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Personalized Advertisement Content

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Personalized Advertisement Content

BACKGROUND

In some cases, advertisers, in response to keywords, provide the same advertisement to all users without taking into account each individual user. However, providing the same advertisement to all users does not yield optimal results for that advertisement as it is not optimized on user behavior. Thus, it can be beneficial to serve variants of existing advertisements to better match the information that the user is searching for in the advertisement text.

DESCRIPTION OF DRAWINGS

Figures 1 and 2 are diagrams of an example system for providing advertisements

DETAILED DESCRIPTION

This document discusses optimizing advertisements that are provided to users. Specifically, a system is described that optimizes advertisements for the user by modifying the underlying advertisement to highlight ad sentences based on information of the user. For example, for the query “flowers,” an ad (on a search page) might look like:

Flowers at 1-555-Flowers® - Same Day Delivery Available
[Ad] www.1555flowers.com/Flowers ▼
4.5 ★★★★★ rating for 1555flowers.com
Want Free Shipping for this Order? Join our Passport Program! Get 20% Off Today.
Ratings: Shipping 10/10 - Selection 10/10 – Quality 10/10 - Service 10/10- Website 10/10

Roses	Orchids	Lilies
from \$34.99	from \$29.99	from \$29.99
Elegant Rose Arrangements	Beautiful Orchids	Quality Lilies

However, for a user that has previously shown to engage with advertisements that include promotional messages, an advertisement with the following optimization (*e.g.*, a promotion statement in the headline instead of the description) might resonate with the user better:

Flowers at 1-555-Flowers® - Get 20% Off Today

[Ad] www.1555flowers.com/Flowers

4.5 ★★★★★ rating for 1555flowers.com

Want Free Shipping for this Order? Join our Passport Program! Same Day Delivery Available.

Ratings: Shipping 10/10 - Selection 10/10 - Quality 10/10 - Service 10/10 - Website 10/10

Roses
from \$34.99
Elegant Rose Arrangements

Orchids
from \$29.99
Beautiful Orchids

Lilies
from \$29.99
Quality Lilies

Fig. 1 illustrates an example environment 100 for providing advertisements. The environment 100 includes a client computing device 102, a server computing system 104, advertising systems 106a, 106b, 106c (collectively referred to as advertising systems 106), and a user log database 108. In some cases, the advertising systems 106 are referred to as advertisers 106. The server computing system 104 is in communication with the advertising systems 106, the client computing device 102, and the user log database 108 over one or more networks.

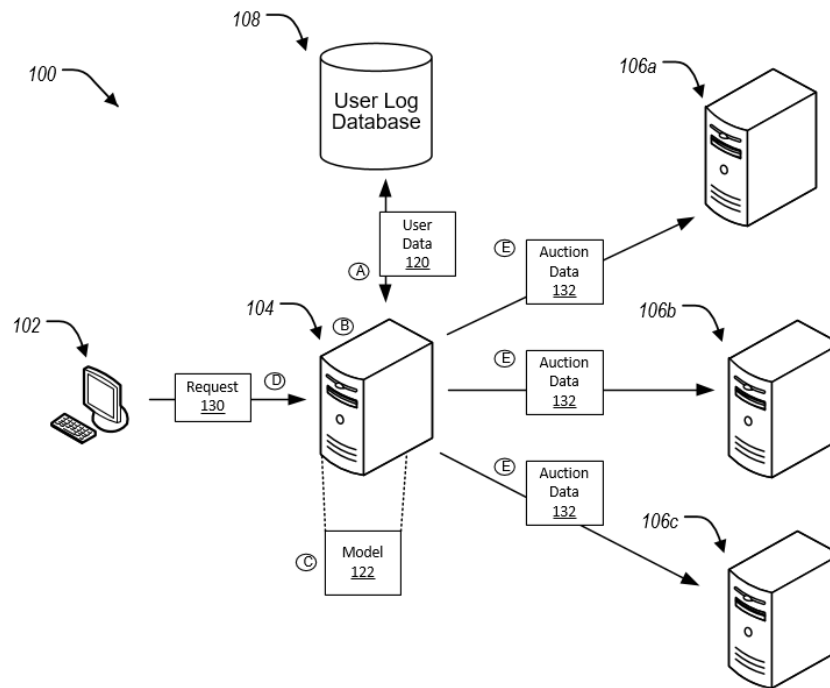


FIG. 1

The server computing system 104 accesses the user log database 108 to obtain user data 120, at step A. The user data 120 can include user data (*e.g.*, user logs) of multiple users. The server computing system 104 generates user profiles based on the user data 120, at step B. Specifically, the server computing system 104 clusters users using the user data into different profiles based on the reception (*e.g.*, perceived or actual) to different types of advertisements. For example, the clusters can include such clusters as “users with an affinity to promotions,” “users that give more importance to brand,” or “users that value product quality.” Note that a particular user can be included within multiple profiles.

The server computing system 104 generates a model 122, at step C. Specifically, the model 122 predicts a score for any given advertisement in the context of the user profiles (*e.g.*, the generated user profiles that is based on the user data 120). For example, the score for a particular advertisement would be different for a user that likes promotional content versus a user that dislikes such content. In some cases, the score can include a predicted clickthrough rate (pCTR) score. In some cases, the model 122 is a machine learning model.

The server computing system 104 receives a request 130 from the client computing device 102, at step D. The request 130 can include a request for advertising content to be displayed on an electronic document provided to the client computing device 106, *e.g.*, from a third party content provider. The server computing system 104, in response to the request 130, initiates an auction (*e.g.*, a real-time bidding) for providing advertising content to the client computing device 102. The server computing system 102 provides auction data 132 to the advertising systems 106, at step E. The advertising system 104 receive the auction data 132, and generate advertisements (and bids) based on the auction data 132.

Referring Fig 2, the advertising systems 106 provide respective advertisements 140 to the server computing system 104, at step F. The server computing system 104 selects one of the advertisements 140. Further, the advertisements 140 can include one or more portions – e.g., headlines, description. To that end, the server computing system 104 creates multiple variations of the selected advertisement 140, at step G.

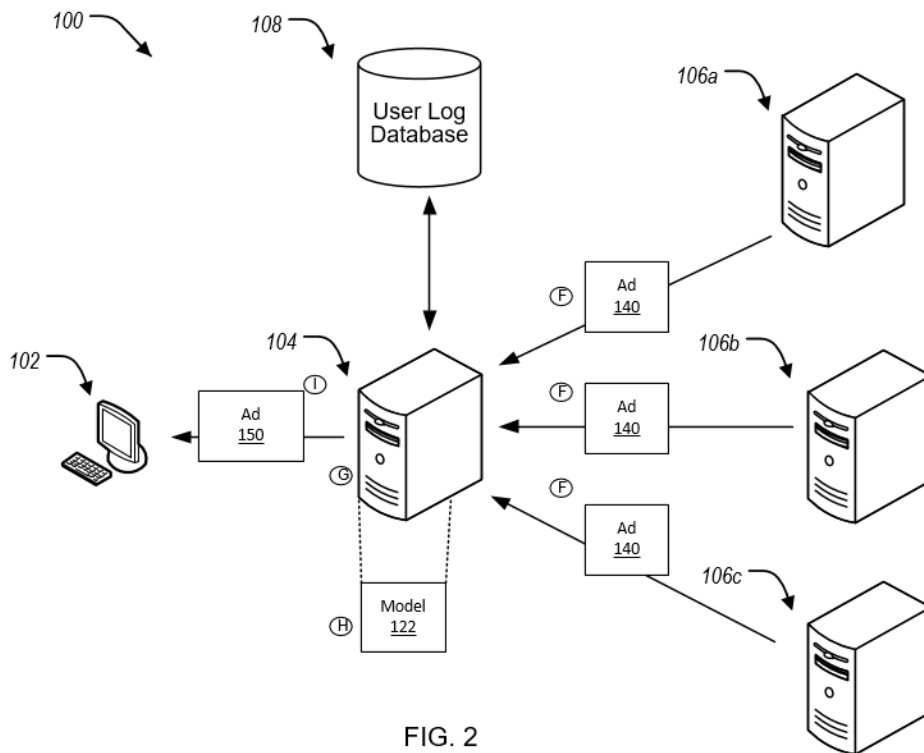


FIG. 2

For example, the server computing system 104 can re-arrange the portions of the selected advertisement 140. In some cases, the server computing system 104 creates the variations by rearranging the text in headlines and/or description(s) and/or by promoting message(s) from description to headline. The server computing system 104 obtains the created user profiles, and the model 122 scores each of the variations of the particular advertisement 140 in context of each of the user profiles, at step H. In some cases, the model 122 determines a weighted average of

the scores (*e.g.*, pCTR scores) of each user profile to obtain a single score for each variation. The server computing system 104 then selects the variation of the selected advertisement 140 with the highest score and replaces the originally selected advertisement 140 with the variation of the selected advertisement 140. In some cases, the server computing system 104 creates multiple variations of the selected advertisement 140 at the time of serving the advertisement to the client computing device 102.

The server computing system 104 provides the variation of the selected advertisement 140 to the client computing device 102, shown as advertisement 150, at step I.

ABSTRACT

This document describes a system where advertisers do not need to create multiple variations of an advertisement for targeting different sets of users. The system includes utilizing machine learning algorithms to generate a dedicated model to generalize user interests (*e.g.*, as opposed to a rule based approach). The machine learning algorithms and model can be applied to a large scale of users to provide coverage on personalized advertisements. As the advertisement is generated at query time, additional storage is not needed in the backend.