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EVENT SCHEDULING AND TIME ZONE MANAGEMENT FOR ONLINE CALENDARS

Introduction

The present disclosure is directed to a system that can be used to more effectively determine the time zone (e.g., a region in which the same standard time is used) in which events occur and display those events in a calendar that includes a representation of the time zones in which the events occur. Existing methodologies and systems of generating calendars offer users a way to manually associate an event with a time zone. However, such methodologies and systems can be cumbersome (e.g., require a great deal of manual input by the user) and do not offer the user a quick way to determine the time zone of events in different time zones at a glance (e.g., in existing methodologies the user can view the time zone for each event individually but cannot view the time zones of multiple events in different time zones at the same time).

For example, when planning travel, events (e.g., appointments) during the trip are scheduled before the commencement of travel. Further, when a travel destination is in another time zone, events are scheduled in the local time of the travel destination. As such, although existing methodologies and systems (e.g., existing online calendars) support the notion of time zones, it is often only the time zone of the current user that is taken into account. Though it is possible to use the online calendar to select an arbitrary time zone, doing so will apply the change in time zone to the whole calendar at once. It is also often possible to display a secondary time zone in hourly views of the calendar, but again, only for the whole calendar at once.

Another approach is to set either primary or secondary time zones of the whole calendar to the time zone associated with the travel destination at the time the trip is being planned.

However, such an approach has several issues. Firstly, it is inconvenient to reset the time zone to the local time zone each time a trip is planned. This inconvenience is further compounded when trip planning is performed in multiple increments. Secondly, such an approach only works when the trip involves destinations in a single different time zone (e.g., different from the user's local time zone), but not for a trip that includes destinations in multiple time zones. Thirdly, if the calendar is also used for other simultaneously ongoing events, during trip planning, the time zone of the destination location would be associated with the simultaneously ongoing events, even though those events do not pertain to appointments in the local time of the destination time zone.

In general, existing methodologies and systems do not offer a way to effectively display calendar events that occur in different time zones. The present disclosure is directed to overcoming these shortcomings by more effectively determining the time zone associated with an event and displaying calendar events that occur in different time zones.

Summary

The present disclosure proposes to solve the challenges described above by providing a calendar system that is able to more effectively determine the time zone in which an event occurs so that the event can be organized and displayed in a calendar that can represent multiple time zones at the same time.

In the present disclosure, one or more secondary time scales (e.g., hourly time scales) can be generated based on locations of events (e.g., calendar appointments). These secondary time scales and associated events can then be readily viewable in a calendar. Further, the present disclosure can dynamically modify the calendar based on the timing of the events and the time zones associated with events. For example, when events (e.g., events for a future trip) are entered as part of a multiple day event associated with a location, the calendar generated in the

present disclosure can display an additional time scale showing the local time of the event in addition to the current time at the user's location.

In particular, the calendar system in the present disclosure can receive event data (e.g., data including the time, location, and/or description of an event) via a communication channel (e.g., a communications network connected to another computing system; use the event data to determine the time zone of the event (e.g., use the location of the event to determine the time zone); and generate a calendar that includes multiple time zone scales that can be used to readily view the time of events that occur in different time zones.

Thus, the present disclosure provides a way to determine the time zones associated with different events and generate a calendar output that allows different events in different time zones to be viewed at the same time.

Detailed Description

FIG. 1 illustrates a schematic diagram of one embodiment of a computing system **100** in accordance with aspects of the present disclosure. In the embodiment shown in **FIG. 1**, the computing system **100** includes a network **102**, a network **104**, one or more remote computing devices **110**, and a computing system **120**.

The network **102** and the network **104** can include any type of communications network, including a local area network (e.g., intranet), wide area network (e.g., Internet), or some combination thereof and can further include any number of wired or wireless links.

Communication over the network **102** or the network **104** can occur via any type of wired and/or wireless connection, using a variety of communication protocols (e.g., TCP/IP, HTTP, SMTP, or FTP), encodings or formats (e.g., HTML, XML), and/or protection schemes (e.g., VPN, secure

HTTP, SSL). The network **102** can for example be used to exchange signals or data between the one or more remote computing devices **110** and the computing system **120**.

As shown in **FIG. 1**, the one or more remote computing devices **110** can include a controller **112** that includes one or more processors **114** and one or more memory devices **116** associated with the one or more processors **114**. The one or more processors **114** can include any suitable processing device, including as a microprocessor, microcontroller, integrated circuit, logic device, or other suitable processing device. Similarly, the one or more memory devices **116** can include one or more computer-readable media, including, but not limited to, non-transitory computer-readable media, RAM, ROM, hard drives, flash drives, and/or other memory devices. Furthermore, the one or more remote computing devices **110** can generate one or more outputs including signals and/or data (e.g., event data) including information associated with one or more events including calendar events that occur in different time zones.

The communications interface **118** can be used to communicate (e.g., send) signals or data to one or more systems (e.g., the computing system **120**). By way of example, the one or more remote computing devices **110** can generate event data including information associated with an event that is then sent to the computing system **120** via the network **102** using the communications interface **118**. In general, the communications interface **118** can include one or more transmitters, receivers, ports, circuits, and other interfaces for communicating digital information over a wired communication link, wireless communication link, or combination of wired and wireless communication links. As an example, the communications interface **118** can communicate data via a wired and/or wireless protocol including Bluetooth, IEEE 802.11, and/or WiMAX.

As shown in **FIG. 1**, the computing system **100** includes the computing system **120** that can include a controller **122** that includes one or more processors **124** and one or more memory devices **126** associated with the one or more processors **124**. The one or more processors **124** can include one or more features of the one or more processors **114**. Further, the one or more memory devices **126** can include one or more features of the one or more memory devices **116**.

In some embodiments, the one or more memory devices **126** can store information accessible by the one or more processors **124**, including computer-readable instructions that can be executed by the one or more processors **124**. The instructions can be any set of instructions that when executed by the one or more processors **124**, cause the one or more processors **124** to perform operations. For instance, the instructions can be executed by the one or more processors **124** to determine the content of data (e.g., event data including information associated with the location, date, and time of an event) sent from the one or more remote computing devices **110**. Further, the one or more processors **124** can include one or more features of the one or more processors **114**. The one or more memory devices **126** can also store data for manipulation by the one or more processors **124**. Furthermore, the computing system **120** can generate one or more outputs based in part on one or more signals or data received by the communication interface **128**. For example, the computing system **120** can generate output based on data (e.g., event data including information associated with a calendar event) received from the one or more remote computing devices **110**.

Further as shown in **FIG. 1** the computing system **120** can also include the communications interface **128** that can be used to communicate (e.g., send and/or receive) one or more signals or data with one or more computing devices including the one or more remote

devices **110**. Further, the communications interface **128** can include one or more features of the communications interface **118** of the one or more remote computing devices **110**.

In accordance with aspects of the present disclosure, the controller **122** can, in one embodiment, be configured to determine the content of data (e.g., event data received from the one or more remote computing devices **110**). In some embodiments, the computing system **120** can use a time zone determination component **130** to determine the time zone that is associated with the event data. For example, the time determination component **130** can access event data including information associated with a geographic location in order to determine the time zone.

FIG. 2 illustrates a diagram of an output **200** that includes a calendar generated in accordance with aspects of the present disclosure. In the embodiment shown in **FIG. 2**, the output **200** includes a time zone indication **202**, a time zone indication **204**, a time indication **206**, a time indication **208**, a date indication **210**, an event indication **212**, an event indication **214**, a multiple day event indication **216**, a multiple day event indication **218**, a month indication **220**, and a year indication **222**.

The output **200** (e.g., a calendar) includes various indications including: the time zone indication **202** corresponding to the time in Tokyo, Japan; and the time zone indication **204** corresponding to the time in Seattle, in the United States. Further, the output **200** includes a scale indicator that shows sets of times including the time indication **206** (e.g., a set of hourly time intervals in Tokyo) and the time indication **208** (e.g., a set of hourly time intervals in Seattle). The output **200** also includes date indications including the date indication **210** that represents the day of the week, the date indication **220** that represents the month (November), and the date indication **222** that represents the year (2018).

As shown in **FIG. 2**, the event indication **212** represents an event that occurs at a particular location and time interval (e.g., an event in Tokyo between the hours of 10:00 p.m. and 11:00 p.m.). Further, the event indication **214** represents an event that occurs at a different location and time interval (e.g., an event in Seattle between the hours of 08:00 a.m. and 09:00 a.m.). The output **200** also includes a multiple day event indication **216** that can be used to show that the specified time period (Monday through Thursday) will occur in a particular location (e.g., Tokyo). The multiple day event indication **218** can further be used to show that the specified time period (e.g., Friday through Sunday) will occur in another location (e.g., Seattle). In this way, the output **200** can offer users a way to simultaneously view different events that occur in different time zones at a glance.

Referring now to **FIG. 3**, a flow chart illustrating one embodiment of a process **300** for determining time zones for calendar events is illustrated in accordance with aspects of the present subject matter. The operations of the process **300** can be performed by a computing system including one or more features of the computing system **120** that is depicted in **FIG. 1**. Although the operations of the process **300** are shown and described in a particular order, certain operations can be performed in a different order or at the same time.

As indicated in **FIG. 3**, at **302**, event data (e.g., data including information associated with the timing and/or location of an event) is received (e.g., received by the computing system **120** from the one or more remote computing devices **110**). The event data can be received via one or more communications networks (e.g., the communications network **102**) and can include a variety of information associated with one or more events including the name of the one or more events, a duration of the one or more events, the start time of the one or more events, the end time of the one or more events, the location of the one or more events (e.g., a geographical

location of the one or more events including a latitude/longitude, and/or street address), a description of the one or more events (e.g., a description of the event by a user), and/or one or more parties associated with the one or more events (e.g., one or more people and/or organizations associated with the event).

At **304**, a time zone associated with the one or more events can be determined. For example, the computing system **120** can determine the time zone of the one or more events using the time zone determination component **130** which can receive location information associated with an event (e.g., an event will occur in Seattle) and determine the time zone associated with the location (e.g., Seattle is in the GMT-8 time zone) using for example, a look-up table. By way of further example, the time zone determination component **130** can include a rules based system that can determine the time zone associated with an event based on a set of rules (e.g., if-then rules) associated with location of the event (e.g., if an event occurs in Tokyo the time zone is GMT+9).

At **306**, a calendar including the event can be generated based on the one or more events and the time zone associated with the one or more events. The calendar can include one or more indications, each of which is associated with a location and the time zone of the location. Further, the one or more indications can be associated with a time scale corresponding to the time at the location. By way of example, the computing system **120** can generate a calendar including the output **200** that is shown in **FIG. 2**.

In some embodiments, the calendar can be color coded (e.g., the time zone for one location and/or event is coded in red and the time zone and/or location for another event is coded in blue). Further, any of the locations and/or events can be displayed using a variety of different fonts, font sizes, symbols, shapes, and/or patterns.

Figures

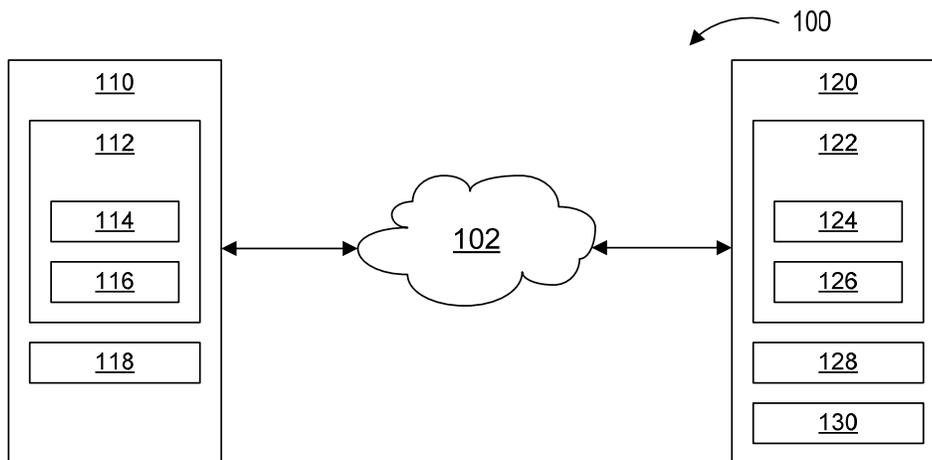


FIG. 1

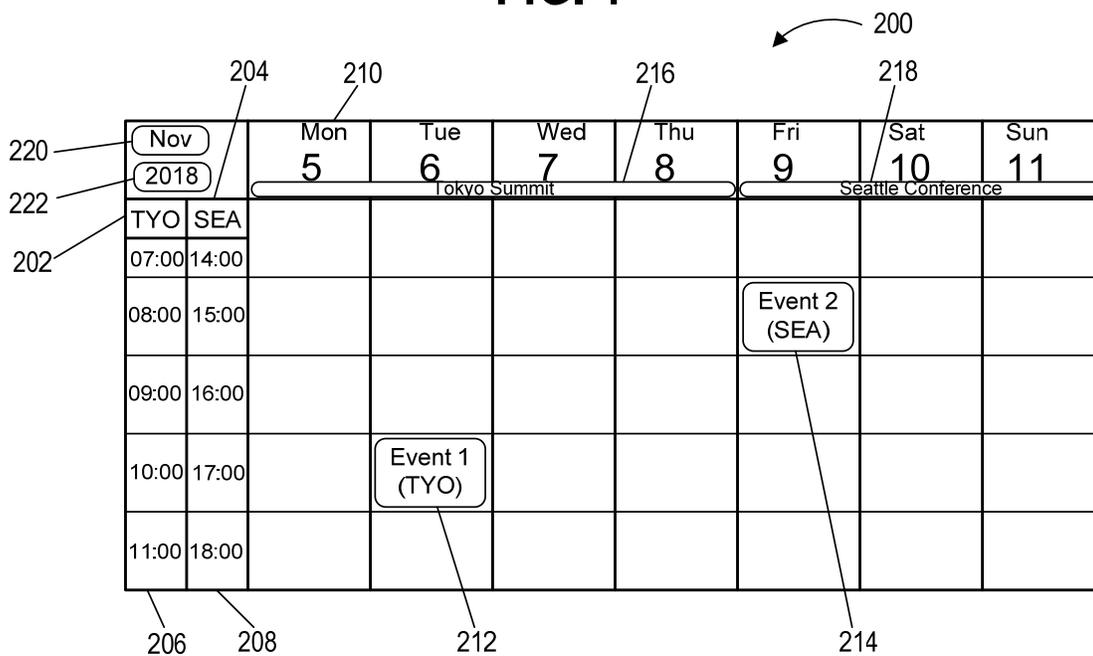


FIG. 2

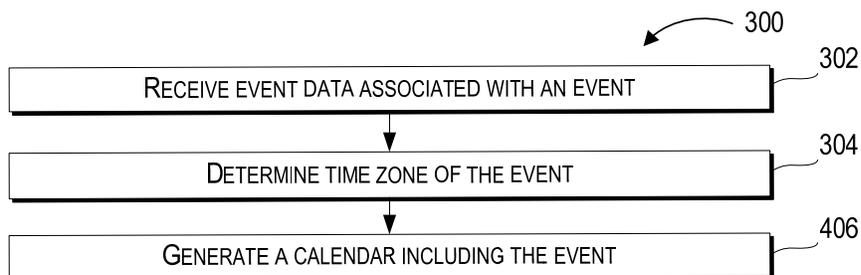


FIG. 3

Abstract

The present disclosure relates to a calendar system and related method for determining the time zone associated with an event and generating a calendar that shows multiple time zones corresponding to events in the calendar. The calendar system can include a computing system that receives event data including information associated with an event and an event location. The event data can be used to determine a time zone associated with the event, which can in turn be used to generate an output including a calendar showing, at the same time, different time zones and the events that occur in those different time zones.