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Slicing Notes Based on Context Data and Meeting Activity

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Slicing Notes Based on Context Data and Meeting Activity

ABSTRACT

Notes taken by users are often unstructured, e.g., users may mix notes from different meetings into one document or divide notes from one meeting-series across different documents. This increases the difficulty in the retrieval and clustering of notes relevant to a particular topic. Currently, in a tedious process, users that want to organize their jottings from several meetings manually select and collate relevant sections into a single document. This disclosure describes techniques to automatically cluster and assemble relevant meeting notes that are present across one or more documents to generate a single, theme-based view, based, e.g., on topic, co-attendees, location, meeting-series, etc. or combinations thereof.

KEYWORDS

- Note taking
- Meeting notes
- Meeting activity
- Contextual slicing

BACKGROUND

Notes taken by users are often unstructured. A one-on-one meeting that a user has with a colleague can result in a single, long document comprising jottings taken during the meeting. A second meeting, this time with a different colleague, can result in the same document being appended with jottings pertaining to the second meeting. The very unstructuredness of note-taking appeals to users; it is quick and easy to add new content by just appending to one document rather than manually creating and tracking multiple documents. However, unstructured note-taking in a single document makes it hard to find and assemble relevant slices of notes and

information, e.g., the notes of all one-to-one meetings with one particular colleague in the single one-to-one notes document.

Similarly, users can have multiple different note-documents for multiple projects or interactions, each project having different aspects discussed in different meetings. Users may not always be able to neatly separate notes by projects, e.g., it is possible that notes for one project get jotted down in the document for another. Again, this makes it hard to find and assemble notes by topic.

DESCRIPTION

Per the techniques of this disclosure, with user permission, context is automatically added to a note at the time the note is being written. This added context is used at the time of note retrieval to assemble related parts (slices) of notes. The adding of context and the retrieval of note-slices based on context is described in greater detail below.

Adding context during note-taking

Notes can be taken in different modes, e.g., typing, transcribing of recorded audio, handwritten on a stylus-enabled, touchscreen device, etc. Each mode has a basic unit of input. For typing, the basic input unit can be a single character or a single word; for handwriting, it can be a single stroke; for audio, it can be one second of spoken audio.

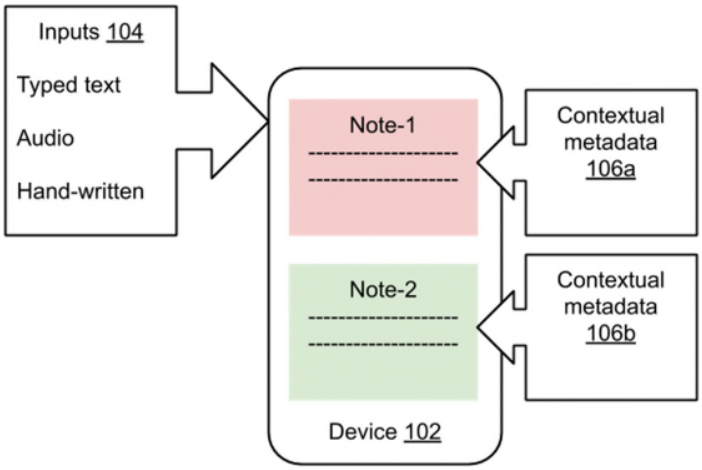

Fig. 1: Adding context during note-taking

As illustrated in Fig. 1, during the jotting of notes on a device (102), when an input unit (104) is added to a document, e.g., when a key is touched or pressed during typing, contextual metadata associated with that action is stored (106a-b), with user permission. Examples of contextual metadata can include time of action; location or inferred location of the user at the time of action; other users present, inferred, e.g., via proximity or other sensor data of the other users' devices; calendar data; audio sensor data, e.g., speaker identification and diarization; the name or identity of the meeting based on calendar data; other activity on the device, e.g., a note captured from an simultaneously ongoing messaging session; etc.

If there is redundancy in contextual data taken on a per-basic-unit basis, longer sections of input units are combined to share contextual data. For example, location data can be logged when a change in location is detected, and, so long as the location is unchanged, it can be kept constant for the corresponding sequence of basic units.

Context-based slicing of a note or set of notes

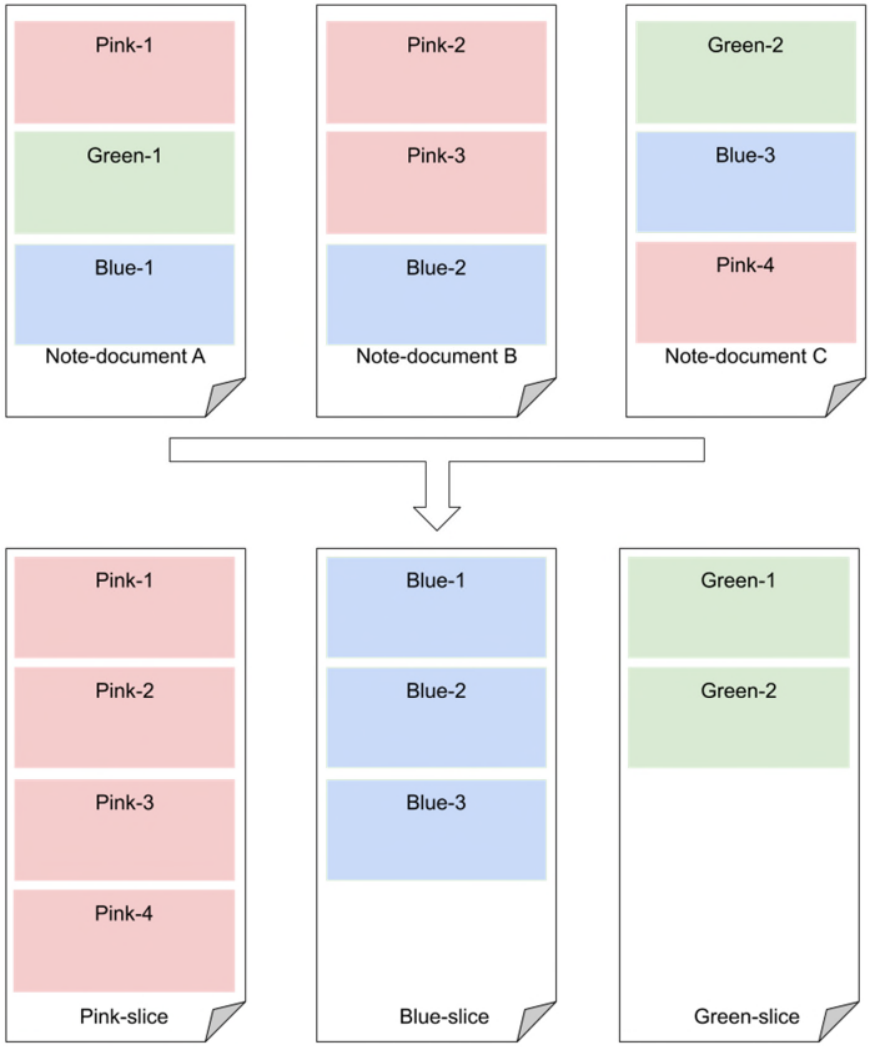

Fig. 2: Context-based slicing of a set of notes

At the time of note-retrieval, contextual data associated with each input unit are dynamically clustered in order to sub-select slices of thematic interest. This is illustrated in Fig. 2, where a user has written several notes across multiple note-documents A, B, and C. The context of a note within a document is identified by a color. Per the techniques, slices of notes of a given context, e.g., pink-slice, blue-slice, green-slice, are automatically assembled together for ease of information access.

Example 1: Extracting notes based on meeting-series

Notes taken during each instance of a weekly-recurring meeting can be assembled together. The availability of context data enables such a slice to be taken even if the meeting does not always take place in exactly the same timeslot.

Example 2: Extracting notes based on co-attendees

Based on contextual data, notes of meetings with specific person(s) can be assembled together.

Example 3: Extracting notes based on the user's location and time

Based on contextual data, notes taken while in the train on the daily commute can be assembled together.

Various combinations of the above examples are also possible and supported.

The extracted slice of the note document can be used in different ways, e.g., displaying or highlighting it in specific ways (concatenating slices, jumping when scrolling, greying out unrelated text, etc.). It can also be used as an input to additional processing steps, e.g., automatically summarizing all the notes of one slice, generating a report or statistics of a slice, etc.

In this manner, the techniques of this disclosure enable the quick access and retrieval of relevant notes in a natural way, e.g., in a manner that hews to users' natural tendencies towards unstructured note-taking. The use of contextual signals enables the accurate assembly of related notes, improves the usability of note-taking applications, and enables user access to relevant notes with fewer user-device interactions.

The described techniques can be implemented in a dedicated note taking application, a word processor, or other applications that are used to take notes.

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 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

This disclosure describes techniques to automatically cluster and assemble relevant meeting notes present across one or more documents to generate a single, theme-based view, based, e.g., on topic, co-attendees, location, meeting-series, etc. or combinations thereof.