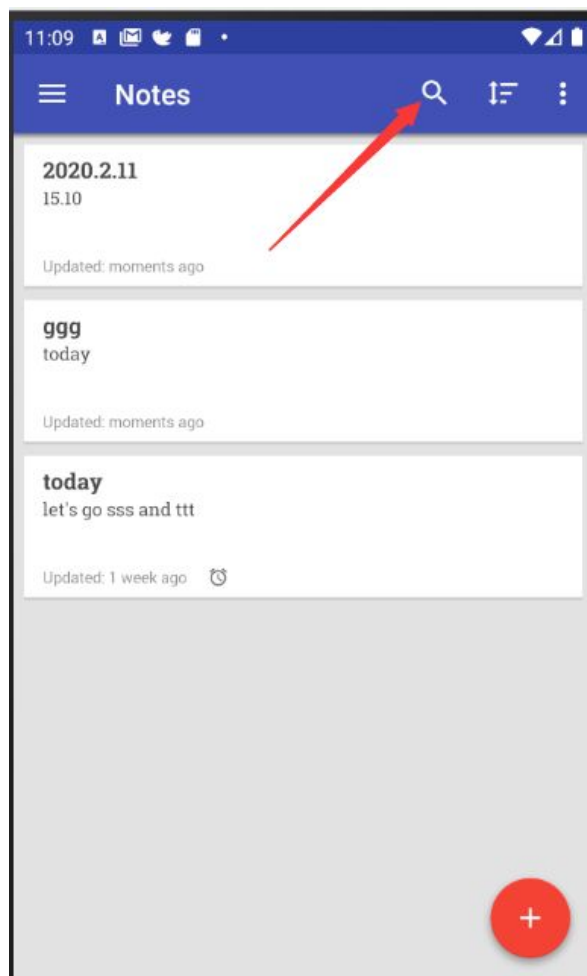


Omni-Notes

Feature 1: Searching

1.Introduction

Searching in Omni-Notes is to use keywords to find particular notes which include the keywords. The keywords can be contained in either notes' content or title. It can only be used in Note List interface to find notes, just as the picture below, click the icon and enter the keywords:



2.Process of finding

1. Use "search*" as a key word to do searching.

As it shows below, we believe **SearchManager** and **SearchView** may be highly related to searching. Since both **SearchManager** and **SearchView** are in the **ListFragment.java** file. So we decided to go into this file first and try to find more information about how to implement searching.

Find in Path ☐ Match case ☐ Words ☒ Regex ☐ File mask: *.java

Q search* 100+ matches in 7+ files

In Project Module Directory Scope Notes\src\main\java\it\feio\android\omninotes

- * Search for notes with reminder DbHelper.java 582
- * Search for notes with reminder expiring the current day DbHelper.java 620
- // Trashed notes must be included in search results only if search if performed from trash DbHelper.java 738
- import static it.feio.android.omninotes.utils.ConstantsBase.ACTION_SEARCH_UNCOMPLET ListFragment.java 24
- import android.app.SearchManager; ListFragment.java 44
- import androidx.appcompat.widget.SearchView; ListFragment.java 72
- import androidx.appcompat.widget.SearchView.OnQueryTextListener; ListFragment.java 73

omniNotes/src/main/java/it/feio/android/omninotes/ListFragment.java

```
38 import static it.feio.android.omninotes.utils.ConstantsBase.PREF_WIDGET_PR
39
40 import android.animation.Animator;
41 import android.animation.AnimatorListenerAdapter;
42 import android.annotation.SuppressLint;
43 import android.app.Activity;
44 import android.app.SearchManager;
45 import android.content.Context;
```

2. In **ListFragment.java**, search methods with “search” in them. First, we found **initSearchView** method. It is used to initialize the view of search, where associating searchable configuration with the SearchView.

```
/**
 * SearchView initialization. It's a little complex because it's not using SearchManager but is implementing on its
 * own.
 */
@SuppressLint("NewApi")
private void initSearchView (final Menu menu) {...}
```

3. In the **initSearchView** method, there are two important callback functions. **onQueryTextSubmit** shows the list saved in SharedPreferences with the query text in it, when. And **onQueryTextChange** begins to query in the background and save the data in SharedPreferences, when the text changes.

```
MenuItemCompat.setOnActionExpandListener(searchMenuItem, new MenuItemCompat.OnActionExpandListener() {

    boolean searchPerformed = false;

    @Override
    public boolean onMenuItemActionCollapse (MenuItem item) {...}

    @Override
    public boolean onMenuItemActionExpand (MenuItem item) {

        searchView.setOnQueryTextListener(new OnQueryTextListener() {
            @Override
            public boolean onQueryTextSubmit (String arg0) {...}

            @Override
            public boolean onQueryTextChange (String pattern) {...}
        });
        return true;
    }
});
```

4. In the same file (**ListFragment.java**), we found some comments “// Search for a tag” and “// Searching” in **initNotesList** method. In **initNotesList**, there are two ways to do searching by keywords or tags.

```
void initNotesList (Intent intent) {
    LogDelegate.d("initNotesList intent: " + intent.getAction());

    progress_wheel.setAlpha(1);
    list.setAlpha(0);

    // Search for a tag
    // A workaround to simplify it's to simulate normal search
    if (Intent.ACTION_VIEW.equals(intent.getAction()) && intent.getCategories() != null
        && intent.getCategories().contains(Intent.CATEGORY_BROWSABLE)) {...}

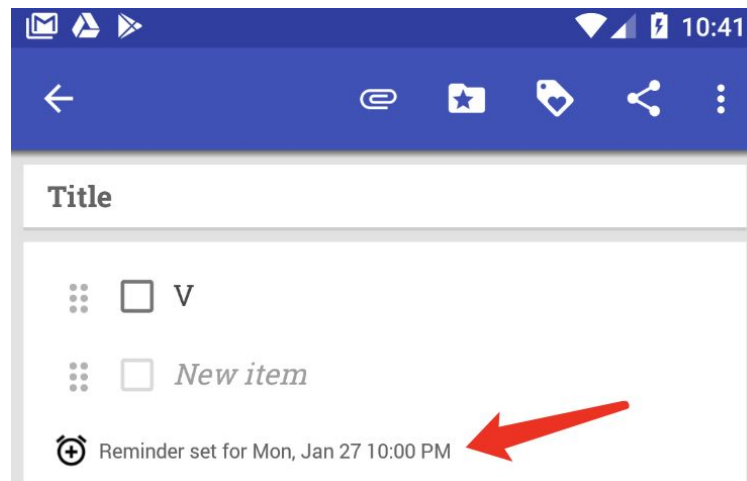
    if (ACTION_SHORTCUT_WIDGET.equals(intent.getAction())) {...}

    // Searching
    searchQuery = searchQueryInstant;
    searchQueryInstant = null;
    if (searchTags != null || searchQuery != null || searchUncompleteChecklists
        || IntentChecker.checkAction(intent, Intent.ACTION_SEARCH, ACTION_SEARCH_UNCOMPLETE_CHECKLISTS)) {...} else {
        // Check if is launched from a widget with categories
        if ((ACTION_WIDGET_SHOW_LIST.equals(intent.getAction()) && intent.hasExtra(INTENT_WIDGET))
            || !TextUtils.isEmpty(mainActivity.navigationTmp)) {...} else {
            NoteLoaderTask.getInstance().executeOnExecutor(AsyncTask.THREAD_POOL_EXECUTOR, "getAllNotes", true);
        }
    }
}
```

Feature 2: Reminder

1.Introduction

Reminder in Omni-Notes allows its users to set and modify reminder time for any specific note. Users can open a date & clock view and set/modify reminder time in it by clicking the clock icon or the reminder info text. When it's the reminder time, a notification pops up.



2.Process of finding

When users create a new note for a todo item, they usually need a reminder to notify them at some point of time. We first found the implementation of this feature in **DetailFragment**. The basic method is **initViewReminder**. This method is used to initialize the reminder view by binding listeners and set image/text resources to the reminder layout.

```

private void initViewReminder () {
    reminderLayout.setOnClickListener(v -> {
        ReminderPickers reminderPicker = new ReminderPickers(mainActivity, mFragment);
        reminderPicker.pick(DateUtils.getPresetReminder(noteTmp.getAlarm()), noteTmp
            .getRecurrenceRule());
    });

    reminderLayout.setOnLongClickListener(v -> {
        MaterialDialog dialog = new MaterialDialog.Builder(mainActivity)
            .content(R.string.remove_reminder)
            .positiveText("Ok")
            .onPositive((dialog1, which) -> {
                ReminderHelper.removeReminder(OmniNotes.getAppContext(), noteTmp);
                noteTmp.setAlarm(null);
                reminderIcon.setImageResource(R.drawable.ic_alarm_black_18dp);
                datetime.setText("");
            }).build();
        dialog.show();
        return true;
    });

    // Reminder
    String reminderString = initReminder(noteTmp);
    if (!TextUtils.isEmpty(reminderString)) {
        reminderIcon.setImageResource(R.drawable.ic_alarm_add_black_18dp);
        datetime.setText(reminderString);
    }
}
}

```

There are two listeners. One is **setOnClickListener**. We found that the listener uses a class called **ReminderPickers**. In this class, we realized this class is highly relevant and all methods in it serve for the feature. A method called **pick** calls another method in the same class called **showDateTimeSelectors**. This method initializes a date time selector for the reminder so users can select a specific time in the graphic view.

The other listener is **setOnLongClickListener**. The listener works when users want to remove a reminder and long click on it. It uses a different class called **ReminderHelper**. The class imports an Android built-in class **AlarmManager** and contains many useful methods for modifying a reminder, including **addReminder**, **checkReminder** (it checks if any reminder exists for a given note), **removeReminder** and **showReminderMessage**. These methods are widely called by methods in other classes. Some usages are not highly relevant or real implementation for the reminder feature. For example, a method to delete a note would call the **removeReminder** method. However, other usages add to the implementation. The **addReminder** & **removeReminder** are called in **SnoozeActivity**. This class provides methods such as **setNextRecurrentReminder**, **updateNoteReminder** and **postpone** for postponing the reminder time if users choose to do so when the notification pops up.

```

package it.feio.android.omninotes;

import ...

public class SnoozeActivity extends AppCompatActivity implements OnReminderPickedListener {

    private Note note;
    private Note[] notes;

    public static void setNextRecurrentReminder(Note note) {...}

    private static void updateNoteReminder(long reminder, Note note) {...}

    private static void updateNoteReminder(long reminder, Note noteToUpdate, boolean updateNote) {...}

    @Override
    protected void onCreate(Bundle savedInstanceState) {...}

    private void manageNotification(SharedPreferences prefs) {...}

    private void postpone(SharedPreferences prefs, Long alarm, String recurrenceRule) {...}

    private void removeNotification(Note note) {...}

    @Override
    public void onReminderPicked(long reminder) {...}

    @Override
    public void onRecurrenceReminderPicked(String recurrenceRule) {...}

}

```

Then a reminder string is created according to the information users provide. **initReminder** is the method which forms and sets the reminder state string.

Given that **DetailFragment** is so large in code size, we continued exploring the reminder feature by searching for “reminder” in it. Surprisingly we found almost everything already gets handled by **initViewReminder**.

Table1 Searching

Folder	File	Method	Relevant?	Relevant how?	Confidence
Omni-Notes\omni Notes\src\main\java\it\feio\android\omnnotes	listfragment.java	initSearchView	Yes	Initialize the view of search	High
..	..	onQueryTextSubmit	Yes	A callback function, when we submit the changed query text, it will show the list saved in SharedPreferences with the query text in it	High
..	..	onQueryTextChange	Yes	A callback function, when the text changes, it begins to query in the background and save the data in SharedPreferences	High
..	..	initNotesList	Yes	When a note list is going to show, it should find all the contents according to current query (searching condition). There are two ways to do searching by keywords or tags.	High

Table2 Reminder

Folder	File	Method	Relevant?	Relevant how?	Confidence
Omni-Notes\omniNotes\src\main\java\it\feio\android\omninotes	detailFragment	initViewReminder	Yes	When we create or modify a note, we can set a reminder, and this method is to initialize the reminder	High
..	..	initReminder	Yes	It's used to set & return an actual reminder state when initializing a note	High
..	..	addReminder	Yes	Add a reminder	High
..	..	trashNotes	Yes	When a note is deleted, the reminder set in this note will also be deleted	Medium
Omni-Notes\omniNotes\src\main\java\it\feio\android\omninotes\utils	ReminderHelper	addReminder	Yes	Add a reminder	High
..	..	checkReminder	Yes	Check if any reminder for a given note exists	High
..	..	removeReminder	Yes	Remove a reminder	High
..	..	showReminderMessage	Yes	Show the text of a note reminder in a toast after the reminder is set	High
Omni-Notes\omniNotes\src\main\java\it\feio\android\omninotes\helpers\date\RecurrenceHelper.java	RecurrenceHelper	getNoteReminderText	Yes	Form & return the text of a note reminder	High
..	..	getNoteRecurrentReminderText	Yes	Form & return the text of a note reminder	High
android.app.AlarmManager	AlarmManager		Yes	Android built-in class, used to set and show reminder	High
Omni-Notes\omniNotes\src\main\java\it\feio\android\omninotes\SnoozeActivity.java	SnoozeActivity	setNextRecurrentReminder	Yes	Set time for the next reminder according to the recurrence rule	High
..	..	updateNoteReminder	Yes	Modify the state of a reminder	High
..	..	postpone	Yes	Select time based on the recurrence rule	High

