iJRASET
International Journal For Research in
Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH
IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 Issue: VIII Month of publication: Aug 2023

DOI: https://doi.org/10.22214/ijraset.2023.55010

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue VIII Aug 2023- Available at www.ijraset.com

Substantiation of Sequential Trait with Independent Correlation

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Abstract: The expanding aquaculture sector can greatly benefit from having access to comprehensive fish information, which includes data on ecosystems, food requirements, and related details. Relational databases play a crucial role in storing the diverse range of fish species data in the aquaculture industry. However, due to the extensive variety of species and their associated data, organizing and categorizing this information can be a challenging task. Nonetheless, fishermen can derive significant advantages from visual representations of the data and a recommendation system that suggests the most suitable fish species and optimal ecological conditions. By leveraging data on fish species, names, taxonomy, and survival characteristics, a connected user can receive personalized recommendations based on their interests. The proposed system also offers appropriate food variety suggestions for the fish, ensuring scalability and effective generation of recommendations. Through the integration of information from multiple sources, a database system can efficiently process, manage, store, and retrieve relational data. Furthermore, implementing the linear discriminant algorithm enhances the accuracy and speed of food recommendations for fish.
Keywords: Aquaculture, Linear Discriminant Analysis, Relational databases, Recommendation system, Fish species data.

I. INTRODUCTION

Aquaculture feeds have a limited shelf life and unique handling needs. It is vital to correctly store and treat these feeds in order to reap their full economic and nutritional benefits. By regularly rotating the inventory and making a concentrated effort to maintain hygienic conditions that prevent mound growth and insect and rodent infestation, feed quality degradation during storage can be reduced. The loss of nutrients and pellet breakage soon before feeding can both be decreased with proper handling procedures. Aquaculture feeds are made up of a diverse range of ingredients that, when fed to the animal, are designed to meet its nutritional needs in order for it to perform its normal physiological functions, such as maintaining a highly effective natural immune system, growth, and reproduction. Global demand for aquatic food is expected to rise in the coming decades as these foods help to meet the needs and preferences of a growing human population. Non-nutritive feed additives are increasingly being used in aquatic feeds to ensure that dietary nutrients are ingested, digested, absorbed, and transported to the cells. So, our proposed algorithm recommends more accurately.

II. EXISTING SYSTEM

The current food-feeding recommendation system for aquatic species faces delays and latency when compared to the linear discriminant algorithm due to its Bayesian inference approach. Additionally, the manual processes involved in the interaction between food supply vendors and suppliers lead to inefficiencies and hinder transparency, traceability, and authenticity in the food distribution process. Our proposed method aims to address these issues by utilizing data from multiple sources effectively, ensuring a more streamlined and secure food supply chain. Unlike the traditional methods of manually gathering food, our approach significantly improves the accuracy of food recommendations by utilizing authentic and reliable data sources. Consequently, it increases the chances of providing appropriate and nutritious food to the fish in the right circumstances.

III.PROPOSED SYSTEM

Our proposed system, utilizing the linear discriminant algorithm, provides assistance in recommending suitable fish food choices for harvesters that align with their desired preferences and are compatible with their specific farming conditions and methods. This approach incorporates machine learning techniques, leveraging data collected from harvesters regarding their harvesting methods, types of fish, and information on food sources and suppliers. By integrating data from both the suppliers and the harvesters, we can minimize manual errors and enhance the accuracy of the recommendations. Through accurate data collection from farmers and suppliers, the algorithm can predict the most appropriate food options for the specific fish species mentioned by the farmer. This system facilitates the consistent supply of appropriate food, ensuring the healthy growth of fish in aquaculture farms.

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IV. WORKFLOW

A data flow within a Data Flow Diagram (DFD) represents the movement of information in a single direction between symbols. However, it is possible for the flow to occur in both directions between a process and a data store, indicating a read operation preceding an update. Although this read-before-update scenario is typically depicted using separate arrows, each representing a distinct type of operation.

In DFDs, a join signifies the convergence of identical data from multiple sources, such as different processes, data stores, or sinks, into a shared location. This consolidation allows for the unification of data for further processing or utilization.

It is important to note that a data flow cannot directly return back to the same process from which it originated. To ensure proper flow handling, there must be at least one additional process involved, responsible for receiving the data flow and generating other related data flows, which ultimately enables the return of the original data to the initial process.

When a data flow is directed towards a data store within a DFD, it signifies an update operation, involving actions like deletion or modification of the stored data. On the other hand, a data flow originating from a data store represents retrieval or utilization of the stored information.

Within a data flow, it is acceptable to have multiple noun phrases labels on a single arrow, as long as all the flows on that particular arrow move together as a cohesive unit or package.

Personalized food recommendation systems have gained significant attention due to their potential to enhance user experiences and improve food choices. This paper explores the application of Linear Discriminant Analysis (LDA) in the context of food suggestion and presents a case study demonstrating its effectiveness. We discuss the methodology of using LDA for feature extraction and classification in food recommendation systems. Additionally, we present the experimental setup, dataset description, and evaluation metrics used to assess the performance of the proposed approach. The results demonstrate the capability of LDA to generate personalized food suggestions based on user preferences, providing valuable insights for the development of more tailored and accurate recommendation systems.

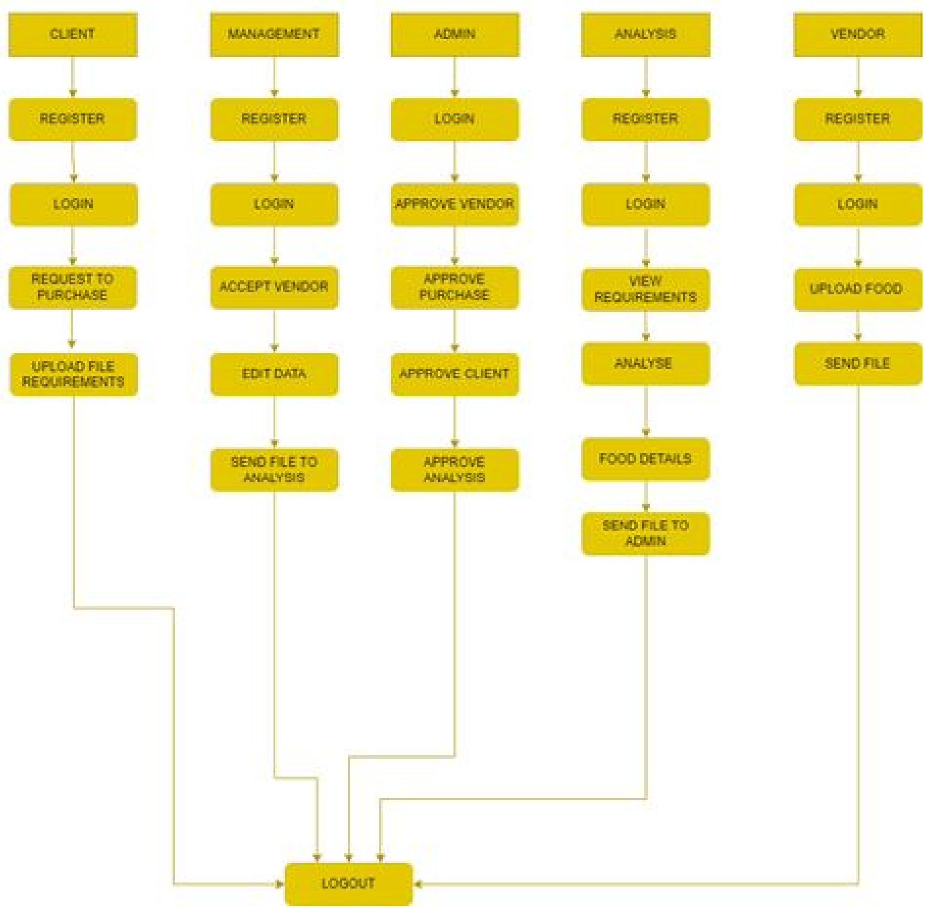


Fig 1. Data Flow Diagram

V. CONCLUSION

Machine learning encompasses the processing of vast amounts of data and the efficient transfer of data at high velocities. In cases of machine failure, a visualization console displays the corresponding failure data, alerting maintainers or trainers to initiate necessary machine repairs or replacements. This ensures timely delivery of materials to customers. An interactive visualization platform can be developed specifically for monitoring personnel, facilitating effective oversight. If a faulty machine is identified, it can be replaced using the same process. Machine learning, a subset of Artificial Intelligence (AI), enables systems to learn and improve automatically without explicit programming. It focuses on developing computer programs that access and learn from data independently, without human intervention. The primary objective is to enable computers to autonomously learn and adapt their actions based on data. The effectiveness of a machine learning model is typically evaluated through validation error analysis on new data, rather than theoretical testing to prove a null hypothesis. As it leverages an iterative learning approach, automation of the learning process becomes feasible. Linear Discriminant Analysis (LDA) Algorithm is utilized in this project to enable the computer to learn and make recommendations for suitable fish food in aquarium setups. This recommendation system aims to support users in implementing aquariums, ensuring they receive appropriate food suggestions for their specific fish species. By providing organic food recommendations, this project also contributes to the preservation and conservation of endangered species.

VI. FUTURE WORK

In the future, additional features can be incorporated to further assist trainers or maintainers, aiming to reduce their workload and effort. For instance, when a failure is detected and visualized in the console, the system can automatically identify the specific machine and its type that encountered the failure. Moreover, it can initiate an automatic process to replace or allocate an error-free machine, thereby minimizing the intervention required from the trainer or maintainer.

In the future scope, it would be beneficial to introduce additional features such as a Chatbot to support trainers or maintainers, enabling them to efficiently address queries and concerns. This interactive feature can provide real-time assistance and guidance, reducing the overall effort required. To enhance communication and provide updates even in offline scenarios, incorporating a mobile messaging system could be valuable. This would allow the system to send response messages to clients via mobile devices, ensuring they stay informed about the progress of their requests and operations.

Expanding the scope to include an Aquaculture Android application would cater to a wider user base, providing them with access to aquaculture-related services and resources conveniently through their mobile devices.

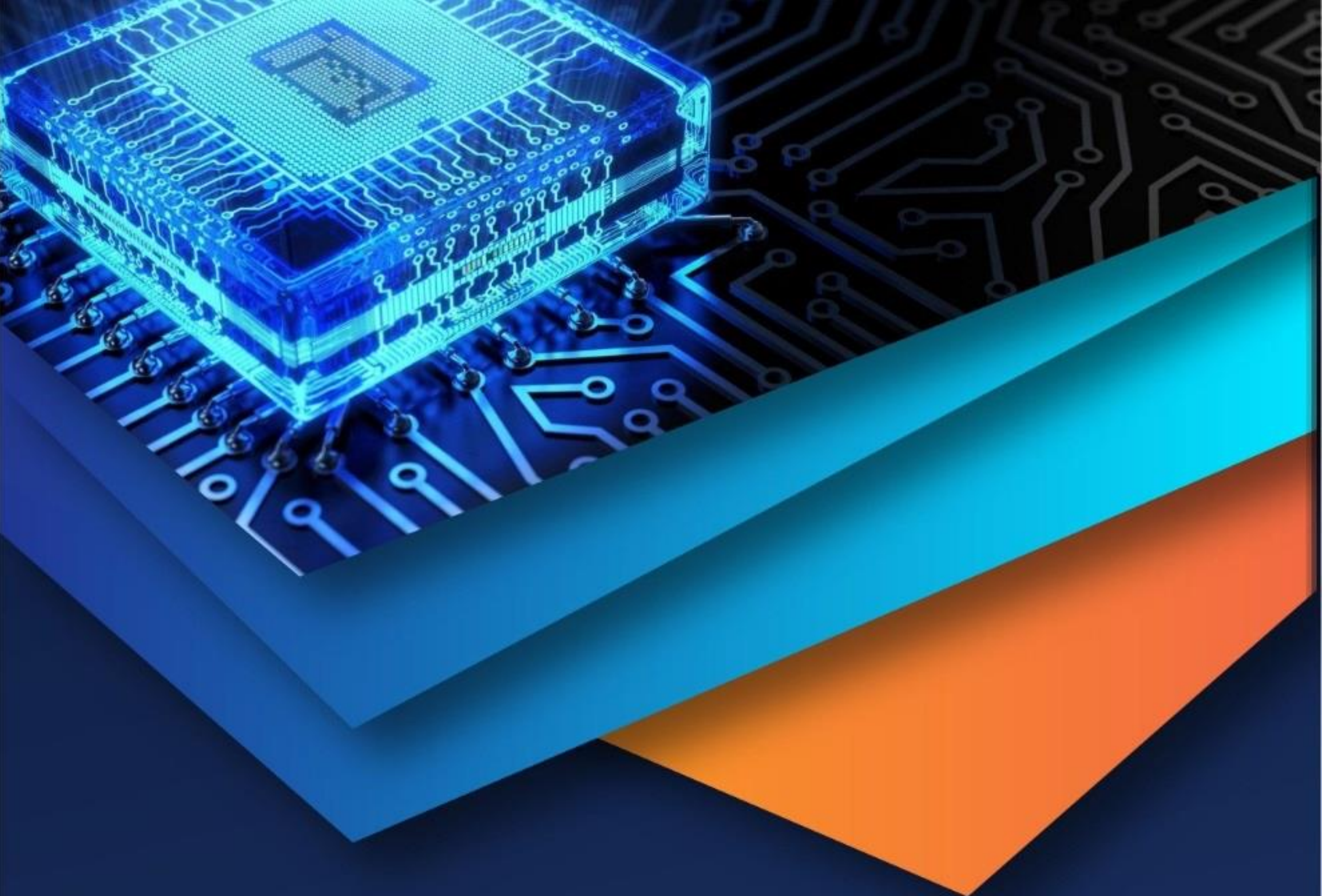
Additionally, integrating order functions within the system would enable clients to easily request and procure necessary resources from the Aquaculture organization, streamlining the ordering process and improving overall customer experience.

VII. ACKNOWLEDGMENT

I acknowledge our Head of the Department Mr Dr. J. Sreerambabu, M.E., Ph.D., PDF, FIE and our mentor Mr N. Santosh, MCA, who provided insight and expertise that greatly helped the research, for suggestions that greatly improved this manuscript. Special thanks, to our supervisor Mr M. Mohammed Riyaz, MCA, for the support in this research work.

REFERENCES

[1] W. Wu, M. J. Black, D. Mumford, Y. Gao, E. Bienenstock, and J. P. Donoghue, "Modeling and decoding motor cortical activity using a switching Kalman filter," IEEE Trans. Biomed. Eng., vol. 51, no. 6, pp. 933–942, Jun. 2004.
[2] S. Ba, X. Alameda-Pineda, A. Xompero, and R. Horaud, "An online variational Bayesian model for multi-person tracking from cluttered scenes," Comput. Vis. Image Understand., vol. 153, pp. 64–76, Dec. 2016.
[3] M. Byeon, M. Lee, K. Kim, and J. Y. Choi, "Variational inference for 3-D localization and tracking of multiple targets using multiple cameras," IEEE Trans. Neural Netw. Learn. Syst., vol. 30, no. 11, pp. 3260–3274, Nov. 2019.
[4] S. Thrun, W. Burgard, and D. Fox, Probabilistic Robotics. Cambridge, MA, USA: MIT Press, 2005.
[5] K. P. Murphy, "Dynamic Bayesian networks: Representation, inference and learning," Ph.D. dissertation, Dept. Comput. Sci., Univ. California, Berkeley, Berkeley, CA, USA, 2002.
[6] J. F. P. Kooij, F. Flohr, E. A. I. Pool, and D. M. Gavrila, "Context-based path prediction for targets with switching dynamics," Int. J. Comput. Vis., vol. 127, no. 3, pp. 239–262, Mar. 2019.
[7] Z. Ma, P. K. Rana, J. Taghia, M. Flierl, and A. Leijon, "Bayesian estimation of Dirichlet mixture model with variational inference," Pattern Recognit., vol. 47, no. 9, pp. 3143–3157, Sep. 2014
[8] J. Taghia, Z. Ma, and A. Leijon, "Bayesian estimation of the von-Mises Fisher mixture model with variational inference," IEEE Trans. Pattern Anal. Mach. Intell., vol. 36, no. 9, pp. 1701–1715, Sep. 2014.
[9] Y. Ban, X. Alameda-Pineda, L. Girin, and R. Horaud, "Variational Bayesian inference for audio-visual tracking of multiple speakers," IEEE Trans. Pattern Anal. Mach. Intell., early access, Nov. 20, 2019, doi:10.1109/TPAMI.2019.2953020.



10.22214/IJRASET

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