STATISTIK AUSTRIA

Die Informationsmanager

User Guide – Time Use App "STAT_time"

Grant Agreement Number: 836897-2018-AT-INNOV

Statistics Austria

Vienna, December 2019

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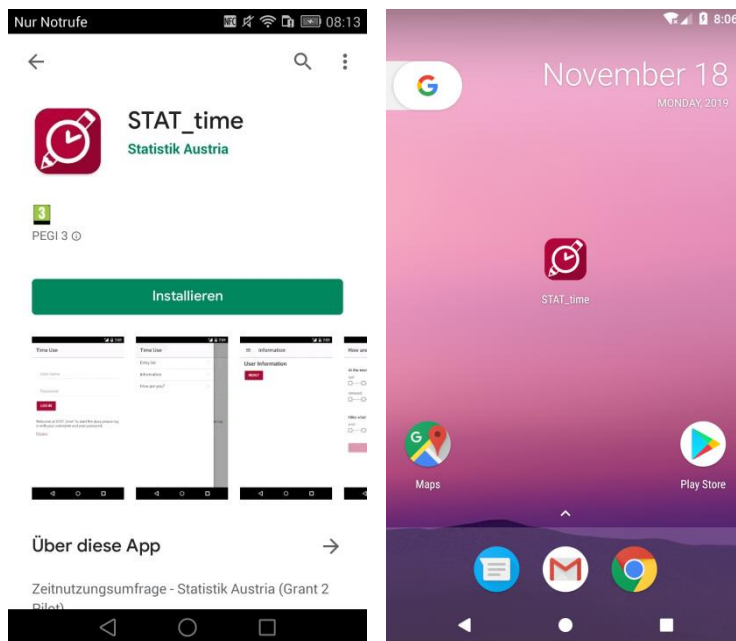
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1   Installation

The TUS app is available for two different types of smartphones: Apple's iOS (iPhone) and Google's Android, which is the mobile operating system running on most smartphones from other vendors than Apple. Each of those platforms provides a store, which is a method for distributing new apps: App Store on iOS and Play Store on Android.

In order to install the app, the respondent searches for the term "STAT_time" and taps the search result entry that matches the icon and description of the STAT_time app. Then, installation follows the standard process of installing an app on the smartphone, to which users of the device are accustomed. If the app has already been installed before, the store redirects the user to the installed version.

The Following instructions will contain the screenshots and instructions for

1.1.1   Google Play Store / Android Phone

The following pictures show the overview page and details page of the app descriptor on Google Play Store. If the user taps on the green "Installieren" (install) button, the app will be installed.
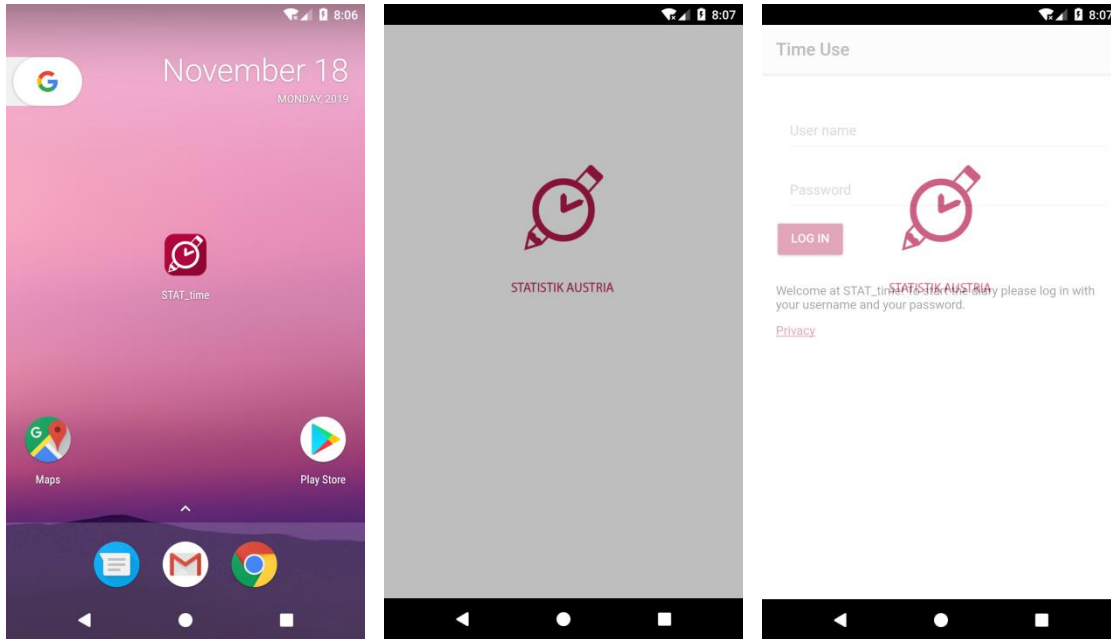
2　User Guide

This section describes how to use the app on the mobile device, if it has already been installed following the instructions in the previous section. The following sections show the different views (screens) of the app and describe their functionality.
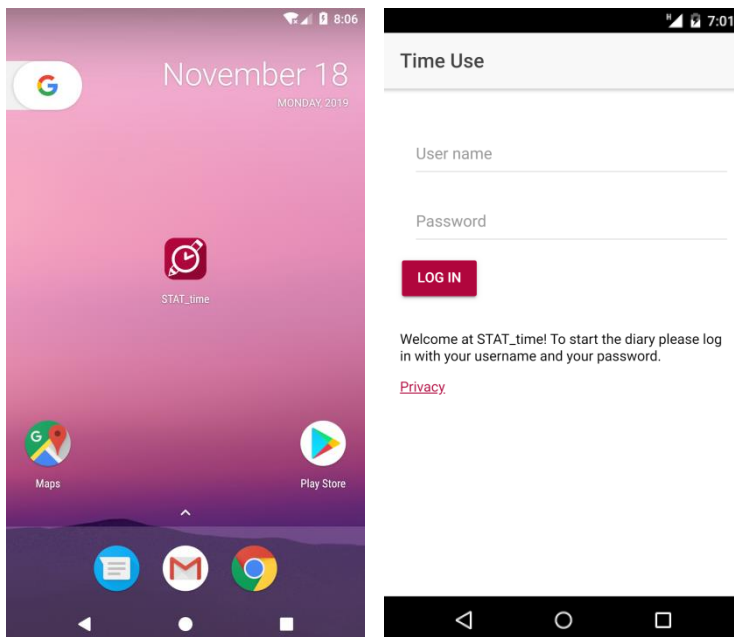
2.1.1　Starting the App

Start the app via clicking the symbol on the screen.

2.1.2　Login

Initially, the app shows the login screen. If the respondent has been provided with a username and a password by the NSI, they shall be entered here. Otherwise, the user will not be able to use the app.
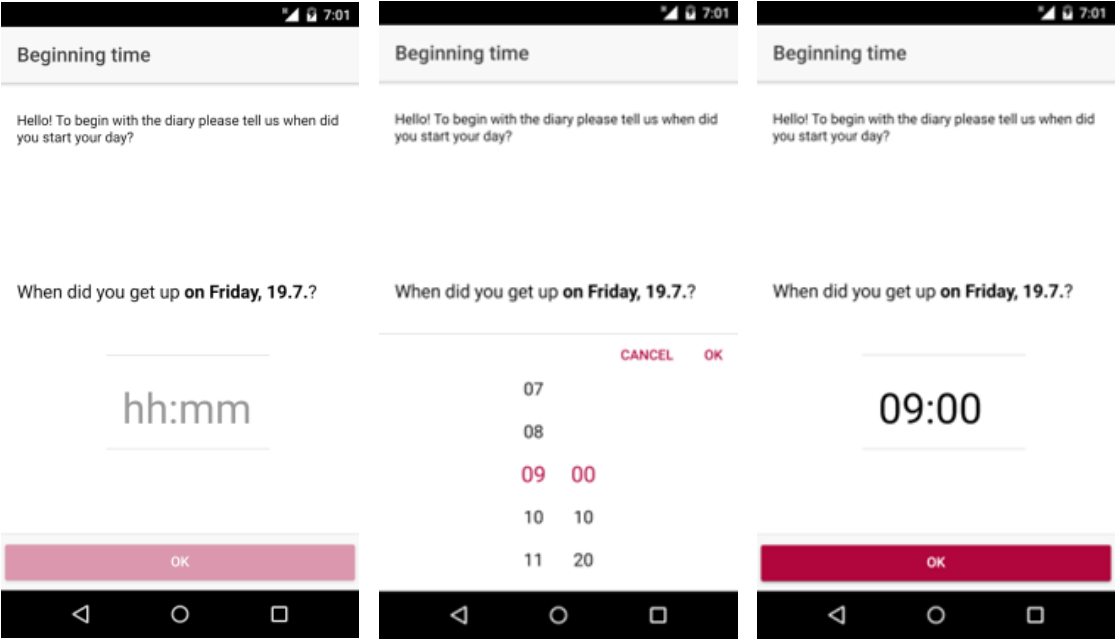

Authorization data is stored locally on the phone using AES256, allowing the respondent to close and reopen the app without having to enter the user id and password again. Only after finalizing the

diary, clearing the cache data or uninstalling the app, authorization data is cleared from local storage and has to be entered again.

2.1.3 Start time

After login, the respondent selects the start time of the specified day. This is supposed to mean the time of getting up from bed in the morning for most respondents. The survey period starts with the selected time and ends ten minutes before the selected time on the following day.

The respondent selects the start time by tapping on the grey "hh:mm" text. Then, the operating system specific time controls are displayed, which allow the respondent to enter the time value.
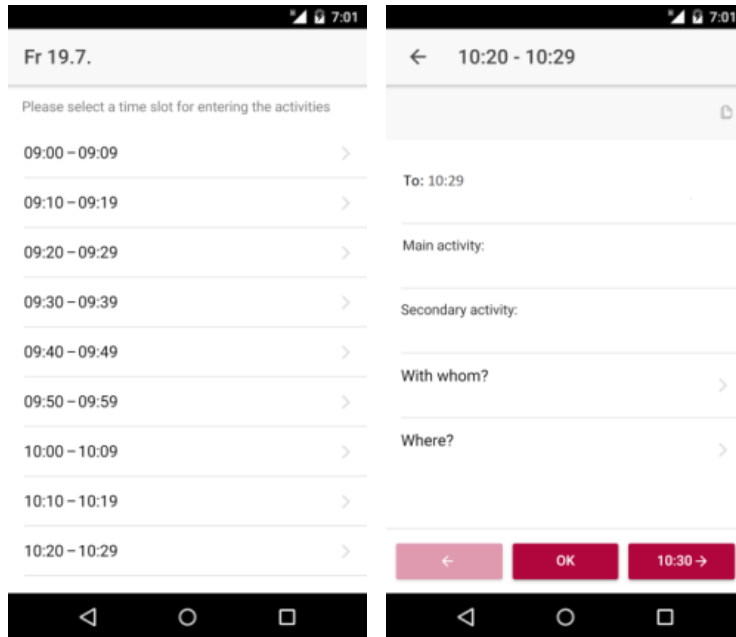
2.1.4 Initial list of time slots

After the respondent has logged in and selected the start time as described in the previous sections, the list of time slots is displayed. This is the central point of the app that allows the respondent to enter activities by tapping on the appropriate time slot. If the respondent swipes up or down, the time slots currently not visible will be shown.

Note that the 23:50 time slot is followed by the 00:00 time slot for the next calendar day – unless the respondent has selected 00:00 as start time, in which case the 23:50 time slot is the last one.

The following pictures show the list of time slots of an empty diary.
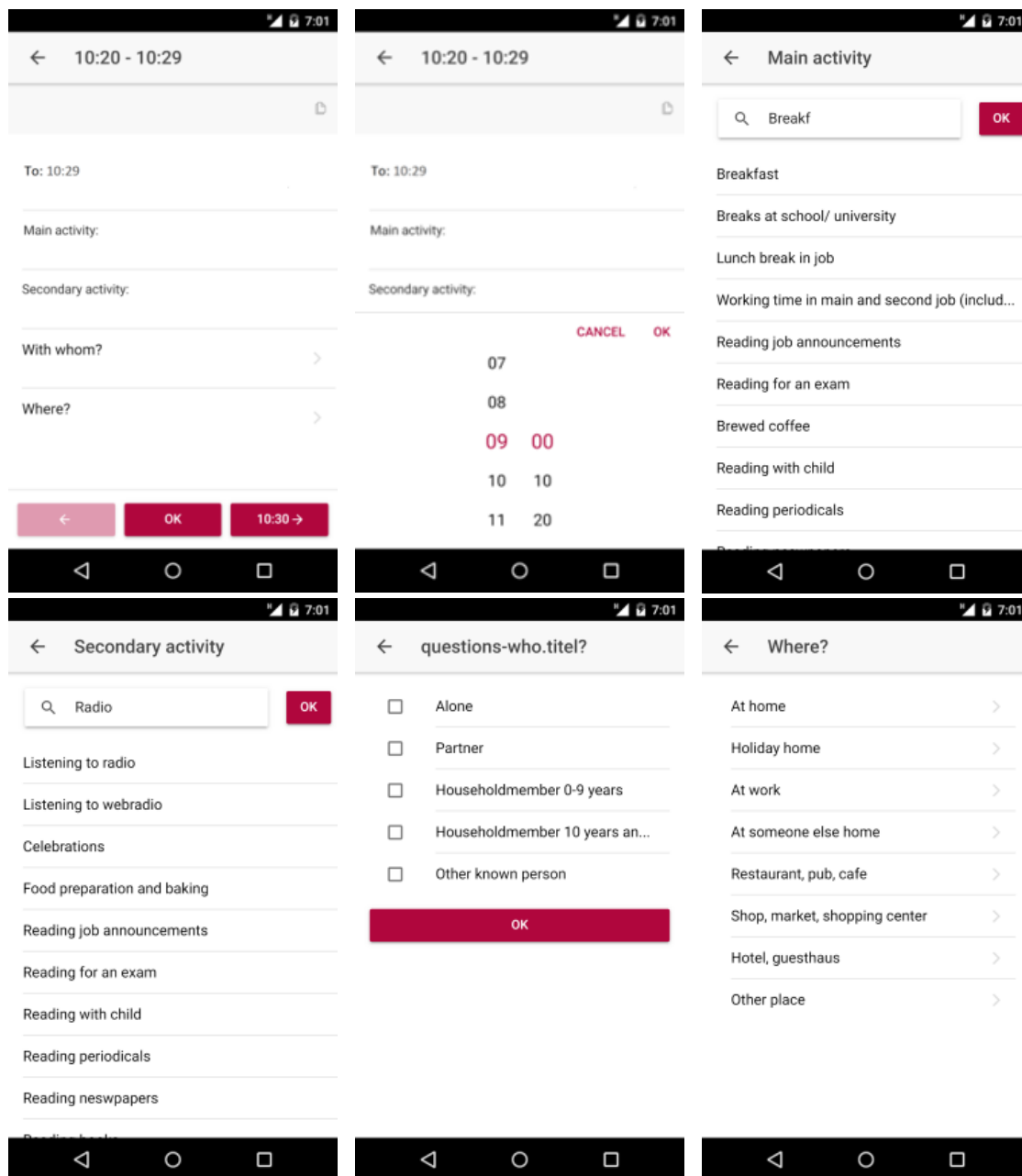
2.1.5 Details view

If the respondent taps one of the time slots, the details view is displayed and allows the user to fill in the activity.
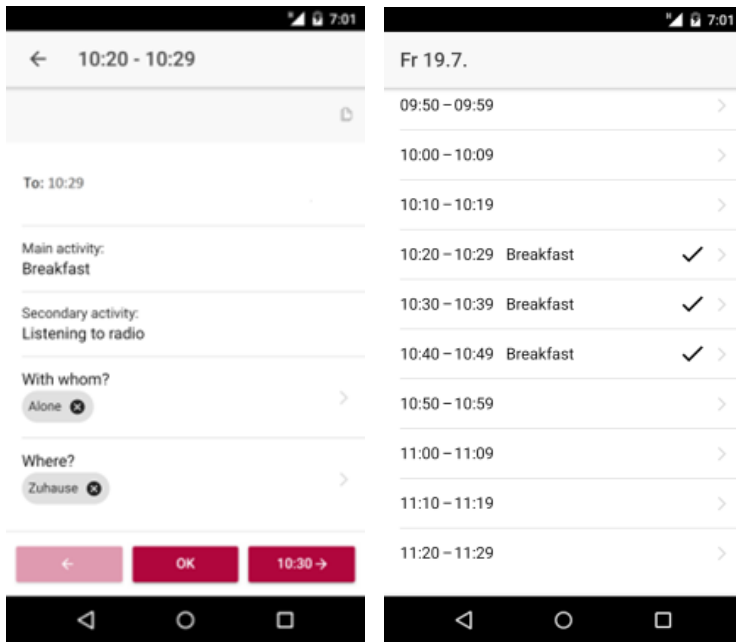
The first row is to select a timespan which will be filled identical with the rest of the provided data.

The second and third items contain the primary and secondary activities which are described further below.

Tapping on the forth row ("With whom?") switches to a view that allows specifying the accompanying persons.

Tapping the bottom row ("Where?") switches to another view that allows selection of the location.
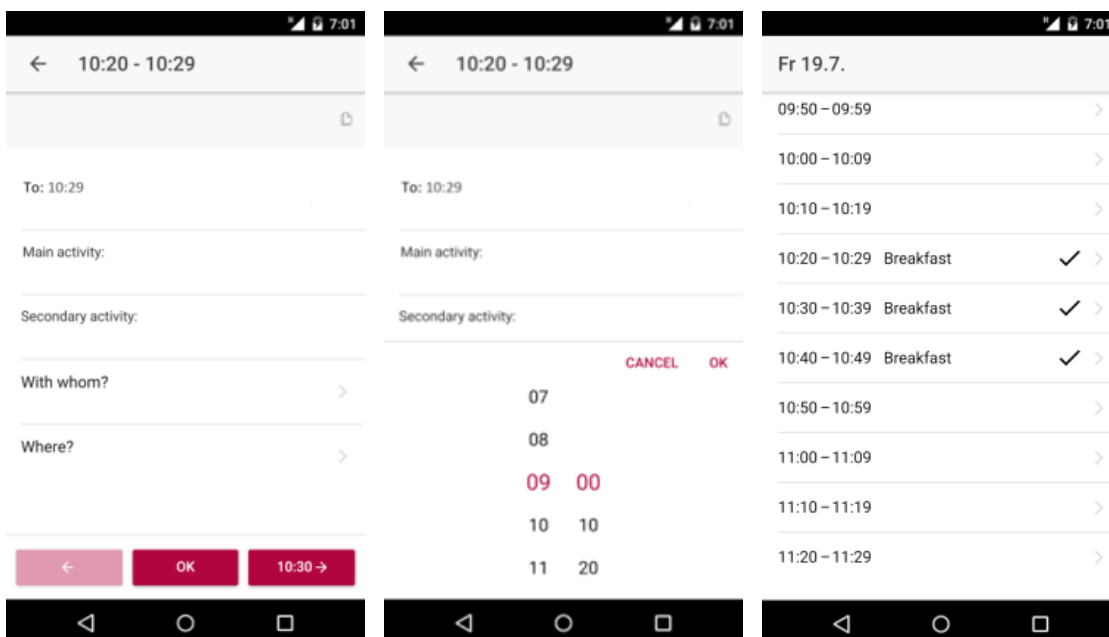
2.1.5.1 Navigating

The three red buttons on the bottom row allow the respondent to directly navigate to the previous time slot (left button), the next time slot (right button) or to the list of time slots (middle button). Swiping left or right is an alternate method for navigation to the previous or next time slot.

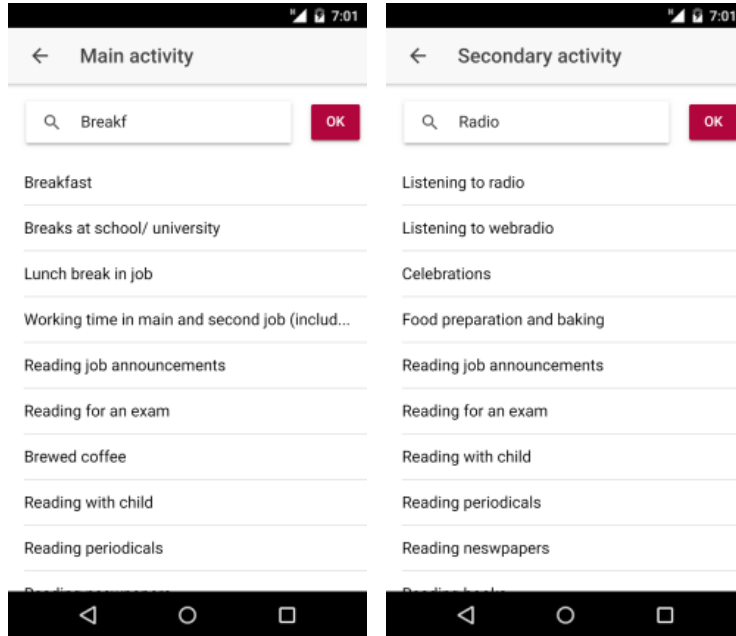### 2.1.5.2 Copying entries, filling multiple time slots at once

In order to facilitate entry of activities that last longer than ten minutes, a copy button is provided in the top right corner of the activity view, provided that a previous entry exists and is filled out correctly. If the respondent taps the copy button, the information contained in the previous time slot is copied into the current one.

Additionally to the copy function you can select a "to" time for the timeslot. All the singe timeslots in this span will be filled with the exactly same data. After doing such an mass manipulation the user is free to edit the single timeslots individually.

2.1.5.3 Activity selection

If the respondent taps on the labels main activity or secondary activity, the activity view is displayed. Here, the respondent must provide a textual description of the main activity and may provide a textual description of the secondary activity. The textual description of the activity may be typed in free form or selected from a dictionary list described in the next section.
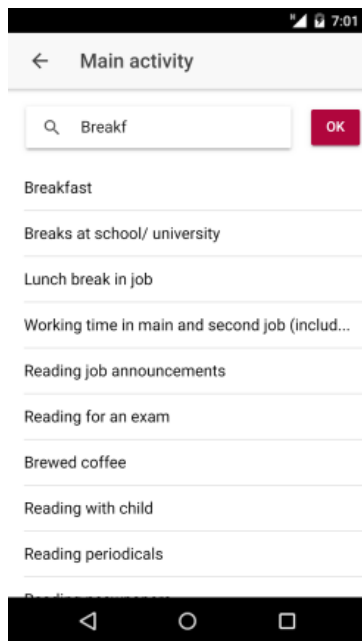

2.1.5.4 Dictionary search

In order to help the respondent to fill out the activity description, after typing the third letter the app displays a list of dictionary entries that match the yet incomplete description. The initial dictionary is stored centrally on the server and contains terms derived from responses from the previous time-use survey. If the intended activity description is displayed, the respondent may complete the entry by tapping on that description. If the list does not contain an appropriate activity description, the respondent may ignore the list and finish typing. In addition to the dictionary list, the respondent may use the dictionary feature provided by the mobile device, if available.

In order to allow the app to handle typographical errors or alternate spellings, a fuzzy search algorithm is employed to find matching entries. The app incorporates the "fuse.js" programming library[1] for fuzzy search, which implements the Levenshtein distance algorithm[2] in order to find matching entries and sort them by similarity to the respondent's input.

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[1] http://fusejs.io/
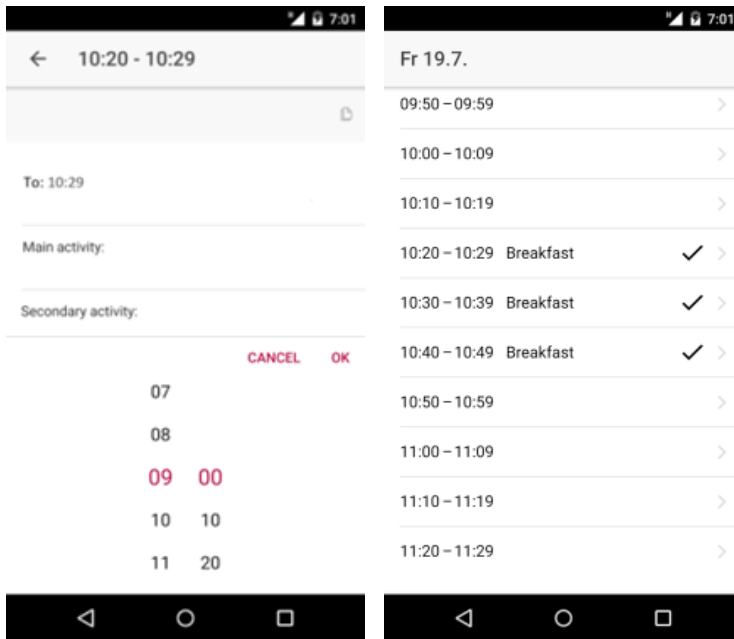[2] https://xlinux.nist.gov/dads/HTML/Levenshtein.html

The following picture shows a list of suggestions provided to the respondent after starting typing. Note that the respondent typed "Breakf" which results in the app showing a list of terms which start or contain parts of "Breakf" due to the fuzzy search algorithm described above:

Future versions of the app may learn from the respondent's previous answers by adding them to the locally stored copy of the dictionary, while leaving the central dictionary unchanged.

2.1.5.5   Long-lasting activities

In order to prevent the respondent from having to copy or even repeatedly type long-lasting activities into several consecutive ten-minute-slots, certain dictionary entries may be designated for allowing variable duration. This feature is especially targeted at the activity of sleeping which concludes the day for most respondents. So, if the respondent selects or types sleeping as main activity, the app asks for the activity's end time and automatically fills out all of the corresponding consecutive time slots.

2.1.6 Subjective Well-being questions

In addition to the activities, the app collects the respondent's answer to well-being questions. The app tries to ensure that well-being questions are filled out just in time in order to gather accurate results. So, at certain times predefined in the respondent's user profile, the app is interrupted and the well-being page is displayed:

In order to provide the visual appearance of a slider while avoiding suggesting a default value, the input control of each well-being question consists of several checkboxes connected with a line. Initially, all of the checkboxes are empty. If the user taps on a checkbox, it is activated while all other checkboxes in the same row are deactivated. Only if all of the subjective well-being questions are answered, the Ok button is active.
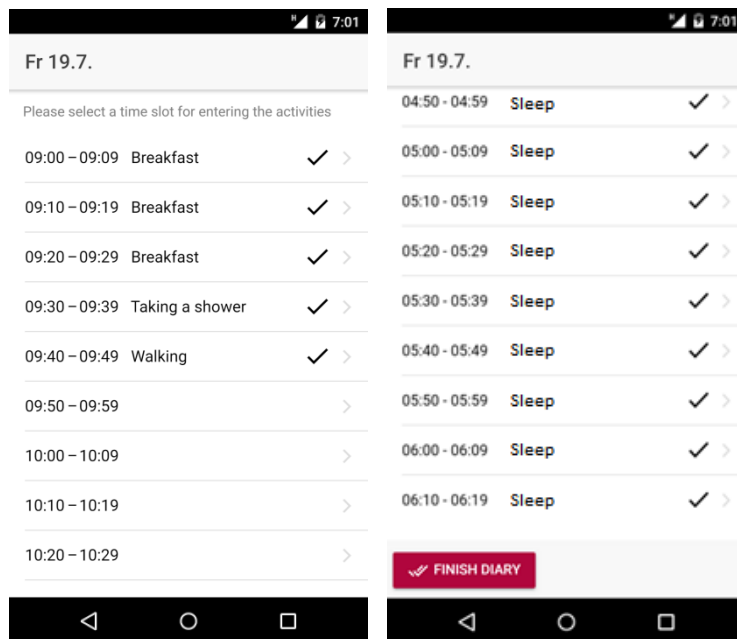
If the app is not in the foreground (i.e. active) at the specified time, the device issues a notification which is displayed at the typical screen location, which may be the top margin, a popup window or

the lock screen depending on the mobile device type. If the user taps on the notification within ten minutes, the subjective well-being question is displayed. After ten minutes, the notification is cancelled automatically. Unfortunately, the usability tests have shown that the cancelling mechanism does not work under all circumstances, so the final survey may contain well-being questions answered out of time. Those answers may be easily identified by comparing answer time to question time, though.
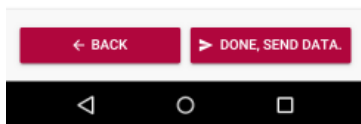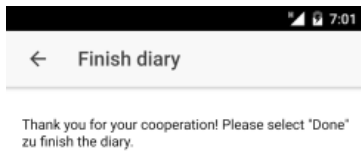
2.1.7 Completed list of time slots

If the respondent has scrolled to the bottom of the list (by repeatedly swiping in the down-up-direction), there is a button that allows to finish the diary. The following picture shows the completed survey with the button to finish the diary for the day ("Finish diary") at the bottom of the list. Note that the checkmarks in the rightmost column state that the corresponding entry has been filled out completely. On incomplete entries, a red exclamation mark will be displayed instead.

If the main activity of all time slots is filled out, the app will close the diary and send all the data to the server. Note that incomplete entries (i.e., with empty location or unspecified accompanying persons) do not prevent the diary from being marked as finished, while totally empty entries lead the app to display an error message.
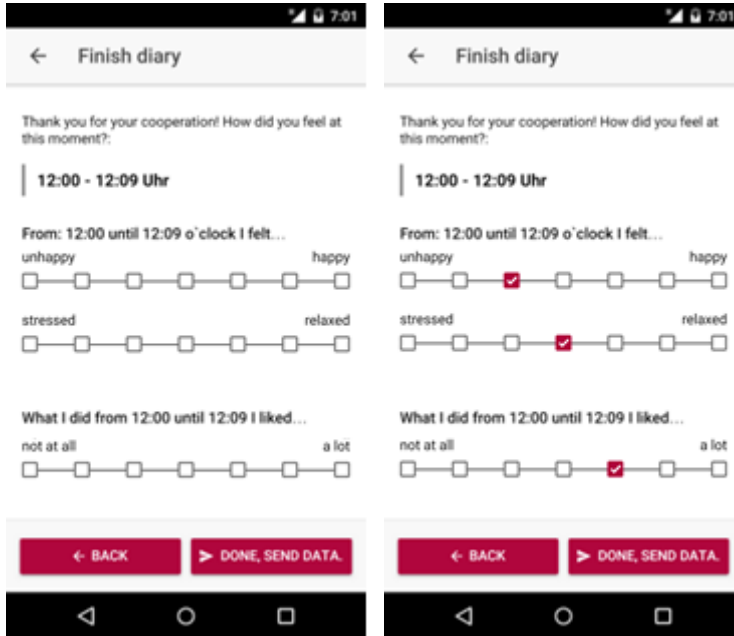
2.1.8 Finish the days diary

After the respondent has tapped the "finalize" button described in the previous section, the final page is shown which by default just confirms that the respondent intends to finalize the diary and send data to the server. After finalizing the diary, data may not be changed anymore. In the current version of the app, this is ensured by logging out the user and preventing further login with the same id. Future versions of the app may provide a read-only view of the data after completion.

2.1.8.1 *Retrospective subjective well-being question*

If the respondent has not answered any well-being question before finalizing the diary, the well-being page described further above is merged into the final page in order to allow answering a single subjective well-being question retrospectively. The user profile designates the timeslot for the retrospective question:

Note that unlike in the case of the well-being questions issued on time, answering the retrospective well-being questions is optional.

This chapter has described the installation and use of the TUS app. The next chapter describes the architecture of the app and provides rationales for the design decisions that have led to the current appearance and functionality of the app.

2.1.9 Repeat steps 5.2.2 to 5.2.7 to finish the second day

2.2 Finish diary

After you finished sending the data for day 2 you will be provided with a final page, showing that the data collection is complete, and no further interaction with the app is necessary.