

# Flutter medicine tracker app

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**Abstract—** We aim to design a medicine reminder application that fulfills everyone's medication needs in one place: pill reminders, support for any dosage form (incl. tablet, pill, inhalation, injection), frequency, and even refill reminders.

Users no longer have to remember each distinct dose for each distinct medicine; for each medication, you input its name, dose, how often you take it, and when you'd like to be reminded to take it.

Our application is not made for patients and sick people only, nurses could also use our application to keep track of the patients they are taking care of.

In fact, anyone can use our application; whether it's a patient, a nurse, or a family member. We are designing the application with the intention of making it accessible and user-friendly, so anyone can pick it up and use it immediately. Our main goal is to keep the application as accessible and straightforward as possible.

## I. INTRODUCTION

Mobile devices and smartphones have become an important aspect in everyone's daily life, and for that reason, we have to take advantage of this technology to help people with their life. By targeting smartphones, which are used by mostly everyone now, it can allow us to help patients and sick people by reminding them to take their medicine as prescribed to them by their doctors, through ringing and/or sending notifications via our application. As the application is not only a pill alarm, but also a medication tracker, you just need to check its pill log to make sure you've taken that important dose. A comprehensive application that compiles all of your needs in one place: pill and medicine reminders, refill alerts, doctor appointments Having a reminder about which medication to take and when can be handy, especially for people who take multiple medications every day. It may also help prevent serious negative health effects. Surely anyone can use a default timer app on their phone to remind them to take their medicines, but research has shown that almost 50% of people struggle to take their medications as prescribed. Therefore, what we want to build isn't just a reminder, we also want to make sure our users are taking their medications properly as prescribed. Currently, there are devices, pillboxes, and other external tools to help you take your medications as your healthcare provider prescribed, but if you own a smartphone, you have access to simple tools, such as mobile apps, to remind you when to take your medications. For example, you could type in that you take Panadol 200 mg once a day at 8AM. Our application can send an alert to remind you every day to take Panadol at 8AM. You repeat this process for each medication that you take. This process is similar for all apps mentioned in this list.

## II. PROBLEM DEFINITION

These days most people forget to take their medicine and sometimes forget what dose of a medicine they should take. Research has shown that almost 50% of people struggle to take their medications as prescribed. Taking medications can get even harder when you have so many to take.

So, what tools are available to help you remember to take them? This project works on solving that problem by reminding people to take their medications on time. Not only that, but also remind them what dose for every medicine they should take and when they need a refill.

Our application can do more than just reminders, it can help you keep track of refills, identify medications, and look up detailed information about a certain medication.

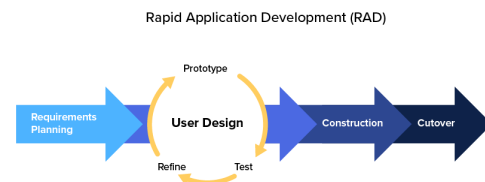
This will help people avoid problems they may face if they don't take their medications on time in addition to taking them in the wrong doses.

## III. SOFTWARE REQUIREMENTS

- Flutter framework used to produce an android application that works on android smartphones.
- Operating System: Windows (10/11) - Android (Pie 9.0)
- Front-End: Visual Studio Code / Android Studio
- Smartphone to test the application.

## IV. METHODOLOGY

Rapid application development (RAD) is a software development methodology, which favors iterative development and the rapid construction of prototypes instead of large amounts of up-front planning.



## V. RELATED WORK

All the applications that are going to be mentioned work the same way but differ in small things like the user interface and usability for most of the apps.

The common features of all applications are: you type in the name of your medications. the dose for each medicine, how often you take it, and when you'd like to be reminded to take it.

MedsLog:

Medslog app is an iphone application that reminds patients of their medicines, one of the users using for this application wrote an article about that application, saying: It was hard for him to remember how many times he took the medicine, many times he takes the pills more than he should, so he used the application to leave the medicine order to it, he used medslog application and it was helpful for him, it cost \$4 dollars for the lite version, and that is one of its cons.

Medslog is hard to use, at first, he did not find any difficulty in using it, but after while he found that UI for the app is difficult and he found lot of problems. Also, the app is only for iphone users, so android users cannot use it, iOS is more complicated than android or in other words

it's more difficult to link apps with each other, medslog needed to link with iphone calendar to set the alarm for the medicine.

Medslog is a bad decision for old people, because of its hard-to-use interface, thus, if someone wanted to use it for his grandpa or grandmother or even if he spends most of his time at work and have no time to learn how it works or teach his grandparents, it will be a bad decision.

Medhelper:

Medhelper application is an iOS and android application, helps people manage their care plan, the app uses a flexible and friendly interface.

The app works in an easy way, the user adds his medicine, selects the time to take and the frequency that's all.

The application also stores medicines names in a database, so the user searches for his medicine, see some information about it as the side effects of the medicine.

The user receives notification at the medicine time, reminding them "that's the medicine time".

Besides that, the user can add notes about their medicine or the overall care plan.

Dosecast:

This is also one of the highest rated apps. It is free but it has premium features you have to pay to unlock.

Here are some of the features The Free edition includes:  
Reliably sends dose reminders with or without an internet connection.

Enables doses to be logged later (in case you forgot your device at Enables doses to be skipped before or after their scheduled time.

Tracks notes for each drug, such as what the drug is for and what side effects to watch out for.

Multiple overdue doses may be postponed as a group or individually.

Notifications may be switched off or drugs archived during pauses in the treatment.

No personal identifiable information is collected.

All drug information is encrypted when in transit, making the app safe when used from a public access point.

But there are also several paid features. Features that require a fee include:

Syncing your data across multiple devices

Tracking different medication types (like injections or eye drops) in addition to oral pills

Setting up refill alerts

Using a drug database while entering medications to make the setup process easier

Taking photos of your medications so you can tell the difference between each one

Keeping a personal log of your medication history to see when you missed your medications

Dosecast is an app used to warn or remind the user for their medicine, similar to medslog app, its cons the same as medslog is that it costs \$4 dollars, cheaper than medslog but still not available for everyone to use, dosecast is more friendly than meds log., sadly it does not have auto fill feature for medicine name, you have to type the whole name you need.

Best feature found in dosecast, the notification works if the iphone is locked, when other app is running, no need for cellular data, also if ringer is off the phone vibrates till the user turns it off, that means he saw and remembered it's time for his medicine.

Mango Health:

This app is also one of the known medicine reminder apps. It is a free app that allows you to set medication reminders. And it has reminders for other healthy habits, too.

This includes customized healthy activity reminders like monitoring your blood sugar or the amount of water you're drinking.

These reminders can help keep you on track. Mango Health also has a health diary to log your upcoming appointments or lab tests. Other features include medication interaction warnings and possible medication side effects. It also lets you know when you may need to refill your medications.

One interesting feature of this app is that you can earn points and rewards for taking your medications. You can redeem these points for gift cards.

EveryDose :

EveryDose is like the other apps mentioned above. It's a free app with customizable medication reminder features, alerts, and reports.

A feature that this app has but not the others is that it has a virtual assistant called Maxwell. This assistant can answer medication related questions, which can help you better understand the medications you're taking.

MyTherapy Pill:

The MyTherapy Pill Reminder app is also like the other apps listed here. It allows you to create customizable reminders of when to take your medications, and you can track them with a logbook that can be shared with others.

The different thing that this app adds is that it allows you to track where you inject your medications, such as your upper arm or stomach.

You can also track other health information, like your mood, weight, and blood pressure.

MyTherapy Pill Reminder:

MyTherapy is an ad-free, award-winning pill reminder and medication tracker. But MyTherapy is more than a free medication reminder: Combining a pill tracker, mood tracker, and a health journal, e.g. with a weight tracker, this medication reminder app allows you and your doctor to put your treatment's success into perspective.

App Features:

- Pill reminder app for all medications

- Pill tracker with a logbook for skipped and confirmed intakes
- Support for a wide range of dosing schemes within medication reminder
- Track your tablets, dose, measurements.
- Share your printable health journal with your doctor
- Personalized tips for your treatment
- Wide range of measurements for all conditions (diabetes, rheumatoid arthritis, anxiety, depression, hypertension, multiple sclerosis), e.g. weight, blood pressure, blood sugar levels

#### Medisafe Pill & Med Reminder:

This app is ranked by pharmacists as the number one medication reminder app. It is rated 4.7/5 stars on the app store from 250000+ users and it's been around for almost 10 years.

After you type in all of your medications, the app builds a report of when you take each of your medications. If you like, you can share the report with a family member or caregiver. They can check to see if you're missing any doses. Medisafe can also remind you when you're low on medication and may need a refill. It can also give medication interaction warnings, such as to avoid certain foods or alcoholic beverages with your medications. You can also sync health data such as blood pressure, heart rate and blood sugar in the app if you choose.

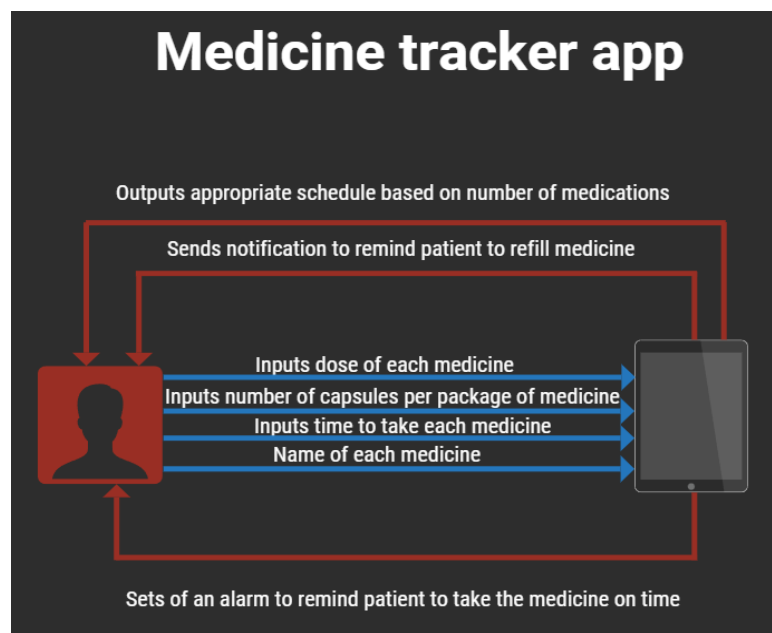
#### Features

- Pill reminder and alarm for all medication needs
- Drug-to-drug interaction checker
- Family and caregiver support via "Medfriend" functionality
- Medicine tracker
- Refill reminders
- Dr appointment manager and calendar
- Support for complex dose schedules
- Add "as needed" medications, vitamins and supplements
- Full selection of OTC and RX medications
- Daily, weekly & monthly med reporting with logbook to share with your doctor
- Track health measurements for various medical conditions (diabetes, hypertension, cancer, anxiety, depression, HIV, multiple sclerosis, MS, Crohn's, lymphoma, myeloma and leukemia) e.g. weight, blood pressure, blood sugar levels
- Android Wear enabled

App Name	Pros	Cons	Rating	Cost
MedsLog	Medicine Reminder	Bad Interface Costly	2/5	4\$
MedHelper	Friendly Interface Take Notes	Requires Internet Connection	4/5	Free
DoseCast	Friendly Interface Customized Ringtone	Costly Requires internet connection	4/5	\$5
Mango Health	Friendly Interface	Requires Internet Connection	3.5/5	Free
Every Dose	Friendly Interface	Requires Internet Connection	4.5/5	Free
MyTherapy Pill Reminder	Friendly Interface Customized Ringtone	Requires Internet Connection	4/5	Free
Medisafe Pill & Med Reminder	Good User Interface	Working Online	3.5/5	Free

Table 1 Comparative study

## VI. SYSTEM ARCHITECTURE



## RESULTS AND DISCUSSION

The medicine reminder app was designed to send push notifications to patients reminding them to take their medication at the prescribed times. The app also allowed patients to track their medication intake and set up customized reminders for different medications.

Overall, the results of our study suggest that the medicine reminder app can be an effective tool for improving medication adherence among patients with chronic illnesses. The app's features, including push notifications and customized reminders, were found to be helpful in promoting medication adherence and reducing missed doses. These findings are particularly important given the high rates of non-adherence among patients with chronic illnesses, which can lead to poor health outcomes and increased healthcare costs.

However, it should be noted that our study had some limitations. Firstly, the study was conducted over a relatively short period of time, and it is unclear whether the app's effects on medication adherence will be sustained over the long term.

Despite these limitations, our study provides strong evidence that a medicine reminder app can be an effective tool for improving medication adherence among patients with chronic illnesses. Further research is needed to explore the long-term effects of the app on medication adherence and to evaluate its effectiveness in other healthcare settings and patient populations.

## CONCLUSION

In conclusion, there is no doubt that taking medications according to the doctor's instructions and prescription is very important for the benefit of one's health as well as the reduction of the risk of side effects. Our application provides better outcomes by improving treatment efficacy and patient outcomes and reducing readmissions through better medication adherence. It improves the patient experience, satisfaction, and retention. Our application will also help you manage your care plan in the easiest way possible. Add your medications and set up reminders so you never miss a dose and always stay on track of your daily medications. Complete your medication plan by adding custom activities, health data, and more. Gain access to detailed information about the medications you are taking. And view a detailed report about your medication plan adherence. Patients and providers deserve a seamless medication experience. Our application is facilitating the way providers and patients tackle medication adherence. With our application, patients can go home with a digital companion that keeps them organized and adherent to their medications. Our Features include a virtual medication list, medication reminders, and much more.

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