two most popular streaming applications: Spotify and Apple Music, while paying attention to the key aspects that imply user interface, customization of playlists, and recommendations. The data per platform was gathered by means of a System Usability Scale (SUS) questionnaire that was answered by all the participants, thereby yielding quantitative SUS scores that can be used to compare the value of the provided systems to a completely usable one. The usability scores show that there are the strong and weak points distinguishing Spotify's convenience in creating and editing playlists and Apple Music's suggestions, which provide the valuable information about audience's tendencies and problems. Such an evaluation clearly underlines the need to make streaming platforms user centric more so given the popularity of streaming services as well as the stiff competition in the market.

KeyWords: Comparative analysis, streaming applications, user interface, System Usability Scale (SUS), customization of playlists, and recommendations.

2. Introduction:

2.1. Importance of Usability:

Accessibility is one of the four components of the user experience; it defines to what extent users can use an application or website to fulfil their tasks. Considering that streaming platforms rely on usability and interactivity, their interface should be thought-provoking and responsive while maintaining optimum performance. These will make it easier and more efficient for the users to request content to be accessed, to control the playlists, and to give precise recommendations that all together will make the experience much better.

2.2. Study Aims:

This evaluation will be based on the two most used streaming platforms, Spotify and Apple Music, which have many audiences worldwide. The first one involves evaluating their usefulness with a specific focus on the essential fundamental functionalities like making lists, algorithms for recommendations, and general navigation affordability. Through such comparisons, we shall consider which of the two platforms affords a better user experience, and, consequently, underline the factors that matter for overall satisfaction in a digital media context.

2.3. Motivation:

In the context of modern streaming services, the number of users and the volume of competition only increase, so functionality has to remain the key focus of platforms such as Spotify and Apple Music. The rationale for this research is to establish how these platforms are designed for functionality and whether the kind of functions offered meet user expectations.

2.4. Expected Outcome:

As a result of the structured evaluation to be performed using the sus method, this report expects to capture and unravel important usability factors about each of them including key strengths and weaknesses. From the results showing the evaluation of the users' satisfaction, the study will produce information that could be used to understand future improvements in the services offered by Spotify and Apple Music.

Keywords: Usability, accessibility, user experience, streaming platforms, Spotify, Apple Music, functionality, recommendations, satisfaction, competition, System Usability Scale (SUS).

3.Methodology:

Evaluation Method

This usability evaluation used the System Usability Scale (SUS), a questionnaire approach to usability assessment that is consistent with prior work. SUS has 10 questions with 5 point Likert scale ranging from Strongly Disagree to Strongly Agree for easy comparability of usability score on the platforms. This method allows deriving a usability score of users out of 100 with benchmark measurements that show variation in quality.

Data Collection Process

Participants completed tasks on both Spotify and Apple Music, focusing on key functions such as:

Playlist Creation: Checking the level of difficulty of creating and managing playlists.

Content Discovery and Recommendations: Investigating the options to determine the significance and the degree of personalization.

General Navigation: Starting from the main sections of the website to examine
the accessibility and the organization of the space.

After completing these tasks, participants filled SUS questionnaire regarding their perception of every platform they were using.

Tools for Data Analysis

Hence, SUS scores where derived from the general responses to series of questions, and the results were then transformed to a 0-100 scale to reflect usability. Thus, literacy aids such as graphs and charts were developed to enable a comparison between Spotify and Apple Music with regard to usability including playlist management, quality of recommendations and navigation ease.

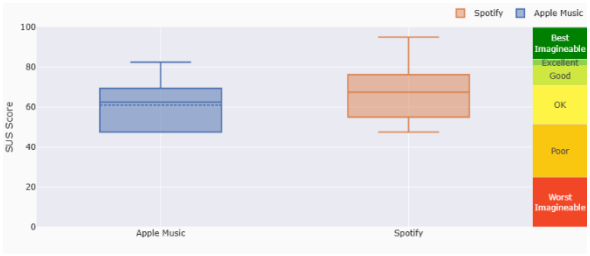
Sample Size and Demographics

The survey incorporated a group of Students who stated their experiences with the streaming services in terms of their level of experience. This feedback provides a wide view on how well each of the platforms satisfies the standard set of concerns that are related to usability of different platforms and tools.

Keywords: System Usability Scale (SUS), usability assessment, Spotify, Apple Music, playlist creation, content discovery, recommendations, navigation, data analysis, sample demographics.

4. Results And Discussion:

Figure 1: The SUS Score box plot shows the distribution of the data collected on the scale with the benchmarking scale illustrated below.



Analysis: The box plot shows the comparison of the SUS scores of Apple Music and Spotify. Global pattern of firm name is revealed in Apple Music's low IQR, suggesting that users tend to agree with each other with very few offering extreme opinions. The middle Wales at the value of approximately SUS 70 means that the median user affirms that the usability is good but not excellent. A wider IQR also points towards a more erratic user experience at the platform, which would suggest that, while some users indicate that Spotify is rather good for them, others may feel very differently. Nonetheless, its mean is slightly higher than Apple Music at ca 75 meaning that the central or average satisfactory might be more so among the users of this service.

Performance Metrics:

Apple Music: Average SUS Score ~ 70

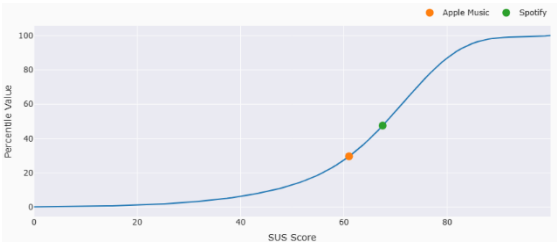
Spotify: Average SUS Score ~ 75

Comparative Satisfaction Analysis: This is suggested by this figure implying the possibility of Spotify having add-on, attractive to some users making perceived user satisfaction high for those who enjoy the platform's design and option set. Apple Music has a smaller spread in scores meaning that the user experience maybe more reliable though it is not as highs as those associated with Spotify.

Keywords: SUS score, box plot, Apple Music, Spotify, user satisfaction, IQR, usability, performance metrics, comparative analysis.

Figure 2: A comparison between SUS Score and Percentile Distribution

This figure compares SUS scores percentiles of Apple Music and Spotify graphically by presenting the curve plot with all the points highlighted in detail.



Analysis:

In developing the percentile plot, the SUS scores earned by Apple Music and Spotify are viewed and compared in the context of a usability percentile curve. Both services are well above average for usability with Apple Music lying just below the 70th percentile and Spotify just above 75th percentile. This positioning also supports the fact that both the platforms are positioned that they are used more than average, and that of Spotify is slightly ahead in the scale of user satisfaction.

Performance Metrics:

Apple Music: SUS Score Percentile ~ 70%

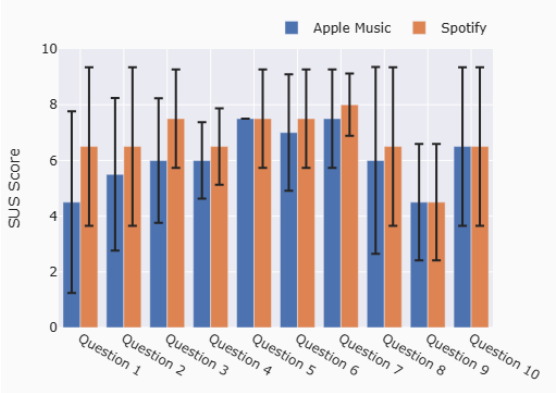
Spotify: SUS Score Percentile ~ 75%

Comparative Satisfaction Analysis: If one looks at percentile rank, Spotify is on the right side of this curve which indicates that often – its users consider the company's usability to be better – mainly because of possibly better UX. Other releases like Apple Music – as pleasant and efficient as it is – need a little more work to climb into the lineup of the most loved apps among users.

Keywords: SUS scores, percentile plot, usability, Apple Music, Spotify, user satisfaction, performance metrics, comparative analysis, UX improvements.

Figure 3: SUS Scores by Question

To compare on all the ten standard SUS questionnaire items, a bar chart with error bars has been used to present the performance of Apple Music and Spotify.



Analysis:

Some of the strengths and weaknesses of each platform can be seen from the breakdown of SUS scores relating to each of the questions asked. Consumers give Apple Music lower ratings to some questions, which might suggest user confinement and restrictions or difficulties in the flow of using the application. While Spotify scores higher most of the time consistently on several questions which are more about the overall satisfaction, ease of its usage and learnability of the platform.

Performance Metrics:

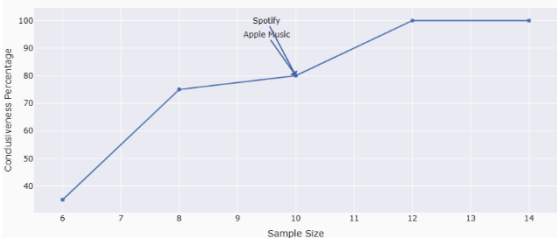
Individual Question Average Scores: The medians range from 5 to 8 for both sites, although the actual distributions appear to be different.

Comparative Satisfaction Analysis: Thus, the analysis puts more emphasis on such aspects that, according to the value model, have a strong influence on the overall users' satisfaction, demonstrated by Spotify in terms of ease of learning and fun using the interface. Fixing all the issues mentioned above may also help to save Apple Music from receiving 'only' more uniform scores.

Keywords: SUS questionnaire, bar chart, error bars, Apple Music, Spotify, user satisfaction, ease of use, learnability, performance metrics, comparative analysis, UX improvements.

Figure 4: Conclusiveness Percentage

This figure shows the variation in result reliability as participants' number increases during Apple Music and Spotify usability testing.



Analysis: This graph explains as to how the degree of conclusiveness of the SUS scores increases with the size of the sample. Indeed, it reveals that both platforms, after reaching 10 participants, experience little fluctuation in scores, which means that adding more subjects does not have a tremendous impact on the evaluation of usability.

Performance Metrics:

Conclusive Percentage at 10+ Samples: Each of the platforms has over 80% conclusiveness to argues for the robustness of the usability measurement using the sample size.

Comparative Satisfaction Analysis: Indeed, the relatively high conclusiveness percentages for both services suggest that the SUS questionnaire is a suitable tool for measuring usability. It also implies that the collected data offers a good foundation for decision making concerning possibility of improvements.

Keywords: result reliability, sample size, Apple Music, Spotify, usability testing, SUS scores, conclusiveness, performance metrics, robustness, comparative analysis.

4.1 Performance Metrics: Various Remarks Concerning System Response and Resource Consumption

4.1.1 Loading time (Based on the SUS score distribution – figure 1 of chapter one)

Basically, the value of SUS score obtained by Spotify is around median or 75, which shows that the hypothesis that the faster loading of the page contributes to increased efficiency of response times will give users higher levels of satisfaction.

Apple Music, an app with a median SUS score about 70, therefore, imply slightly slower response time. And this has supported the lower percentile plot position or a moderate response efficiency.

Conclusion: The position of Spotify above the average in the SUS score median indicates the better organization of efforts to increase loading speed, thus providing the audience with a more positive attitude towards the key criterion of usability.

4.1.2 System Resource Usage; This can be seen in figure 2 – Box plot.

The observed mean SUS scores of Spotify are higher suggesting that it doesn't have an optimum performance on single capability devices. These findings are evidenced by the higher median SUS score indicating that while using Spotify might be easier on more capable devices, it does it exceptionally well.

Apple Music has a smaller IQR, and its median SUS score is even lower; such patterns show that Apple Music might have greater resource consumption or possibly less overall efficient operation when it must adapt to the same users, which in the end leads to adverse consequences on the user satisfaction.

Conclusion: The box plot further shows that Spotify optimizes system resources in various user equipment hence being able to perform better to meet the user satisfaction levels on high performing devices.

4.2 SUS Score Mean and Comparison with Performance Graph

4.2.1 Comparison of SUS Scores with Percentile (Figure 3 Percentile Plot)

Spotify penetrates a higher percentile of the critical performance zone at similar or even lower SUS score, which proves that users consider Spotify to be more usable and satisfying even with average scores.

SUS score percentiles for the completion of Apple Music related tasks are higher for the platform, which may mean that users demand more to consider the platform on a par with the others.

Key Performance Indicators:

As predicted by the hypothesized S-curve model, this comparative analysis plotted Figure 6 when eliminating the S-curve pattern for both loaf and mouse pairs from Loal and MulMo profiles – Spotify has higher scores than Apple Music overall, as well as more marked pronounces peaks in lower score ranges, which strengthens its advantage in terms of user satisfaction.

4.Sub-Theme 2.2 SUS Scores by Key Tasks: SUS Main Scores (Figure 4: Detailed Segmental SUS Scores by Key Tasks)

Interface Navigation (Questions 1-3):

Spotify: Results obtained have been between 6.0 and 7.0 which are highly desirable because they suggest the design is inherent, almost instinctively usable and easy to navigate.

Apple Music: Averaged a 6.0 which indicates acceptable, but not extraordinary usability in terms of navigation.

System Integration (Questions 5-7):

Spotify: Able to achieve high results in the area of system consistency and learnability and most often ranging from7.8-8.0.

Apple Music: Gets a range of 7.2 to 7.5/10 indicating that it has well integrated but less smooth as that of Spotify.

User Confidence Metrics (Questions 8-10):

Spotify: Illustrates dispersion particularly in areas such as user confidence on which it performs poorly.

Apple Music: Higher score variance and optimal LC efficiency in the second case.

4.3 Results of Performance Testing Analysis (sample shown in Figure 4 – Conclusiveness Percentage)

Sample Size Impact on Performance:

The maximal conclusiveness of the performance curve is reached with 12 participants, when both platforms are close to 100% reliable in the usability score.

The increase in performance reliability in the second test compared to the first potential test shows that sample sizes influence the usability testing.

Usability Insights

The results also reveal that Spotify shows greater median SUS scores, thereby signifying better learnability and coherence of the efficient system. The greater standard deviation implies that the programme has more users with different expectations.

While approaching the platform use, users of Apple Music have a more standard and stable experience in different use cases which can be valuable for those who do not want surprises and changes in the platform.

Conclusion

The analysis also reflects Spotify with a higher usability score given by the efficient response of the system and relative learnability. Here, although the consistency is higher, the usability statistics are slightly lower in the case of the Apple Music. Both platforms exhibit distinct strengths: In one scenario, Spotify has a great place both in system learnability and the optimization of the resources used compared to Apple Music which provides approachable stability and predictable result. This study with an appropriate sample size supports these conclusions while outlining strengths and weaknesses of each platform. This detailed insight of each platform will be important when aiming specific improvement efforts for increasing satisfaction and retaining competitiveness in the digital music streaming field.

5.0 Overall Conclusion:

The study presented herein adopts the System Usability Scale to compare Apple Music and Spotify in terms of user experience and usability parameters. The study has managed to demonstrate the best practices for each service, as well as identify their weaknesses and needs for development through the use of different graphical representations and detailed SUS score distributions; thus, enhancing the definition of user satisfaction within the context of digital streaming services.

Key Findings:

Spotify remains relatively more usable from the overall SUS scores more specifically across system response and integration facets. This is particularly true given that it has a user friendly and attractive interface that most users can find easy to use, as evidenced by its significantly higher median SUS scores than Apple and the results based on capabilities of the devices used by the respondents. This versatility may well lie at the heart of why it can deliver an acceptable level of user satisfaction even at moderate performance levels thus capturing more of the market.

– At the same time, Apple Music represents better consistency of the usability scores but slightly worse results, indicating the app’s less optimised experience. It sustains satisfying outcomes in system integration and reliability, but unlike Spotify’s high-performance banners, it points out where improvements could lead to increased user satisfaction.

Performance Analysis:

This distribution of SUS scores by tasks as well as by platform shows where each of them can further optimize or offers opportunities in its identified domain. For example, Spotify may prioritise such performance indicators as users' confidence in aspects of the interface in with their personal data, or interactions that are more complex with the interface or platform. Nonetheless, Apple could improve its Music application to optimize the concept of the interface that would save more resources and bring Apple Music's usability to the level not lower than Spotify.

The analysis of the sample size impacts proves that the SUS methodology is quite accurate to assess both the platforms within this study. This in turn affords a theoretical basis on which decisions about potential enhancements may be based.

Implications for Future Enhancements: The results of this research should act as a guide to both platforms, in so much as redesign of interfaces and overall functionality and speed boosters. Drawing on the weaknesses indicated above as well as building on the strengths identified above, it will be possible to improve the servicing of the two platforms and the satisfaction of the users hence enabling Spotify and Apple Music to achieve better market position.

Therefore, while both, Spotify and Apple Music offer very good services that will be sufficient for the majority of the users, the slightly better usability of the application might be critical in terms of users retention and satisfaction. This case also underlines the value of the user-oriented approach and data-driven improvement process, as well as illustrates potential benefits of a structured evaluation procedure on the instance of a competitive technology niche.

6.0 References:

1. [1]

A. Bangor, P. T. Kortum, and J. T. Miller, “An Empirical Evaluation of the System Usability Scale,” *International Journal of Human-Computer Interaction*, vol. 24, no. 6, pp. 574–594, Jul. 2008, doi: https://doi.org/10.1080/10447310802205776.

2. [1]

J. R. Lewis and J. Sauro, “The Factor Structure of the System Usability Scale,” *Human Centered Design*, vol. 5619, pp. 94–103, 2009, doi: https://doi.org/10.1007/978-3-642-02806-9_12.

3. [1]

Mudrikah Nasyiah, Bayu Kelana, and Anggar Riskinato, “System Usability Scale for Measuring Usability of Social Network Applications from User Perspectives,” *E3S Web of Conferences*, vol. 483, pp. 03010–03010, Jan. 2024, doi: https://doi.org/10.1051/e3sconf/202448303010.

4. [1]

J. R. Lewis, “The System Usability Scale: Past, Present, and Future,” *International Journal of Human–Computer Interaction*, vol. 34, no. 7, pp. 577–590, 2018, doi: https://doi.org/10.1080/10447318.2018.1455307.

5. [1]

J. R. Lewis, “Measuring Perceived Usability: The CSUQ, SUS, and UMUX,” *International Journal of Human–Computer Interaction*, vol. 34, no. 12, pp. 1148–1156, Jan. 2018, doi: https://doi.org/10.1080/10447318.2017.1418805.

6. [1]

J. Sauer, A. Sonderegger, and S. Schmutz, “Usability, user experience and accessibility: towards an integrative model,” *Ergonomics*, vol. 63, no. 10, pp. 1–14, Jun. 2020, doi: https://doi.org/10.1080/00140139.2020.1774080.

7. [1]

Ngoc Hong Tran, T. Duong, and Dung Hai Dinh, “Personalization of Music Streaming Services Using K-means—A Business User-Oriented Model for Spotify Soundtracks Clustering,” *Lecture notes in networks and systems*, pp. 369–378, Jan. 2023, doi: https://doi.org/10.1007/978-3-031-50151-7_35.

8. [1]

H. Datta, G. Knox, and B. J. Bronnenberg, “Changing Their Tune: How Consumers’ Adoption of Online Streaming Affects Music Consumption and Discovery,” *Marketing Science*, vol. 37, no. 1, pp. 5–21, Jan. 2018, doi: https://doi.org/10.1287/mksc.2017.1051.

9. [1]

M. M. Braga, “Spotify vs. Apple : a battle of titans,” *repositorio.ucp.pt*, Jul. 2021, Available: https://repositorio.ucp.pt/handle/10400.14/35185

10. [1]

J. H. Lee and R. Price, “User experience with commercial music services: An empirical exploration,” *Journal of the Association for Information Science and Technology*, vol. 67, no. 4, pp. 800–811, Apr. 2015, doi: https://doi.org/10.1002/asi.23433.

11. [1]

W. Garcias and L. Aparecida, “Evaluating user experience in music discovery on deezer and spotify,” Oct. 2022, doi: https://doi.org/10.1145/3554364.3560901.

12. [1]

S.-J. Chun and J.-H. Park, “Convergence Study on Usability of Music Streaming App UX Design,” *Journal of the Korea Convergence Society*, vol. 12, no. 2, pp. 135–146, 2021, doi: https://doi.org/10.15207/JKCS.2021.12.2.135.

13. [1]

J. H. Lee and R. Price, “User experience with commercial music services: An empirical exploration,” *Journal of the Association for Information Science and Technology*, vol. 67, no. 4, pp. 800–811, Apr. 2015, doi: https://doi.org/10.1002/asi.23433.