

Figure 12. Recommendation system accuracy data

When viewed from the 44 unfamiliar users, the system gets an accuracy of 80.77%. This indicates that this system helps unfamiliar users. Also, the 16 familiar users get an accuracy of 87.50%. This system does not only help unfamiliar users. However, it also helps familiar users.

3.2 User Satisfaction

The questionnaire is used to measure user satisfaction. There are ten questions given in the questionnaire. To assist analysis, each statement is grouped into six factors: 1 perceived efficiency (PE), 2) Informative (INF), 3) trust (TR), 4) easy to use (ETU), 5) ease of understanding (EOU), 6) perceived quality of recommendation (PRQ) [12]. Details of each question can be seen in Table 1.

Table 1. Statements of questionnaire

ID	Factors	Informations
P1	PE	I find product that I want
P2	INF	I can find information of product easily
P3	TR	I really want to buy the product that I choose on system later
P4	TR	If I want to buy camera someday, I will use this system again
P5	ETU	I found it hard enough to find products that I really want
P6	ETU	It is easy to use this system
P7	EOU	The given questions or options are easy to understand
P8	EOU	I really understand all the question and option that I got
P9	PRQ	I like the product that I selected
P10	PRQ	I don't prefer this kind of interaction system

Based on Figure 13, ID P3 and ID P6 get minus values, which means that most users disagree with this statement. The result gave positive value for other IDs, which means that most users agree. It shows promising results for the six factors asked: EOU, PRQ, PE, INF, TR, and ETU.

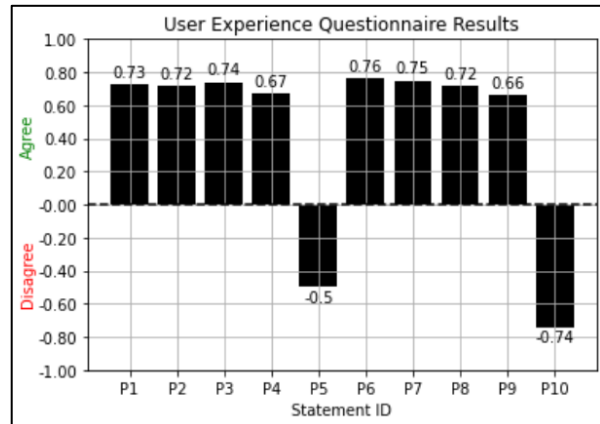


Figure 13. User satisfaction questionnaire data

4. Conclusion

Based on the results of system performance and user satisfaction that have been evaluated, the accuracy value of system performance is 82.35%, and The questionnaire results revealed positive user satisfaction based on six factors asked: EOU, PRQ, PE, INF, TR, and ETU. These results indicate that the recommender system has successfully provided accurate recommendations and appropriately interacted with users.

Reference

- [1] M. Z. Irawan and P. F. Belgiawan, "Ride-hailing app use for same-day delivery services of foods and groceries during the implementation of social activity restrictions in Indonesia," *International Journal of Transportation Science and Technology*, Mar. 2022, doi: 10.1016/J.IJTST.2022.03.004.
- [2] R. N. Chandra, F. Febriyan, and T. H. Rochadiani, "Single camera body tracking for virtual fitting room application," in *ACM International Conference Proceeding Series*, 2018. doi: 10.1145/3192975.3192991.
- [3] Z. K. A. Baizal, D. H. Widyantoro, and N. U. Maulidevi, "Query refinement in recommender system based on product functional requirements," *2016 International Conference on Advanced Computer Science and Information Systems, ICACISIS 2016*, pp. 309–314, Mar. 2017, doi: 10.1109/ICACISIS.2016.7872760.
- [4] C. Gao, W. Lei, X. He, M. de Rijke, and T. S. Chua, "Advances and challenges in conversational recommender systems: A survey," *AI Open*, vol. 2, pp. 100–126, Jan. 2021, doi: 10.1016/J.AIOOPEN.2021.06.002.
- [5] Q. Shambour, "A deep learning based algorithm for multi-criteria recommender systems," *Knowl Based Syst*, vol. 211, p. 106545, 2021, doi: https://doi.org/10.1016/j.knosys.2020.106545.
- [6] A. Laksito and M. R. Saputra, "Content Based VGG16 Image Extraction Recommendation," *Jurnal RESTI (Rekayasa Sistem dan Teknologi Informasi)*, vol. 6, no. 3, pp. 370–375, Jun. 2022, doi: 10.29207/resti.v6i3.3909.
- [7] A. Gazdar and L. Hidri, "A new similarity measure for collaborative filtering based recommender systems," *Knowl Based Syst*, vol. 188, p. 105058, Jan. 2020, doi: 10.1016/J.KNOSYS.2019.105058.
- [8] L. Quijano-Sánchez, I. Cantador, M. E. Cortés-Cediel, and O. Gil, "Recommender systems for smart cities," *Information Systems*, vol. 92, 2020. doi: 10.1016/j.is.2020.101545.
- [9] S. Natarajan, S. Vairavasundaram, S. Natarajan, and A. H. Gandomi, "Resolving data sparsity and cold start problem in collaborative filtering recommender system using Linked Open

- Data,” *Expert Syst Appl*, vol. 149, p. 113248, Jul. 2020, doi: 10.1016/J.ESWA.2020.113248.
- [10] F. U. D. Laseno and B. Hendradjaya, “Knowledge-Based Filtering Recommender System to Propose Design Elements of Serious Game,” in *Proceedings of the International Conference on Electrical Engineering and Informatics*, 2019, vol. 2019-July. doi: 10.1109/ICEEI47359.2019.8988797.
- [11] W. Lei *et al.*, “Interactive Path Reasoning on Graph for Conversational Recommendation,” in *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 2020. doi: 10.1145/3394486.3403258.
- [12] Z. K. Abdurahman Baizal, Y. R. Murti, and Adiwijaya, “Evaluating functional requirements-based compound critiquing on conversational recommender system,” in *2017 5th International Conference on Information and Communication Technology, ICoICT 2017*, 2017. doi: 10.1109/ICoICT.2017.8074656.
- [13] Z. K. A. Baizal, D. H. Widyantoro, and N. U. Maulidevi, “Computational model for generating interactions in conversational recommender system based on product functional requirements,” *Data Knowl Eng*, vol. 128, p. 101813, Jul. 2020, doi: 10.1016/J.DATAK.2020.101813.
- [14] W. Cai, Y. Jin, and L. Chen, “Critiquing for Music Exploration in Conversational Recommender Systems,” in *International Conference on Intelligent User Interfaces, Proceedings IUI*, 2021. doi: 10.1145/3397481.3450657.
- [15] J. Habib, S. Zhang, and K. Balog, “IAI MovieBot: A Conversational Movie Recommender System,” *International Conference on Information and Knowledge Management, Proceedings*, pp. 3405–3408, Oct. 2020, doi: 10.1145/3340531.3417433.
- [16] Y. Zhang, X. Chen, Q. Ai, L. Yang, and W. Bruce Croft, “Towards conversational search and recommendation: System Ask, user respond,” *International Conference on Information and Knowledge Management, Proceedings*, vol. 10, no. 18, pp. 177–186, Oct. 2018, doi: 10.1145/3269206.3271776.
- [17] A. F. Rlfai and E. B. Setiawan, “Memory-based Collaborative Filtering on Twitter Using Support Vector Machine Classification,” *Jurnal RESTI (Rekayasa Sistem dan Teknologi Informasi)*, vol. 6, no. 5, pp. 702–709, Oct. 2022, doi: 10.29207/RESTI.V6I5.4270.
- [18] F. Mentec, Z. Miklós, S. Hervieu, and T. Roger, “Conversational recommendations for job recruiters,” Sep. 2021, Accessed: Jan. 12, 2023. [Online]. Available: <https://hal.inria.fr/hal-03537355>
- [19] V. W. Anelli *et al.*, “Knowledge-aware and conversational recommender systems,” *RecSys 2018 - 12th ACM Conference on Recommender Systems*, pp. 521–522, Sep. 2018, doi: 10.1145/3240323.3240338.
- [20] K. Zhou, W. X. Zhao, S. Bian, Y. Zhou, J. R. Wen, and J. Yu, “Improving Conversational Recommender Systems via Knowledge Graph based Semantic Fusion,” *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 1006–1014, Aug. 2020, doi: 10.1145/3394486.3403143.
- [21] Z. K. A. Baizal, D. H. Widyantoro, and N. U. Maulidevi, “Design of knowledge for conversational recommender system based on product functional requirements,” in *Proceedings of 2016 International Conference on Data and Software Engineering, ICoDSE 2016*, 2017. doi: 10.1109/ICODSE.2016.7936151.
- [22] H. Xie *et al.*, “Incorporating user experience into critiquing-based recommender systems: a collaborative approach based on compound critiquing,” *International Journal of Machine Learning and Cybernetics*, vol. 9, no. 5, pp. 837–852, May 2018, doi: 10.1007/S13042-016-0611-2/METRICS.
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