Mithun M S Mithun M S

Mithun M S- dealfusion_paper.docx

Quick Submit

Quick Submit

Presidency University

Document Details

Submission ID

trn:oid:::1:3405179187

Submission Date

Nov 10, 2025, 2:02 PM GMT+5:30

Download Date

Nov 10, 2025, 2:29 PM GMT+5:30

File Name

dealfusion_paper.docx

File Size

1.3 MB

6 Pages

3,431 Words

19,285 Characters

0% detected as AI

The percentage indicates the combined amount of likely AI-generated text as well as likely AI-generated text that was also likely AI-paraphrased.

Caution: Review required.

It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.

Detection Groups

0 AI-generated only 0%
Likely AI-generated text from a large-language model.

0 AI-generated text that was AI-paraphrased 0%
Likely AI-generated text that was likely revised using an AI-paraphrase tool or word spinner.

Disclaimer
Our AI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (i.e., our AI models may produce either false positive results or false negative results), so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.

Frequently Asked Questions

How should I interpret Turnitin's AI writing percentage and false positives?
The percentage shown in the AI writing report is the amount of qualifying text within the submission that Turnitin's AI writing detection model determines was either likely AI-generated text from a large-language model or likely AI-generated text that was likely revised using an AI paraphrase tool or word spinner.

False positives (incorrectly flagging human-written text as AI-generated) are a possibility in AI models.

AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (*%).

The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

What does 'qualifying text' mean?
Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.

DEALFUSION: AN OFFER AGGREGATOR

Mr Mithun M S
Assistant Professor
School of Computer Science and Engineering
Presidency University Bengaluru, India

mithun.ms@presidencyuniversity.in

Rathik
Department of Computer Science and Engineering
Presidency University
Bengaluru,India

rathikpoojary2@gmail.com

Venkat Snehan Varma
Department of Computer Science and Engineering,
Presidency University
Bengaluru, India

venkatsnehanvarma@gmail.com

Prajwal P
Department of Science and Engineering
Presidency University
Bengaluru, India

prajwalp.123p@gmail.com

Abstract*—This paper presents a unified DealFusion platform as its main principle, which integrates across the board offers and discounts from different businesses and sectors such as ones like Food, Shopping, Travel, and Banking, hence flooding the users' dashboard with all available offers. The main goal of this platform is to completely cut off the time-consuming and boring process of flipping through different apps like Amazon, Swiggy, PayTM, and Flipkart just to spot the cheapest deal. By aggregating all the discounts, the platform pools the users' decisions to be made sooner and smarter since they are always in the loop of the latest information.The deal information to the dashboard is being dynamically and constantly updated through a set of official APIs, web scraping, and data parsing methods which are used in combination. The relevant and active offers are being shown in a systematic way. Customers can look out for deals, apply filters, do comparisons, pick their favorites, and get notifications for the soon-to-expire or personalized offers. For every category that is—Food, Shopping, Travel, and Banking, there are sections that are user-friendly and conquer users' attention through animated and engaging content.The DealFusion platform is built with a modern tech stack that includes AngularJS/ReactJS for the frontend, Spring Boot/Node.js for the backend, and MySQL/MongoDB for data storage while being hosted on AWS or Google Cloud for scalability and reliability.

Keywords— Deal aggregation, Offer aggregator, Real-time offers, Web scraping, API integration, Personalized recommendations, Data parsing, Online shopping, Deal comparison, Cloud deployment

I. Introduction :

Taking food delivery, booking travel, shopping online, and using banking services as examples, digital platforms have now become the inseparable parts of the day-to-day purchasing process. Attracting users is made by means of different promotions and deals provided by each of those services. These deals, however, are spread over several apps causing users to constantly switch from one to the other just to find the best offer. As a result, not only is it more difficult to get the best deals but also the loss of savings occurs frequently due to this fragmentation of information flow.

There is a unifying solution that is increasingly viewed as the ultimate one, which would facilitate access to the discounts and promotional information. Users at a centralized deals hub can get insights, compare and use offers from a range of sectors like food delivery, e-commerce, travel, and banking all at once. The platform that collects and organizes deals into a user-friendly dashboard not only opens up the accessibility and thus more efficient decision-making but also makes the deals consistent and auditable.

The platform provides filterable dashboards, export-ready reports, and role-based access for viewers, analysts, and officers. As a result, it reduces manual efforts, streamlines monthly reviews, and creates a shared evidence base that can be used for coordinated actions.

The implementation of such a solution would not only be a convenience to the users but also the partner applications would be able to get closer to their customers and be more active if their offers were more visible.

II. Literature Review :

1] E-Commerce Deal Portals Review (2022): Points out the ways these deal website help users to get discounts from the e-commerce giants. A major shortcoming was noted in the form of coupon data, which was labeled as expired and thus suggested the

need for automated verification and expiry tracking for user acceptance.

2]Unified Coupon Aggregator Study (2023): The user is shown how by blending the different coupon sources, the convenience and engagement are skyrocketed. Still, the inability to support all sectors (food, travel, banking) indicates the need for broader domain integration and powerful data sources that can scale.

3]AI-Driven Personalization for Offers (2024): The use of machine learning is to the benefit of the users as it customizes the deals according to their preferences and buying history. Model bias and incomplete user data are the demon issues that need transparent recommendation logic and preference-based customization as their solutions.

4] Mobile Deal Aggregation Apps (2025): The mobile-only dashboards are a real-time access improvisation but very often they encounter the problem of data being different when coming from different providers. The research proposes that one way to deal with this is through the standardization of the incoming data formats and the establishment of metadata catalogs that will facilitate accuracy.

5] Consumer Behavior in Online Discounts (2021): It is claimed that the promptness of the offer visualization increases the confidence in the purchase and the speed of decision-making. On the other hand, the different design of UI on various platforms leads to confusion, thereby advocating for a unified and intuitive layout for clarity..

6] Web-Scraping Based Deal Systems (2020): Web scraping is a methodology to accumulate offers from the sources without public APIs. But legal, performance, and update-related issues are pushing the literature toward a mixed aggregation model that includes official APIs and monitored scraping as a fallback.

7] Wallets and Bank Offer Systems (2025): These systems have powerful and lucrative loyalty programs, but only for the merchants who are their partners. To increase the usage, the studies propose interoperability and cross-platform mapping of bank benefits as the solutions.

8] Timeliness of Digital Offers (2019): The study concludes that customers walk away from coupon apps mainly due to the presence of either stale or expired coupons. Regular ingesting, freshness indicators, and automated removal are suggested by the researchers as the most significant ways to solve this problem and improve the situation.

9] Security in Consumer Web Platforms (2022): When it comes to users' history and preferences management, privacy concerns are quite severe. From the literature, it is stated that data minimization, anonymization, and secure OAuth-based authentication are the main steps towards compliance and privacy protection.

10] Cross-Cutting UI/UX Factors: To be more precise, the researches pointed out that easy and smooth navigation, quick search, and filtering by categories are the factors that most significantly affect platform adoption.

III. Proposed Methodology :

The client-server architecture is a gradual implementation of the MVC concept which combines all the different data sources into one web dashboard that is fast, secure, and user-friendly. The integration is carried out through automated ETL pipelines, monitoring of logging systems for both easy access and performance tuning, and RESTful services.

Phase 1: Requirements Analysis and System Design
The main participants or stakeholders are determined, and they consist of end-users, retail merchants, system admins, and developers. They have various levels of access, visibility on the dashboard, and very explicitly defined restrictions regarding data privacy. A feature matrix is produced which contains the most vital functions such as real-time deal aggregation, search and filter, favorites, notifications, and personalized recommendations. A data schema or a blueprint for the offers in different sectors (Food, Shopping, Travel, Banking) is designed in such a way that each record will include the source, category, expiry date, and discount measures.

Phase 2: Data Collection and ETL (Extract, Transform, Load)
Data are fetched from all the sources, which include official APIs, web scraping modules, and email/SMS parsing systems. The establishment of the ETL pipelines is such that the data extracted is uniformly processed through type casting, duplication checks, and currency normalization. Offers that have reached the expiration date or become invalid are tagged according to validation rules and thus moved to a quarantine repository with reason codes for easy tracking.

Phase 3: Data Modeling and Storage
For the four entities of sectors, vendors, offers, and users, a MySQL database schema will be built and normalized. On the other hand, MongoDB will be the database that will be read the most and will also have the best performance support besides being the one where the real-time updates will occur. In SQL,

indexes and views will be made for the fast and occasionally queried data like "Top Deals by Category" or "Offers Due Soon." The database should have dummy data that will aid in verifying whether the joins, relationships, and dashboard visualizations are good for production before the actual launch.

Phase 4: Service Layer (Backend APIs)
You will choose between Spring Boot or Node.js as your framework for the development of RESTful APIs for the various deal types and roles (fetch, compare, filter and recommend) involved. The security features will incorporate, among others, request validation, JWT-based authentication, and role-based access control. API monitoring and logging of user activity will be conducted in order to build an audit trail.

Phase 5: Presentation Layer (Frontend UI)
Design a really interactive and easy-to-navigate interface either with AngularJS or ReactJS plus HTML5 & CSS3. The use of Chart.js and other similar tools will be together with the visualization that will be trends, comparisons, and deal statistics in a very attractive way. Besides, users will be provided with an option to save their preferred settings and last viewed offers in local storage which will make the user-friendliness even more and returning users will, in addition, speed up the performance. The dashboard is, moreover, providing smart filtering by the industry's verticals and personalized tips according to the user's history.

Phase 6: Security, Governance, and Quality Assurance
Confidentiality of information is ensured through the use of RBAC (Role-Based Access Control), user session protection, input cleansing, and token life span expiration. privacy laws are observed and the source of the offers stated in the UI. Deal lifetime, continuous data validation, and integrity testing are all under governance controls. The administrators, moreover, receive automated notifications concerning the data that has either become outdated or is missing.

Phase 7: Testing and deployment
Testing of functionalities will be executed to verify the correctness of the company and real-time synchronization. Usability tests are going to be done on all devices to evaluate responsiveness and accessibility. P95 latency of offer searches and category loads will be checked for performance evaluation. The application will be installed on either AWS or Google Cloud where it will be working with containerized services and process managers. In addition, it will be provided with automated backups, HTTPS encryption and constantly running monitoring dashboards

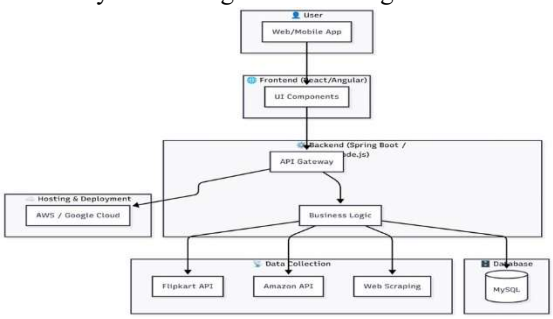

Fig-1(Architecture Diagram)

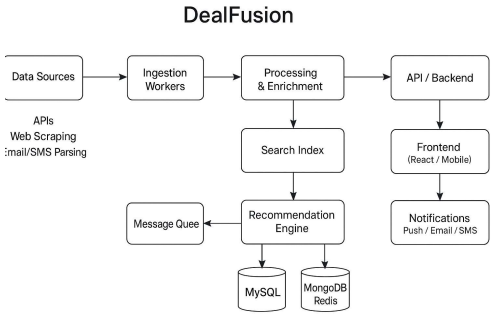

Fig-2(Dataflow Diagram)

IV.Objectives

Our main project goal is to design and carry out the full reckon of a deal aggregation platform that intrinsically fuses the functionality of the different offer-based applications and shows to the users a credible, real-time, and simple-to-use system for deal discovery in various sectors.

We outlined the specific objectives as follows:

1. To create a local deal portal that not only recognizes but also records offers, discounts, and cashback schemes from various domains such as food, shopping, travel, and banking and then presents them as a single accessible platform to everyone.

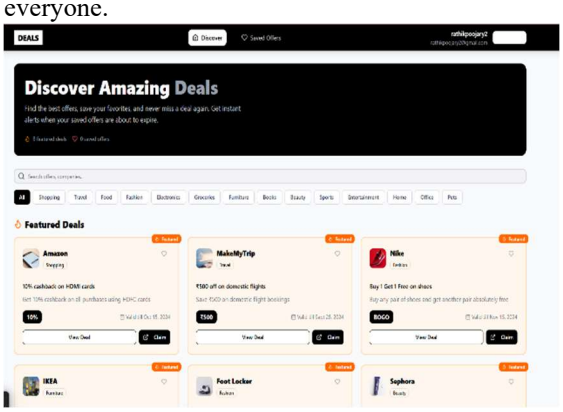

Fig-3(Dashboard)

2.To invent a clever data integration layer that is capable of real-time sources and also updates offer

details through official APIs, web scraping, and automated data parsing methods.

3. The introduction of this feature will enable the user to do real-time offer comparison in different sources and therefore, select the most beneficial one without delay..

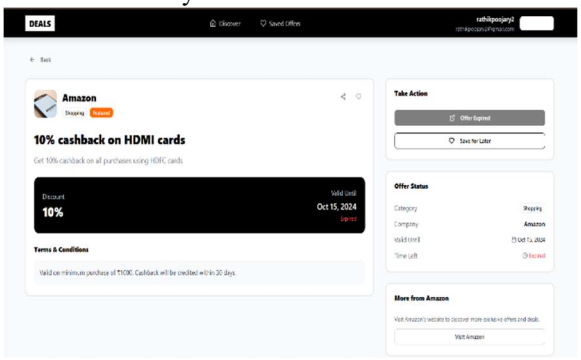

Fig-4(Details of the offers)

4.Delving into the creation of a personalized recommendation engine that would generate user-specific deals from user interests, purchase history, and browsing behavior is our next project phase.

5. Through the help of the favorites and alert module, users should be allowed not only to store the selected deals but also, receive notifications timely before the offers expire.

6. The primary intention of proposing a solution by means of food, traveling, shopping, and banking categories is to ascertain that the services are not only visually appealing but also simple and efficient enough for users to navigate.

7. The design of the backend should be such that it would not only be attractive and flexible for the future technologies but also be capable of handling high-speed performances, role-based access, and easy data synchronization across multiple devices at a security level that can be trusted.

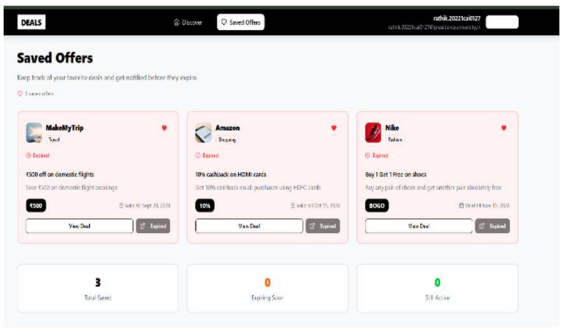

Fig-5(Saved offers)

V.Features of DealFusion

1. Centralized Deal Aggregation:
Through this platform, live deals and discounts for various industries such as food, shopping, travel, and banking are fetched from different places and are made available to users at one screen..

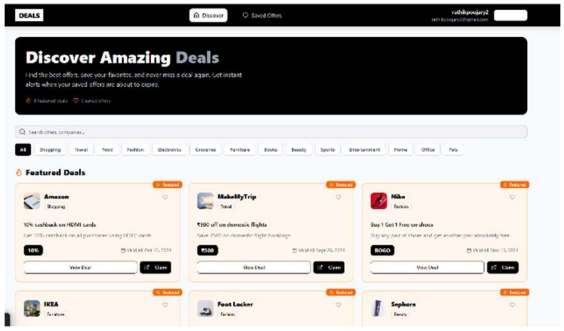

Fig-6

2. Real-Time Offer Updates:
As the application is always syncing with the APIs and data sources, it is updating local offers continuously so that users will always have access to the newest and most accurate deals.

3. Smart Categorization:
The program automatically not only provides the category names such as Food, Shopping, Travel, and Banking but also brings the corresponding promotional content there to make customer-friendly communication and easy comparison.

4. Personal Deal Recommendations:
The system is intended to show to the user the most suitable deals and discounts by taking into account user preferences, browsing history, and earlier choices.

5. Offer Comparison Engine:This utility allows customers to compare the same offer from different sources side by side and thus the users can instantly figure out which one is more advantageous.

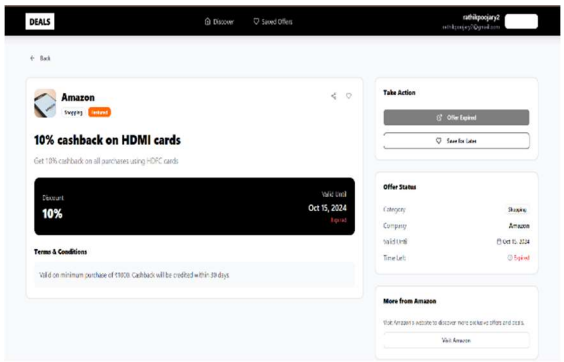

Fig-7

6. Search and Filter Options:
The platform provides consumers with advanced search tools and filters such as category, discount range, brand, and expiry date which not only fasten the work of deal hunters but also make it more accurate.

7. Favorites & Alerts System:
Through the help of the users, not only can they keep their favorite deals but also be informed through alerts about the due time of those deals or if new offers that may be of interest have been made available.

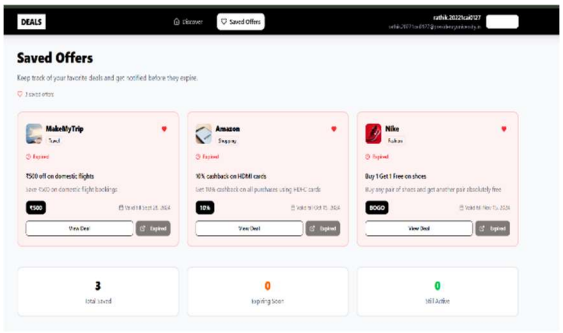

Fig-8

8. Retailer and Brand Portal:
Besides encouraging the consumption of their offers, this feature is not only a tool for businesses but a platform where they can readily and efficiently meet a large and committed audience.

9. Real-Time Notifications:
Push notifications and in-app alerts are the channels through which the information regarding flash sales, short-term discounts, and personalized deal updates is given to users.

10.User Account ManagementOffers a secure way for registration, entry, and modification of the user profile which is a place for storing preferences and also permits syncing of favorite lists across different devices

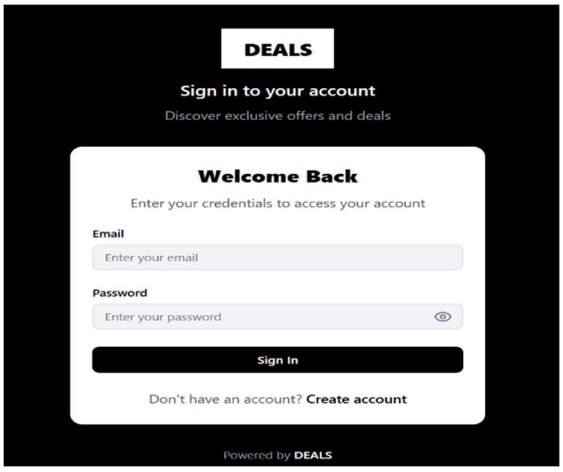

Fig-9

VI. Results

Cross-Platform Consolidation:

The DealFusion platform is a perfect example of how a company can merge the multiple sector offers of Food, Shopping, Travel, and Banking into one single interface without losing the user's sense of the unified browsing experience. The multi-sector offering is visually organized in a separate tab for each category, so by just a single click the user can change the sector while the rest of the interface remains the same. The front-end user interface essentially proves the idea of an end-to-end data flow pipeline that is from API and web scraping data extraction to the dynamic rendering of the user dashboard.

Usability and Navigation:

It is the top navigation bar that makes the movement between the categories of the dashboard sections so easy and smooth. One can always find and use filter dropdowns such as “All Sectors”, “Food Deals”, or “Banking Offers”. The top cards with the number of active deals, the most used platforms, as well as the deals near expiry, are also readily available.

KPI Visibility and Deal Metrics:

Food: This presents the total active restaurant and delivery offers along with the programs for cashback and wallet discounts across Swiggy, Zomato, and Paytm.
Shopping: This is real-time data about the number of e-commerce offers that are available from the likes of Amazon, Flipkart, and Myntra. It also includes the breakdown of the categories that the offers belong to such as fashion, electronics, home, etc.
Travel: It is a platform that informs customers of the various discounts on the prices of their flight, hotel, or holiday package bookings with the likes of MakeMyTrip and Goibibo portals, and also shows the average savings per booking.
Banking: It is like a one-stop summary that lists the different kinds of promotions, rewards, and EMI schemes attributable to HDFC, ICICI, and Google Pay. It also can be seen as a confirmation of data coming from various banks that are integrated into one platform.

Data Editing and Management:

Editing the deal data is an activity that comes with preconfigured access performed through a role-based access control system. The Admins and data operators are in a position to verify or modify a deal that is expired, while an end-user can report such a deal if it is a fake one. Secure governance as well as streamlined data validation workflows are provided through a login and registration system with role-based privileges.

VII. Future Work

The DealFusion platform has a very strong basis for central deal aggregation, yet there are many more functionalities, scalability, and future user engagement improvements.

1. The approach will be with AI thus that the personalization will be direct and more accurate for the users. Machine learning algorithms will be incorporated in future versions to easily analyze user attitude, their exploring locations, and to find out what users like. Consequently, users will be ensured that their offers are most relevant to them.

2. The integration of AI-powered chatbot that will be very active and informative will be a paramount breakthrough in completing the discussion at the DecalFusion platform.

A smart-like human kind of chatbot will be with you and make your journey easy by answering your questions and providing real-time help. The overall user experience will be more colorful through the improved interaction and accessibility.

3. The possibility of Delivering Deals from the whole World to the Customer is a great step towards a global outlook.

The system can deal to get and show offers from all around the world in e-commerce and travel websites thus making it possible for people to access international deals and price comparisons, hence the platform's reach is enlarged.

VII. Conclusion

The DealFusion project is one of the smartest solutions to a rapidly escalating issue, users having to look for the best offers and discounts in numerous platforms of different sectors, and thus getting very difficult to find in general. DealFusion is accomplishing this by creating a centralized, real-time, and user-friendly platform where deals from e-commerce, food delivery, travel, and banking applications are combined into one single view.

The system is also going to alter users' method of figuring out the deals in a permanent way through the use of technologically advanced means such as smart,personalized recommendations, real-time updates, and cross-platform comparisons. In other words, users are allowed to find, compare, and access the offers in the least time-consuming ways as they do not have to keep switching between different applications thus, both convenience and time-saving are increased significantly.
From a technical point of view, this project is a perfect example of a scenario where the different factors such as web scraping, official APIs, secure data handling, and dynamic visualization are seamlessly integrated within a scalable architecture. In addition, the system features such as role-based access control, cloud deployment, and responsive design in the system stability and safety aspects, ensure that the system will be stable, secure, and users from different devices will be able to access it.

IX. References

1.Adomavicius, G., & Tuzhilin, A. (2005). *Toward the next generation of recommender systems: A survey of the state-of-the-art and possible extensions.* IEEE Transactions on Knowledge and Data Engineering.

2. Kumar, A., & Gupta, S. (2023). *A collaborative filtering approach for personalized coupon recommendation in online retail.* Journal of Interactive Marketing**.**

3. Bobadilla, J., Ortega, F., Hernando, A., & Gutiérrez, A. (2013). *Recommender systems survey.* Knowledge-Based Systems.

4. Zhao, X., Zhang, W., & Wang, J. (2018). *Interactive collaborative filtering.* Proceedings of the 27th International Conference on World Wide Web (WWW)

5. Wu, C., Chen, T., & Zhang, H. (2021). *Deep learning for recommender systems: A survey and new perspectives.* ACM Computing Surveys

6. Raji, I. D., & Buolamwini, J. (2019). *Actionable auditing: Investigating the impact of publicly naming biased performance results of commercial AI products.* AAAI/ACM Conference on AI, Ethics, and Society, 429–435.

7. Singh, P., & Yadav, M. (2022). *Secure authentication and encryption strategies for modern web applications.* International Journal of Computer Applications, 184(12), 10–16.

8. Chen, L., & Pu, P. (2021). *User experience and interface design for recommender systems.* In *Recommender Systems Handbook* (pp. 557–603). Springer.

9. Alhasoun, F., & Alhindi, A. (2022). *AI-driven personalization in e-commerce: Improving engagement and conversion through intelligent recommendation engines.*

10. Zhang, Y., & Chen, X. (2020). *Explainable recommendation: A survey and new perspectives.* Foundations and Trends in Information Retrieval