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CLOUD DOCUMENT SNOOZE TO FUTURE DATE

Documents authored and stored in the cloud generally have a tendency to become outdated and “stale” over a period of time. Because the documents are not viewed as physical objects and rather digital items, they may be easily forgotten and become outdated. Thus, cloud documents do not get the necessary attention to ensure that the document remains relevant and salient. Documents in the cloud grow old and irrelevant but may continue to show in indexes and searches. The result is that the overall corpus of a user’s document cloud decreases in overall value as documents grow older. Many documents may be outdated and contain misinformation that could undermine the user’s ability to efficiently search and use cloud documents. These documents may need to be deleted or updated occasionally to provide correct information and to remove incorrect information from the corpus of documents.

For example, a user may create and maintain a document with personal accomplishments for performance reviews, or some other similar document that needs regular attention. The user may rarely access the document but it may be relevant once every month, or once every quarter, for intermittent performance review. Therefore, the document should be kept up to date but it may be difficult to keep the document up to date without a reminder to review the document. In another example, in a collaboration between people, there may be communications about a document or updates to a document that receive no response, or perhaps a response is made but the notification of the response is missed. Therefore, the communication or update of the document may go unnoticed, impeding progress of the collaboration.

Currently, there are few ways to ensure that a document gets the attention that it requires. One example is sending oneself an email with the document attached. Another example may be to add metadata to the title or document body indicating the age of the document or to embed a

link to the document in another document. However, there is currently no solution within a cloud architecture to actively ensure that a user of the document will be reminded to act on a document at the proper time.

Disclosed herein are methods to address the above issues by snoozing cloud documents to a future date at which time a notification to take action on the document can be provided to the user. When editing a document, or when viewing a link to the document, a user may be presented with an option to set a date at which to be reminded about the document. When the date comes that the reminder was set for, a reminder occurs and the user is presented with several possible actions. The actions may be quick actions to be taken on the document such as deprecate, delete, archive, etc. In addition, the user may be prompted to open the document such as to make required updates to the document to ensure that it remains relevant and up to date.

In one embodiment, the reminder can take the form of a snooze-document reminder such as a one-time reminder, or notification that “wakes up” the document at a selected time. For example, a user creates a document that will be outdated within a few months. The user could set a date when a reminder will indicate to the user that the document should be deleted, updated, or archived so that it is not included in the document corpus as outdated misinformation. In another embodiment, the reminder can be a recurring reminder or notification that provides an intermittent notification to the user to update the information contained in the document. For example, the platform may provide “nudges” to the user. The platform may provide a reminder of a previous action that was taken in a document and then ask whether you want to take a similar, or related, action on the document at a later time. The reminders may apply to a document as a whole, or to one or more components within the document, such as a comment or header, to provide enhanced workflow of documents that require regular maintenance.

Notifications or reminders may be displayed in a user interface associated with the platform, such as within a cloud drive. In addition, notifications may be provided to a user through applications that are synced, or integrated with the platform such as through email, or desktop drives. In one embodiment, all snoozed documents may be included in a folder of the platform or an associated application such as an email application. When the time comes that a document is to be “woken up,” a notification may be provided to the user and a visual indication that the document requires attention may be applied to a representation of the document (e.g., an exclamation point displayed with a file, or document link, etc.).

In one example, the user may tag a document and it will generate an email that is then sent to the user’s inbox. In some embodiments, if the user is using an associated internet browser then the notification may pop-up in the browser (e.g., in the upper right hand corner of the screen). Additional applications that are associated with the platform may also be used to provide notifications. For example, instant messaging applications, text messaging applications, or any other application with an interface that could provide a notification to the user. Each application associated with the cloud platform may display a different view of the document. Thus, each application may include a different form of notification, or indicator, that a document needs attention, according to the reminder. The cloud platform may include a rail, task bar, or column that displays a visual indication that the document that was snoozed has “woken up.”

In some embodiments, a reminder may be set for a sub-component of a document. For example, a reminder may be set for a comment, a header, a chart or image, or any other component of a document. A reminder may be set for any primitive components of a document. Furthermore, when a reminder or notification is provided to a user for a document to be “woken up” the reminder may include one or more options to act on the document. Options may include

opening the document for editing, ignoring the reminder completely, or re-snoozing the document to a later date.

Furthermore, document snooze may be implemented using a machine learning model. The machine learning model may be trained with data associated with cloud documents, such as document type and document content, and previous actions taken on those documents over a period of time. For example, a clustering algorithm may be used to identify and group document types, document content, or document uses. In another example, a neural network may be used to identify multiple properties of documents and determine which documents tend to be snoozed and for how long. The resulting machine learning model may thus identify document types, content, uses, or other attributes to make a recommendation to a user to snooze the document for a certain period of time. For example, a first type of document may consistently require a reminder for the user to update the document. When the user creates or edits a document that is the first type of document, the machine learning model may identify the first type of document and recommend that the user snooze the document for a length of time similar to other documents of the first type. In another example, a second type of document may always be deleted by the user after a certain period of time. The machine learning model may then either recommend the user delete the document after the period of time has elapsed, or automatically delete the document and notify the user.

Figure 1 is a flow diagram illustrating a method of snoozing a cloud document to a future date to provide a reminder to a user to review the cloud document at the later date. At block 102, a user is provided an option to receive a reminder regarding a document at a later date. The option may be provided within the document or outside the document, such as upon

closing the document. The option may also be provided in a user interface such as when viewing a folder of documents that includes the document to be snoozed.

At block 104, a selection from the user to receive the reminder regarding the document at a specified time is received at the cloud platform. The specified time may be a future date and time at which the user is to be reminded to view, update, or delete the document. Similarly, the specified time may be a time that is to elapse before the reminder is sent to the user. The user may manually select the specified time or it may be recommended or automatically selected by the cloud platform.

At block 106, the reminder is provided to the user at the specified time. The reminder may be sent to the user via email, through the user interface of the cloud platform, or any other application that is integrated or connected to the cloud platform. The reminder may include any number of options for the user to take. For example, the reminder may include the options to delete, review, open, snooze to a later date, or archive the document. In addition, the reminder may include a recommended action for the user to take based on previous actions of the user, or other users, on similar documents.

The method of snoozing a document to a later date described herein allows for better document retention policies and increased value of cloud document corpus through better document management. Additionally, less misinformation may be included in the document corpus. Documents may be updated more regularly to ensure accurate and updated information of the document corpus. Reminders for components of a document provides enhanced workflow of documents that require regular maintenance. Finally, the method allows a user to focus on currently necessary tasks while ensuring that they are reminded of other important tasks that need to be addressed at a later time.

Further to the description 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 activities, information about content of documents, 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. 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.

ABSTRACT

A method for snoozing a cloud document to a later date and providing reminders to a user to take action on the document. The method allows a user to select an option to receive a reminder or notification to take action on a document at a later time. In addition, the user may select an option to be repeatedly reminded at intermittent intervals to take action on the document. The notifications may be provided with options for actions that the user can take, such as opening the document or deleting the document. The method may use a machine learning model to recommend options to snooze document or to set snooze reminders automatically.

Keywords: document reminder, document management, cloud document, snooze, document updates, workflow

