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Selecting Dining Establishments Fitting the Requirements of a Group of Users

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Selecting Dining Establishments Fitting the Requirements of a Group of Users

ABSTRACT

When dining out in a group, it is difficult to find and choose an establishment that satisfies the preferences and requirements of everyone in the group. This disclosure describes techniques that make it easier and more efficient to choose dining establishments by applying a selection algorithm to dietary preferences and requirements aggregated across individuals in a group. With permissions from individual members of the group, respective dietary preferences are obtained and aggregate criteria for the group are defined. Dining establishments that match the aggregated criteria are identified using one or more suitable approaches such as majority selection, constraint-based filtering, etc. The described techniques can be provided as a standalone application and/or be integrated within a calendar, digital map, search engine, or other application.

KEYWORDS

- Group dining
- Restaurant selection
- Dietary preference
- Dietary restriction
- Food allergies
- Dining history
- Meal partner
- Digital map

BACKGROUND

People often dine in groups at establishments outside of the home, such as restaurants, cafeterias, bars, etc. A group can be composed of family members, friends, work colleagues, etc. When dining out as a group, it is often difficult to find and choose a suitable establishment that satisfies the various dietary preferences and restrictions, food allergies, financial constraints, moods, etc. of everyone in the group. As a result, the selection process is suboptimal and inefficient as it typically involves searches using apps, maps, or search engines and polling the group members with potential options until a consensus is reached.

DESCRIPTION

This disclosure describes techniques that make it easier and more efficient for a group of users to choose a dining establishment that satisfies the dietary preferences and constraints of individuals in the group. Dining establishments that satisfy the preferences and constraints of users within the group can be selected based on looking up preferences and constraints in relevant databases about individual users (accessed with specific permission from the respective individuals) and applying a selection algorithm to choose an establishment that matches the aggregated preference information across the group. In case the algorithm yields multiple suitable establishments, group participants can select one with any suitable mechanism, such as voting.

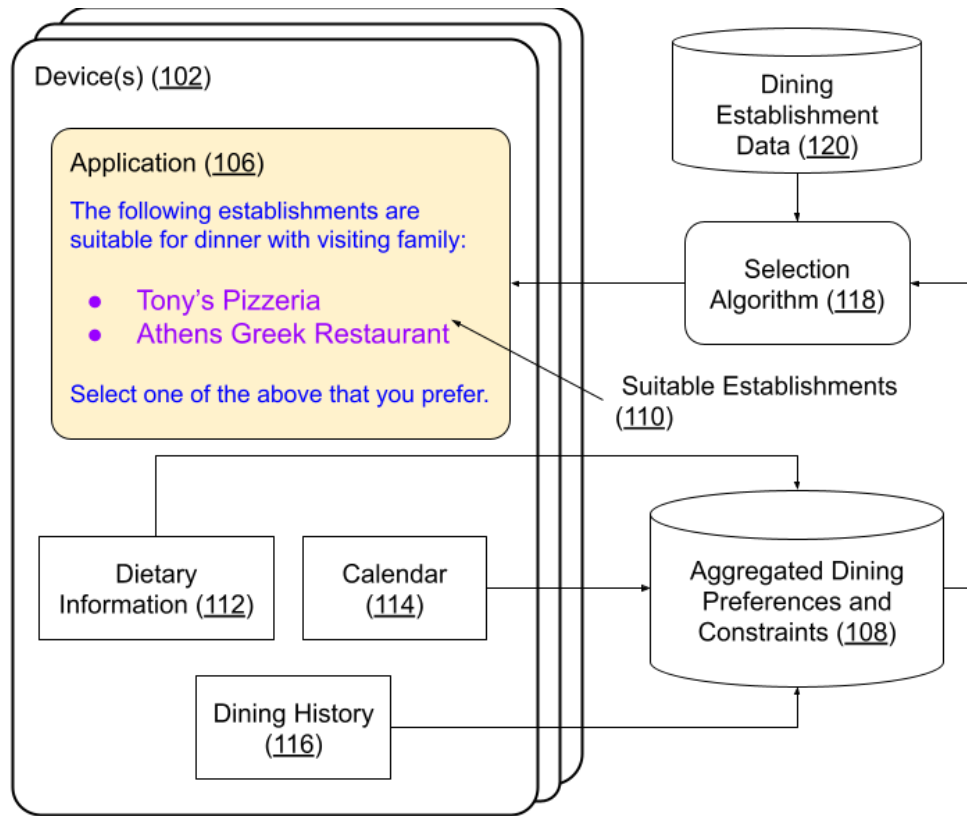


Fig. 1: Recommending dining establishments suitable for a group of users

Fig. 1 shows an example operational implementation of the techniques described in this disclosure. With user permission, relevant dietary preferences and constraints (112), calendar information (114), and prior dining history (116) of individuals within a given group of users is obtained, e.g., from user device(s) (102) and aggregated (108) using appropriate mechanisms. A selection algorithm (118) is utilized to find dining establishments (120) that match the aggregated criteria. Suitable establishments (110) are shown within an application (106) that is used to select the dining establishment for the group. In case multiple establishments satisfy the dining criteria, users are provided an option to indicate the one they prefer the most. Alternatively, or in addition, users can be provided with other suitable selection mechanisms, such as rating, ranking, voting (e.g., ranked choice voting), delegating, vetoing, etc.

Dietary information for an individual can include any suitable user-permitted data such as dietary preferences, dietary restrictions, food allergies and corresponding severity, cuisine suitable for current mood, etc. Users can enter, view, and update the dietary information via a front-end user interface (UI). Alternatively, or in addition, one or more pieces of dietary information can be automatically inferred with user permission via suitable machine learning models applied to relevant data sources. If the user permits, calendar information can be used to determine relevant factors such as availability, travel times to/from various establishments, etc. If users permit, a history of meal partners and dining establishment choices can be maintained based on explicit user input as well as other relevant information sources (e.g., calendar, location, etc.)

With user permission, dining establishments that match the aggregated dining criteria can be identified based on one or more approaches, such as:

- Determining the majority option (e.g., 5 out of 8 users within the group would prefer to eat Indian vegetarian food at this time);
- Filtering based on restrictions (e.g., one user is severely allergic to dairy);
- Taking into account historical information (e.g., the group's last meal was at an Italian restaurant); etc.

The above approaches can be simplified and made more efficient via suitable machine learning techniques, such as k-means clustering to group individual preferences and data on the dining establishments.

The described techniques can be implemented in a standalone application and/or can be integrated within any relevant applications, such as maps, apps that list dining establishments, online search engines, calendars, virtual assistant applications, etc. For example, matching

establishments can be highlighted within a digital map, can be suggested when making a calendar entry for a group dining event, can be shown as a sidebar when searching the web for a suitable establishment, etc. Such integration of the techniques can be achieved via a suitable mechanism such as an Application Programming Interface (API) provided by the relevant application. Further, the integration can be used to provide additional services such as adding an entry for the event in the calendar, making a reservation at the establishment via a virtual assistant, being reminded of the event via a notification or text message, getting directions to the selected establishment within a map application, etc.

The techniques described in this disclosure can be employed to ease selection of a suitable dining establishment from a diversity of options such as restaurants, cafeterias, bars, etc. that provide different types of cuisine and ambience. Implementation of the techniques can make it easier and faster for a group to choose dining establishments. Integration of the techniques within various applications can enhance the user experience (UX) and utility of these applications.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein may enable collection of user information (e.g., information about a user's dietary preferences, social network, social actions or activities, profession, a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so

that a particular location of a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

When dining out in a group, it is difficult to find and choose an establishment that satisfies the preferences and requirements of everyone in the group. This disclosure describes techniques that make it easier and more efficient to choose dining establishments by applying a selection algorithm to dietary preferences and requirements aggregated across individuals in a group. With permissions from individual members of the group, respective dietary preferences are obtained and aggregate criteria for the group are defined. Dining establishments that match the aggregated criteria are identified using one or more suitable approaches such as majority selection, constraint-based filtering, etc. The described techniques can be provided as a standalone application and/or be integrated within a calendar, digital map, search engine, or other application.