
# Application Development for Mobile Devices

## Midterm Essay

Android Application – Simple Calendar

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# 1 Introduction

This essay discusses the Android application *Simple Calendar*[1]. Chapter 2 describes the *design* of the application and its *use cases*. Chapter 3 then discusses the user interface of the application. In Chapter 4, there are captured the *key milestones in the history* of the application's development. And finally, Chapter 5 deals with the application's *strength and weak points* and it concludes the essay.

The application is a part of the *Simple Mobile Tools*[2] package, which is a group of *open-source* Android applications whose main aims are to be simple, without advertisements, and without unnecessary permissions[3]. Therefore, source codes of the application are available in the *GitHub repository*[4] and they can be analysed.

# 2 Overall Application's Design

The application is built purely using *Kotlin*. The latest version of the application (6.7.2) targets Android SDK version 28 and the minimal supported version is 21. The major use case is to create some events in the calendar, see the upcoming events, and be reminded of these events, like in any other calendar application. The stress is also put on *customisable and interactive desktop widgets*, so users can create whatever widgets they like and see the events directly at their home screens. The overall design is really simple. There is just one main screen — the calendar itself — where the view can be changed (daily, weekly, monthly, etc.). Then, there is another simple screen for adding new events, a settings screen, and that is all. It also focuses on *accessibility*. Primarily, it is an offline calendar. The application does not connect to Google Calendar or any other cloud-based calendar services by default. All the applications data are locally saved on a device. However, there is an option to synchronise the events via the *CalDAV* protocol, for instance, with Google Calendar. Moreover, the events may be imported and exported from/to *ICS* files. The application requires only the bare *minimum permissions* (contacts — to import birthdays and anniversaries, storage and media — for exporting and importing ICS files and for defining a reminder sound, calendar — for CalDAV synchronisation). The application is localised to 29 languages using the standard Android localisation method. It is designed in the *material design* and themes can be *customised*.

For orientation in the calendar, there is a search bar for searching the events by their names. There is so-called *Go to date* function which allows one to display a specific date, so it is not necessary to scroll for a long time to that date. Furthermore, there are options to automatically create events for birthdays and anniversaries from a contact list, or create events for holidays of a selected country. Each event may have some *user-defined type*. Consequently, the events can be filtered by these types. Reminders to the events may also be customised. There can be more reminders for a single event, the time of a reminder can be defined together with its sound and other things. An event also can have a location and there is a feature to show this location on the map.

There are no advertisements or in-application purchases. Despite, there used to be a free version of the application but it is not supported anymore. It was supported up to version 5.1.4. Since then, there is a *professional* up to date version of the application[5]. The professional version costs approximately 20,- CZK and the free version is considered deprecated. Anyway, as it was stated above, the application is entirely open-source. Thus, source codes of the latest version of the application can be downloaded, eventually modified, compiled, and the latest version can be installed for free even so.

[1] The **Simple Calendar** application on Google Play – https://play.google.com/store/apps/details?id=com.simplemobiletools.calendar.

[2] The **Simple Mobile Tools** package – https://www.simplemobiletools.com.

[3] A **mission** of the Simple Mobile Tools package – https://medium.com/@tibbi/why-did-i-create-simple-mobile-tools-f3aa22815aa4.

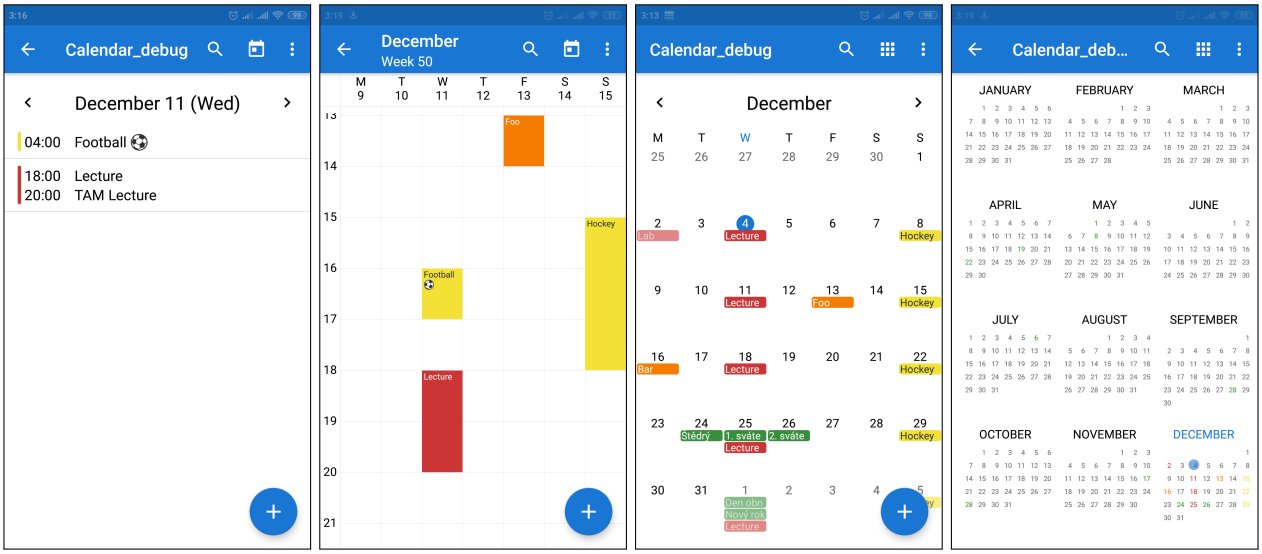
[4] The Simple Calendar **GitHub repository** – https://github.com/SimpleMobileTools/Simple-Calendar.

[5] The **Simple Calendar Pro** application on Google Play – https://play.google.com/store/apps/details?id=com.simplemobiletools.calendar.pro.

# 3 User Interface

This Chapter describes the main parts of the user interface of the application.

Figure 1 shows *different views* of the main screen of the application. Switching between single views can be done easily from the upper menu. The default is a *monthly view*. There is visible the whole month with events per single days but at most 4 events per day are displayed. Through this view, it is possible to add a new event to the current day, or by selecting any other day, it is switched to the *daily view* of that day. In a daily view, there are listed all events of a particular day. A *weekly view* is a sole view where events are stationed in the grid by their times and duration, and overlapping events are displayed one next to each other. The last basic view is a *yearly view* which may be used to see a layout of events per individual months because days that contain some events are coloured by event types colours. Selecting some month opens a month view of this month.




(a) A daily view (b) A weekly view (c) A monthly view (d) A yearly view

Figure 1: Different views of the main screen of the application

Figure 2 demonstrates another special calendar view. It is a list of all days that hold some events. In other words, it is a list of all created events.

In Figure 3, there can be seen work with *events types*. Several types can be created and assigned to particular events. Event types are distinguished by their names and colours. Afterwards, events in the calendar can by filtered be these types.

New events can be created using a simple form, as it is shown in Figure 4. In this form, there can be specified a name of the event, description, its location (the location can be easily opened in a maps application), time and duration, reminders, repetition of the event, and its type. Default values of these fields may be defined in settings.

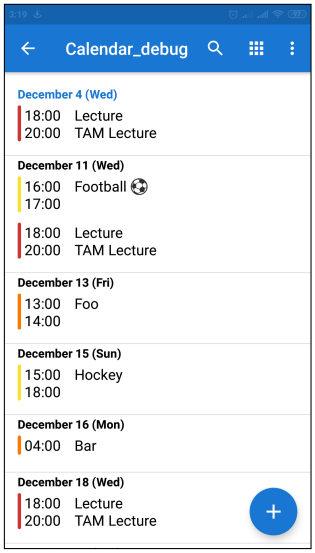
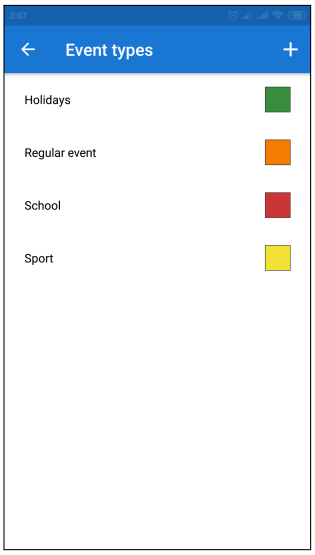
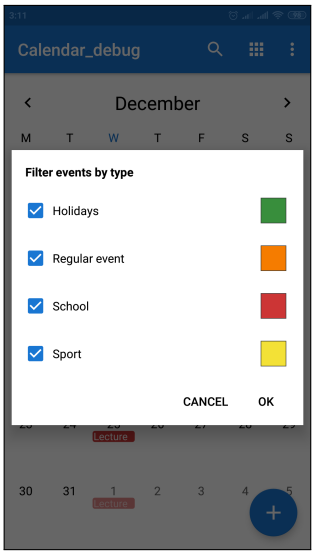



Figure 2: An event list view




(a) A list of event types




(b) Filtering events by its type

Figure 3: Event types

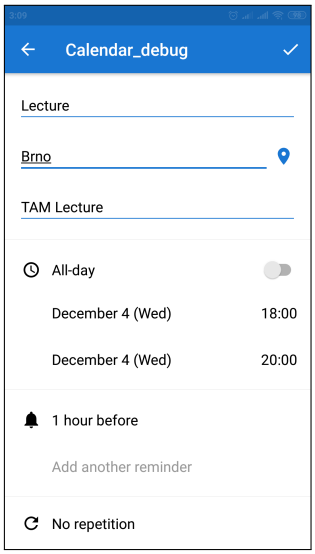
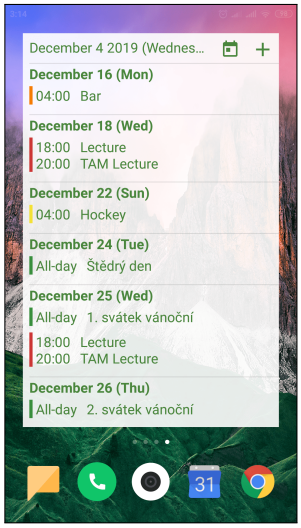
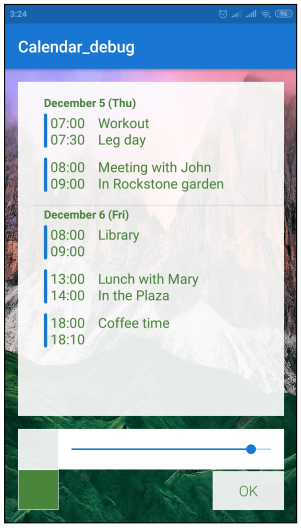



Figure 4: Adding a new event


(a) A widget with a monthly view calendar




(b) A widget with an event list view

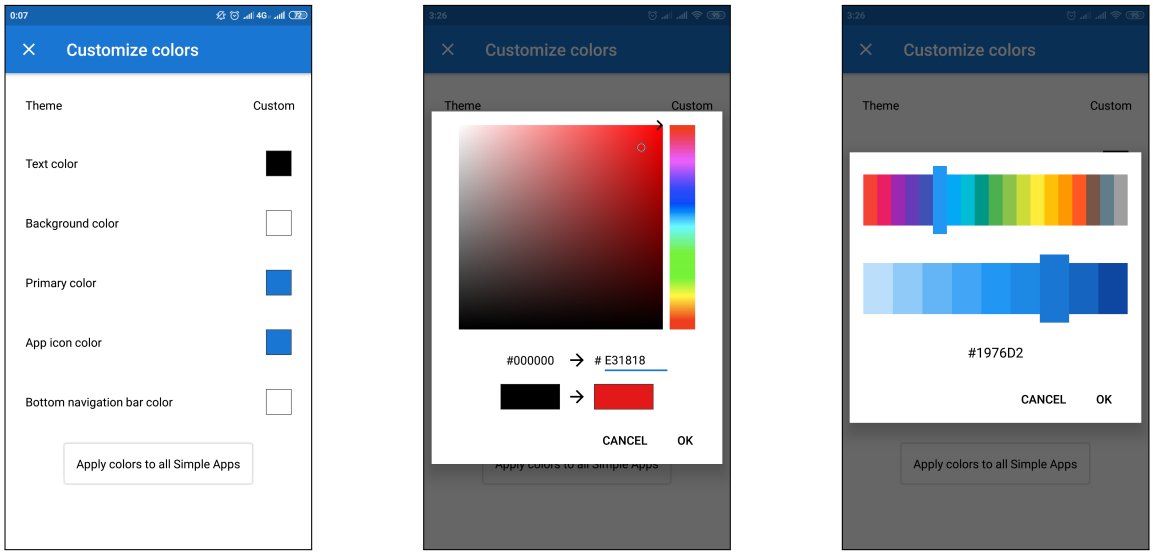



(c) Customisation of widget colours

Figure 5: Desktop widgets

Figure 5 demonstrates available *desktop widgets* and options of their customisation. There is one widget with a monthly view and another one with a list of events. Both colours of the text and colours of the background can be modified. Transparency of the background can be modified as well.

Not only colours of widgets can be customised but other colours in the application may be customised too, as it is shown in Figure 6. In this Figure, there also can be seen two variants of colour pickers.




(a) Options of colours customisation (b) The colour picker 1 (c) The colour picker 2

Figure 6: Colours customisation

# 4 History of the Application[6]

As it was already mentioned, the application is open-source, so any version of the application can be downloaded, compiled, and installed. A few *major versions* has been installed and analysed.

Since the first release of the application up to version 2.0.0, several significant changes were made. A widget for a list of events was added and widgets can be resized. Further, it was added a yearly calendar view, dark theme, event notifications, repetitive options for events, and there is a new confirmation dialogue before deleting events.

In version 2.x.x, the following changes were made. More colour themes were added, colours can be customised in more detail, and the colour picker was reworked. Events can be imported and exported to/from ICS files and CalDAV synchronisation was implemented. Options of adding reminders and options of setting repeatable events were significantly extended. A weekly view and event types were added. There are new features that allow one to automatically import holidays of selected countries and contact's birthdays and anniversaries.

In version 3.x.x, mostly bug fixes and performance issues were handled. Moreover, a daily calendar view was added and searching of events was implemented.

In version 4.x.x, there are not any interesting new features. Mainly, some other bug fixes were made and some new translations were added.

In version 5.1.3, free version of the application was marked as deprecated and in version 6.0.0, professional version has been released. Version 6 is currently the latest version. In this version, there is allowed to import and export settings of the application. And several other glitches were fixed.

[6] A **changelog** of the Simple Calendar application – https://github.com/SimpleMobileTools/Simple-Calendar/blob/master/CHANGELOG.md.

# 5 Strengths, Weaknesses, and Conclusion

Android application Simple Calendar has been analysed and it has been discussed its design, user interface, and history of the development.

The best thing about the application — the reason why quite many people use this application — is that it is a *lightweight minimalist variant* to a classic calendar application. The usage is really simple, *straight-forward* and it is *intuitive*. Another good thing is that it is *highly customisable*, there are no *unnecessary permissions* required, and there is no need for internet connection. Optionally, there are possibilities to synchronise the calendar with other applications or devices if it is demanded. The application has many translations and it has a quite handsome and *decent design*. Moreover, the application is live and open-source.

The *week point* of the application is that professional up to date version is not for free. This can discourage the users because there are available plenty of other free applications of a similar kind, even so, this one is fairly cheap. There are many users that use, for example, Google Cloud Services or Microsoft Azure or something similar every day so they would likely prefer Google Calendar or Microsoft Outlook, etc. But undoubtedly, other users give way *privacy* and *simplicity* so this application might be suitable for them.