

DEVELOPMENT OF ADVERTISEMENT RECOMMENDATION SYSTEM USING MACHINE LEARNING

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Presentation outline

- Origin of the Idea
- Problem statement
- Solutions
- Model Usage
- Architecture
- Future work
- Demo

The Team



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ORIGIN OF THE IDEA

- The rapid growth of online advertising has made accurate ad recommendation and abnormal ad monitoring crucial. Machine learning, combined with AI, can achieve this through intelligent ad recommendation systems and abnormal ad monitoring systems.
- These systems use data mining and real-time algorithms to deliver tailored ads and detect anomalies, improving the effectiveness of digital marketing strategies.

PROBLEM STATEMENT

- Rapid growth of online advertising.
- Difficulty in delivering relevant ads and monitoring anomalies.
- Traditional methods are insufficient for large data volumes and content complexity.

SOLUTIONS

Evaluated Models:

- We tested three machine learning models: Random Forest, Gradient Boosting, and Decision Tree. Initially, we implemented the Random Forest and Decision Tree models.

Initial Accuracy:

- The Random Forest and Decision Tree models achieved 88% accuracy in predicting user clicks on ads. While effective, further analysis led us to explore a more powerful alternative.

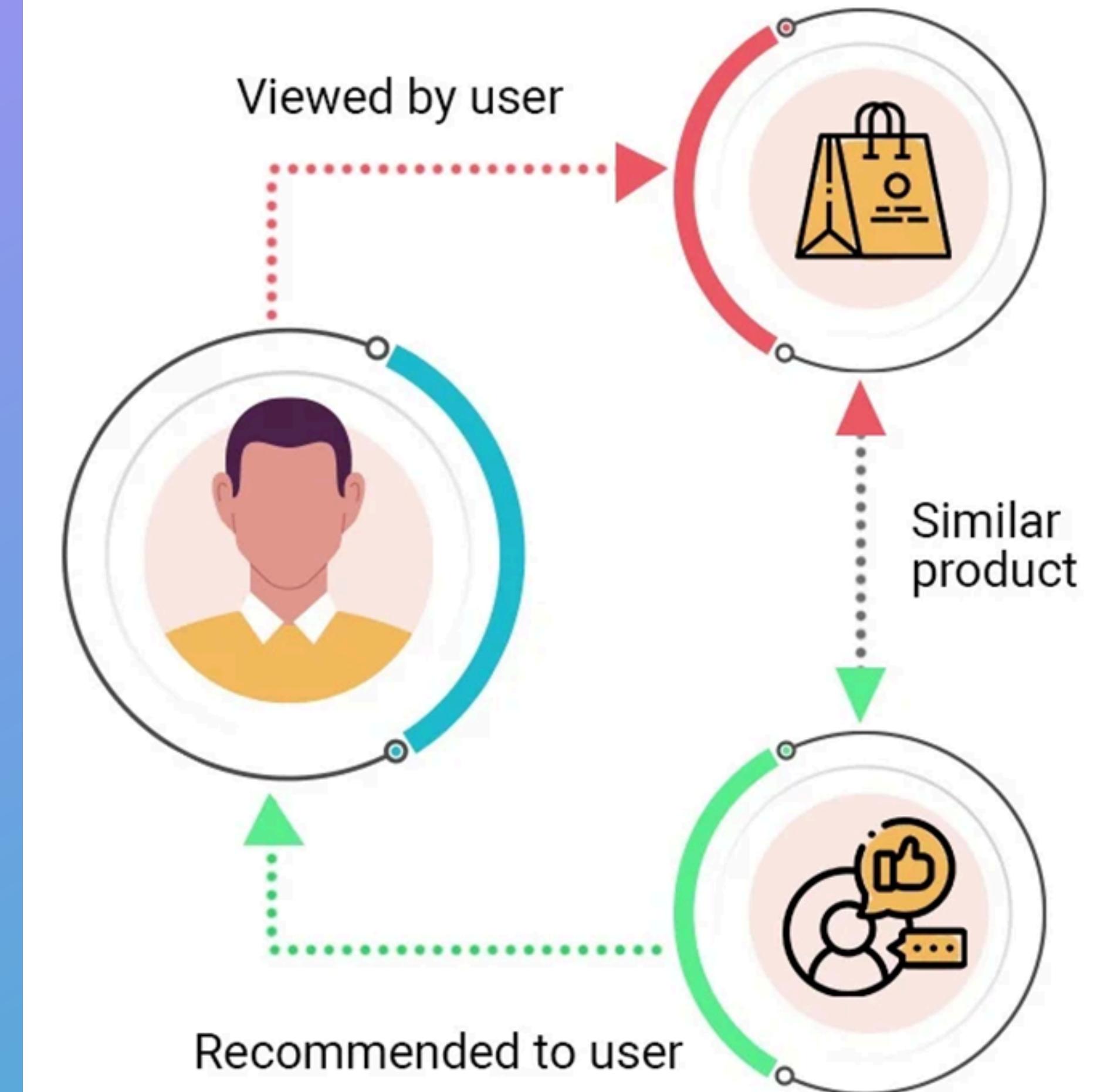
Gradient Boosting Model:

- Upon switching to Gradient Boosting, we saw a significant improvement in accuracy, reaching 93%. This model proved to be more effective for this dataset and task due to its ability to handle complex patterns.

Recommendation:

- Given its superior performance and ease of interpretation, we recommend using the Gradient Boosting model to optimize ad targeting and improve prediction accuracy.

ARCHITECTURE



HOW IT WORKS

- Data Collection (User Data + Ad Data)
- Preprocessing (Cleaning and Preparing Data)
- Model Training (Machine Learning)
- Prediction (Ad Recommendation)

Github: <https://github.com/amruth-k99/ad-recommendation>

FUTURE OF AD RECOMMENDATION SYSTEMS



REAL-TIME

Trends like real-time personalization, increased use of AI, and multi-channel recommendations.



SMARTER

Content-based filtering, similar user based ads



PRODUCTION-READY

Advanced Analytics DB integration and adjustments

THANK YOU