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Task completion by seeking input from multiple parties

ABSTRACT

People frequently perform online tasks that require input from others, typically requiring multiple context switches to consult with multiple parties until a consensus is reached. The process can be time consuming, requiring the user to pause until others provide input. A user must also remember to return to the task and complete it after the input sought from others is received. This disclosure describes a technique to obtain input from others regarding an online task. At the point when completing the task requires input from another party, the techniques solicit such input, with user permission. Conversational responses received from other parties are analyzed and used to complete the paused task automatically.

KEYWORDS

- Online tasks
- Ticket booking
- Online shopping
- Online reservations
- Conversational input
- Collaborative shopping
- Third party confirmation

BACKGROUND

People frequently perform online tasks that require input from others. For instance, an individual may need to check other people's preferences and availability when making arrangements for joint activities, such as watching a movie, going to a concert, dining at a restaurant, etc. Such a process typically requires multiple context switches whereby a person first

consults relevant information online to determine suitable options and then consults with the other parties until a consensus option is found. For example, Alice may consult the website of a movie theater to determine showtimes and send the information to friends with whom she wants to go to the movies. Alice can purchase tickets only after everyone provides their availability and preferences such that a suitable showtime for the ticket purchase can be determined. Such a process with multiple context switches can be time consuming and requires the user to pause the task until others provide the needed input. Users must further remember to return to the task and complete it after input is received from others.

DESCRIPTION

This disclosure describes techniques to obtain input from others regarding an online task, e.g., completed via a web browser or other application. A user that intends to complete an online task via a website interacts with the site as usual. At the point in the interaction when completing the task is dependent on confirmation from another party, such as a colleague, friend, spouse, etc., the user selects a special option made available within the browser (or other application) to solicit such input.

To solicit such input via the browser (with permission from the user and the other parties), the user provides the query (e.g., “interested in going for concert at abc music hall tomorrow?”) and contact information of the parties from whom input is sought. The query is relayed to other parties via one or more of several communication channels, such as chat, text message, etc. With the user’s permission, relevant contextual information about the user’s task, such as a screenshot of the website, showtime and price information, etc. is included along with the query.

When the other parties respond to the query, e.g., via a reply message, the conversational responses are analyzed. Such analysis is performed, e.g., using regular expressions, using trained machine learning models, such as deep neural networks, etc. or a combination of such techniques. For example, regular expressions can be sufficient to parse simple responses, such as “yes,” “no,” “ok,” etc., while the machine learning model can decipher more complex answers, such as “looks great!,” “7 or 7:30 pm works best for me,” etc. When analysis of the responses received from the other parties indicate affirmation or the user’s intended action in relation to the task at hand (e.g., confirmation from the other parties that they can join for the concert) and provide the information necessary to complete the task, appropriate actions are performed automatically (e.g., by the browser or other application), if the user permits, or alternatively, a user notification is provided. The task is completed with minimal to no user burden of further interaction with the browser or other application to finish the paused task. Once the task is completed, a confirmation is provided to the user.

If a response from the other party does not endorse the user’s intended action or if the response cannot be understood by the analysis (e.g., responses such as “I can’t make it then,” or “I’m busy and not sure whether I can make it; did John confirm yet?”), the user is prompted to provide the appropriate next action. The user can choose to proceed in one or more of a number of ways, including for example, (a) completing the task based on the user providing interpretation of the response from the other party (e.g., “complete the booking” or “cancel the booking”), changing one or more parameters of the task (e.g., “book the 9 pm show, not the 7 pm”), or abandoning the task altogether.

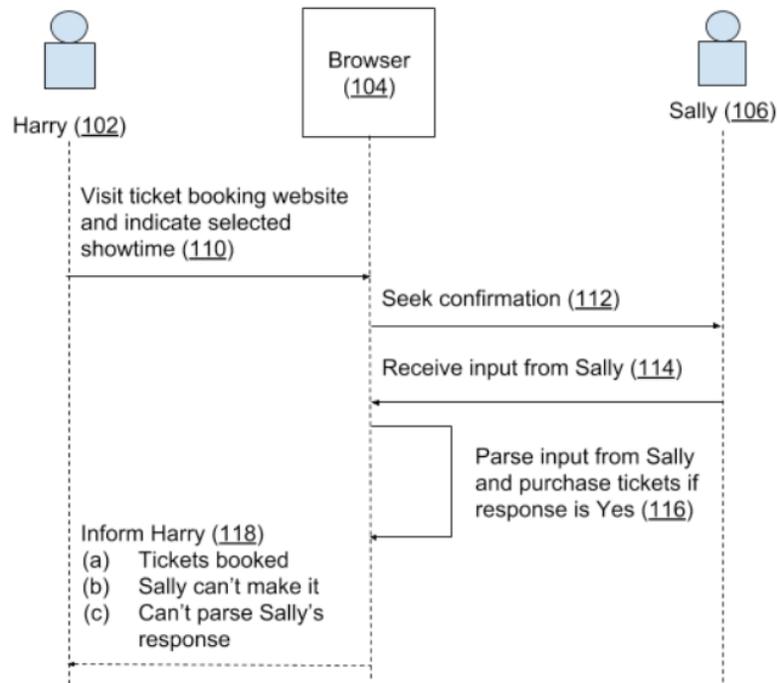


Fig. 1: Seeking a friend’s confirmation prior to purchasing tickets online

Fig. 1 shows a user Harry (102) interacting with a ticket booking website via a web browser (104). As illustrated in Fig. 1, Harry visits the ticket booking website and indicates selected showtimes (110) and indicates that he would like to go for the movie with another user Sally (106). At this point, the task is paused (e.g., prior to confirming seats and making payment for the tickets). The web browser (or other application) that implements the techniques described herein sends a message to Sally seeking confirmation (112), e.g., via text message, a chat application, etc. The message can include user-permitted information, e.g., title of the event, location of the theater, showtime, and if provided by the user, a personal message.

A response is received (114) by the browser from Sally. The response is analyzed (116) to determine whether Sally agreed to the proposed showtime, declined the invitation, or whether the response could not be understood. If the response indicates that Sally agreed to the showtime, the browser automatically completes the purchase of the tickets and send a confirmation (118a)

to the user Harry. If Sally declines the invitation, suggests alternatives (118b), or if the response could not be understood (118c), a message or prompt is provided to Harry via the browser, seeking input regarding the next course of action with respect to the paused task.

The techniques described above can be applied when input from other parties is desirable or essential in a variety of online tasks, including for example, buying clothes from an online store, making dinner reservation on a restaurant's site, purchasing movie tickets from a theater site, etc. For example, using the mechanisms of this disclosure, a user can request the browser to seek input from his spouse whether he should purchase the tie he has selected online and complete the task on his behalf, if the spouse approves of the selection. A host can obtain availability for dinner at a particular restaurant from multiple guests, and based on the information received (e.g., "7pm on Monday works"). If the host permits, a reservation for that time is made on their behalf at a chosen restaurant.

With permission from the user and the other parties, delivery of the query and receiving the responses can take place via any permitted channel. For instance, if the user and the parties permit, a bot can be deployed to contact the other parties. The channels used for delivering the query can be different from the channel via which the response is received. With permission from the user and the other parties, the delivery functionality can use information in their respective accounts with the relevant sites or service providers to determine the most appropriate channels for query delivery and response receptions. While the foregoing description refers to a web browser, the described techniques can be implemented in any suitable application, e.g., a virtual assistant, a shopping application, a payment application, etc. on a computer or mobile computing device.

In situations in which certain implementations discussed herein may collect or use personal information about users (e.g., user data, information about a user's social network, user's location and time at the location, user's biometric information, user's activities and demographic information), users are provided with one or more opportunities to control whether information is collected, whether the personal information is stored, whether the personal information is used, and how the information is collected about the user, stored and used. That is, the systems and methods discussed herein collect, store and/or use user personal information specifically upon receiving explicit authorization from the relevant users to do so. For example, a user is provided with control over whether programs or features collect user information about that particular user or other users relevant to the program or feature. Each user for which personal information is to be collected is presented with one or more options to allow control over the information collection relevant to that user, to provide permission or authorization as to whether the information is collected and as to which portions of the information are to be collected.

For example, users can be provided with one or more such control options over a communication network. 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. As one example, a user's identity may be treated so that no personally identifiable information can be determined. As another example, a user's geographic location may be generalized to a larger region so that the user's particular location cannot be determined.

CONCLUSION

This disclosure describes techniques to obtain input from others regarding an online task. At the point when completing the task requires input from another party, the techniques solicit

such input, with user permission. Conversational responses received from other parties are analyzed and used to complete the paused task automatically. The techniques described above can be applied when input from other parties is essential in a variety of online tasks such as shopping, making reservations, etc.

REFERENCES

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