REPORT

OF THE PROJECT ENTITLED

MEDICINE REMINDER AND HEALTHCARE

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE

COMPUTER ENGINEERING

As prescribed by

SAVITRIBAI PHULE PUNE UNIVERSITY

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STES'S SINGAD ACADEMY OF ENGINEERING, PUNE-411048

2021-2022

CERTIFICATE

This is to certify that the seminar report entitled

MEDICINE REMINDER AND HEALTHCARE

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2021-2022

We cannot express enough thanks to our respected HOD, for providing us with a highly conducive environment and encouraging the growth and creativity of each and every student. We would also like to offer our sincere gratitude to our **Mini Project Coordinators**, **Prof. S.N. Shelke Sir** for the numerous learning opportunities that have been provided. We would like to take this opportunity to express our gratitude to our **Project Guide**, **Prof. S.A. Bahir Mam** for continuously supporting and guiding us in our every endeavor as well for taking a keen and active interest in the progress of every phase of Medicine reminder and healthcare. Thank you for providing us with the necessary inputs and suggestions for advancing with our Project work. We deeply appreciate the wise guidance that sir has provided. Finally, we would like to extend our sincere thanks to all thefaculty members, staff from Computer Department.

ABSTRACT

This is a Software in which an automatic alarm ringing system is implemented. It focuses on doctor and patient interaction. Patients need not remember their medicine dosage timingsas they can set an alarm on their dosage timings. The alarm can be set for multiple medicines and timings including date, time and medicine description. A notification will be sent to them through email or message inside the system preferably chosen by the patients. They can search doctor disease wise. The patients will get the contact details of doctors as per their availability. Also, the users can see different articles related to medical fields and health care tips. The system focuses on easy navigation and good user interface. Many such Medical Reminder Systems have been developed where a new hardware is required but, in our work, we have made an attempt to develop a system which is economical, time-saving and supports medication adherence.

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Chapter 1] INTRODUCTION

The category of patients involves all human beings-teachers, students, businessmen, housewives, children and also all of us have a busy hectic schedule. Today's life is full of responsibilities and stress. So, people are prone to diseases of different types and it is our duty to make ourselves stay fit and healthy.If the patient stays at home, then he or she might get someone to look after him/her but when one is notat home, is out of the city or state away from home then it is hard for the family members to call them and remind them their dosage timings every time. In our developing and technology dependent life we totally rely on gadgets especially smart phones. Today everyone has a smart phone. With this we get an opportunity to use technology in a better way so that it can be made useful to us. And it plays an important part in our daily life and helps us staying fit in many ways. The remarkable problem is that patients forget to take the proper medicines in proper proportion and in proper time. Medication adherence, which refers to the degree or extent to which a patient takes the right medication at the right time according to a doctor's prescription, has recently emerged as a serious issue because many studies have reported that non-adherence may critically affect the patient, thereby raising medical costs.

[1] Medication nonadherence is a common, complex, and costly problem that contributes to poor treatment outcomes and consumes health care resources.

[2] So, we are introducing a Software whose objective is to remind the patients of their dosage timings through Alarm Ringing system so that they can stay fit and healthy. Through navigation they can search doctors and hospitals and contact details so that they can easily get proper treatment on time. This software focusses on the people who forget to take medicines on time. It allows users to set an alarm along with the fields of date, time and medicine description which will allow them to set alarm for multiple medicines at different time intervals. The notification system will send a notification after setting an alarm. The user can activate or deactivate the notification accordingly. It will be sent as email or message as selected by the user. The patients can search doctor disease wise and area wise which will provide easy searching facility along with doctor's contact information, visiting place and availability time. Medication reminders help in decreasing medication dispensing errors and wrong dosages. The software is designed on Eclipse. It can be helpful in defense sector and emergency conditions (accidents) and can spread health care awareness. It is life-saving, money saving and time saving software which is easy to use and provides a good user interface.

The software is designed on Eclipse. It can be helpful in defense sector and emergency conditions (accidents) and can spread health care awareness. It is life-saving, money saving and time saving softwarewhich is easy to use and provides a good user interface.

Chapter 2] RELATED WORK

Many Medication Systems have been developed based upon different platforms and concepts. Use of healthcare related apps is growing but there are many issues related to their functionality. Medicine reminder [3] is a medication reminder system for children. It runs on mobile devices such as smart phones, providing user interfaces for configuring medication schedules anduser alerts for reminding users about the time and type of medication according to the configured medication schedule. Some systems use sensors, radio-frequency identification (RFID), ormotion detection technologies to ensure that patients actually take their medications [4][5][6]. Park at proposed medication reminder synchronization system based on data synchronization. It transmits OMA (open mobile alliance) DS (data synchronization) based messages containing the patient's medication data and the device configuration data to a remote manager/medical staff. It also synchronizes data (including medication schedules) modified/generated by these personnel in the medication server [1]. Prasad B has discussed the approach of Medicine reminder pro. It is a free software which supports up to 15 reminders. User can select them in either repeating ornon-repeating alarm patterns. Any hourly time interval between alarms can be selected, starting from the minimum of 1 hour. At the scheduled time, software will produce a notification with an alarm, vibration or LED indication.[8]. There are many loopholes of existing reminder systems. To list a few: They do not provide disease wise searching of the Doctors, no optional notification only compulsion, no facility for scheduling of appointments to the doctors. Some of the systems have a default alarm tone so the users cannot change them. The scheduled reminder suggests any kind of medicine, dose of medicine, etc. automatically withoutdoctor's prescription, which can cause

International Journal of Managing Public Sector Information and Communication Technologies (IJMPICT) Vol. 6, No. 2, June 2015 41 harm to the patients. Lastly, many of the systems available require special hardware which need to be purchased.

Chapter 3] PROPOSED SYSTEM AND IMPLEMENTATION

The proposed system is based on windows Operating system which will remind the users to take medicines on time through notification and automatic alarm ringing system. Software is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones and tablet computers, developed by Google in conjunction with the Open Handset Alliance. Software was built from the ground-up to enable developersto create compelling mobile software's that take full advantage of all a handset has to offer.The system is specified on software operating system only because the market share of Software is high. [9] Software also comes with a software development framework (ADF), which provides an API for software development and includes services for building GUI software's, data access, and other component types. The framework is designed to simplify the reuse and integration of components. Software apps are built using a mandatory XML manifest file. The manifest file values are bound to the software at compile time. This file provides essential information to a Software platform for managing the life cycle of a software. Examples of the kinds of information included in a manifest file are descriptions of the app's components among other architectural and configuration properties. Components can be one of the following types: Activities, Services, Broadcast Receivers, and Content Providers [10].

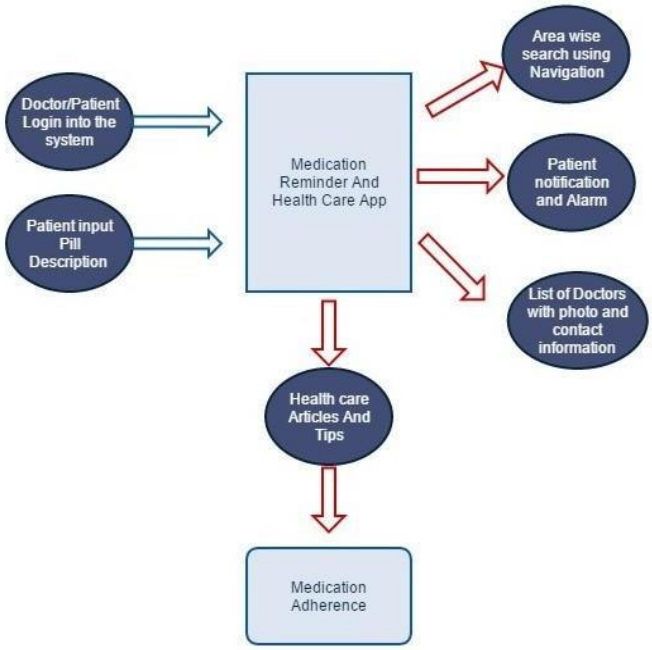


Figure 1. Medication Reminder and Healthcare: System Overview

Figure 1 reflects the overview of the app. Input to the system is the information entered by thepatient which includes date, time, medicine name, doctor's name, etc. The output of the system focuses on "Medication Adherence". Medication adherence usually refers to whether patients

International Journal of Managing Public Sector Information and Communication Technologies (IJMPICT) Vol. 6, No. 2, June 2015 42 take their medications as prescribed (egg, twice daily), as well as whether they continue to take a prescribed medication. Medication nonadherence is a growing concern to clinicians, healthcare systems, and other stakeholders (e.g., payers) because of mounting evidence that it is prevalent and associated with adverse outcomes and higher costs of care [11].

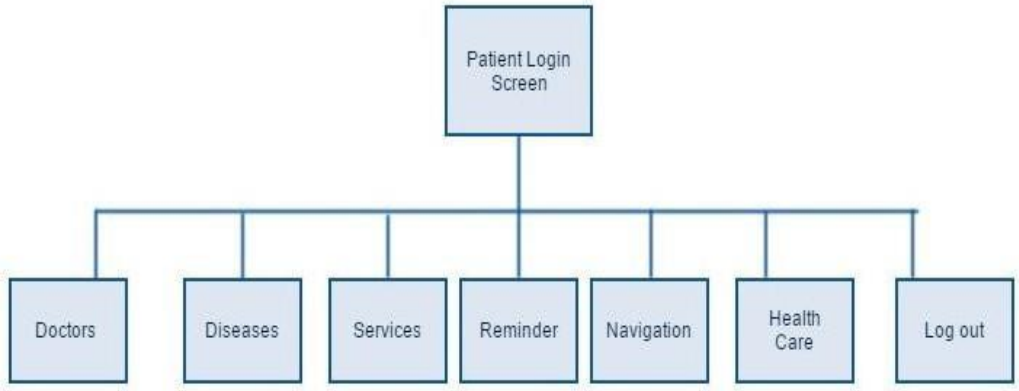


Figure 2. Patient login module

Figure 2 highlights the patient login module. After login the patient will be able to view the list of all the registered doctors with their names, contact information, phone numbers, hospital/clinic address, the availability of doctor accordingly and all other information which the Doctor registers at the time of Signing into the system. They can see the dropdown view of the diseases and can directly navigate to the list of doctors. It also shows the next appointment with the Doctor. This helps the patients to find the Doctors disease wise. The services help them to understand the system properly so that it becomes useful and productive. Medication reminders help in decreasing medication dispensing errors and wrong dosages. The Reminder system consists of two parts –setting reminder and getting notification.

Set Alarm module- It helps in reminding about the medicines. User can add details of his dosage schedules. Using the date field one can enter the starting and ending dates between which, he hasto take medicines. The time field shows the time of dosage and on that time the alarm will get rung. The user can add the description of the medicine, including name, purpose and other related description. All the information will be saved in the database. This makes any time availability of the patients' records.

Get Notification module: Once the alarm is set then the user gets the notification. The users canactivate or deactivate this accordingly. If he does not require the notification, he can turn off it. Ifhe requires this system then a notification will be sent into his device. Again, if he wants the notification in email form, he can select the 'Notification through Email Mode' or if he requires it in a message format he can go with 'Notification through Message Mode'. Figure 4 depicts themodule with Notification through Message Mode.

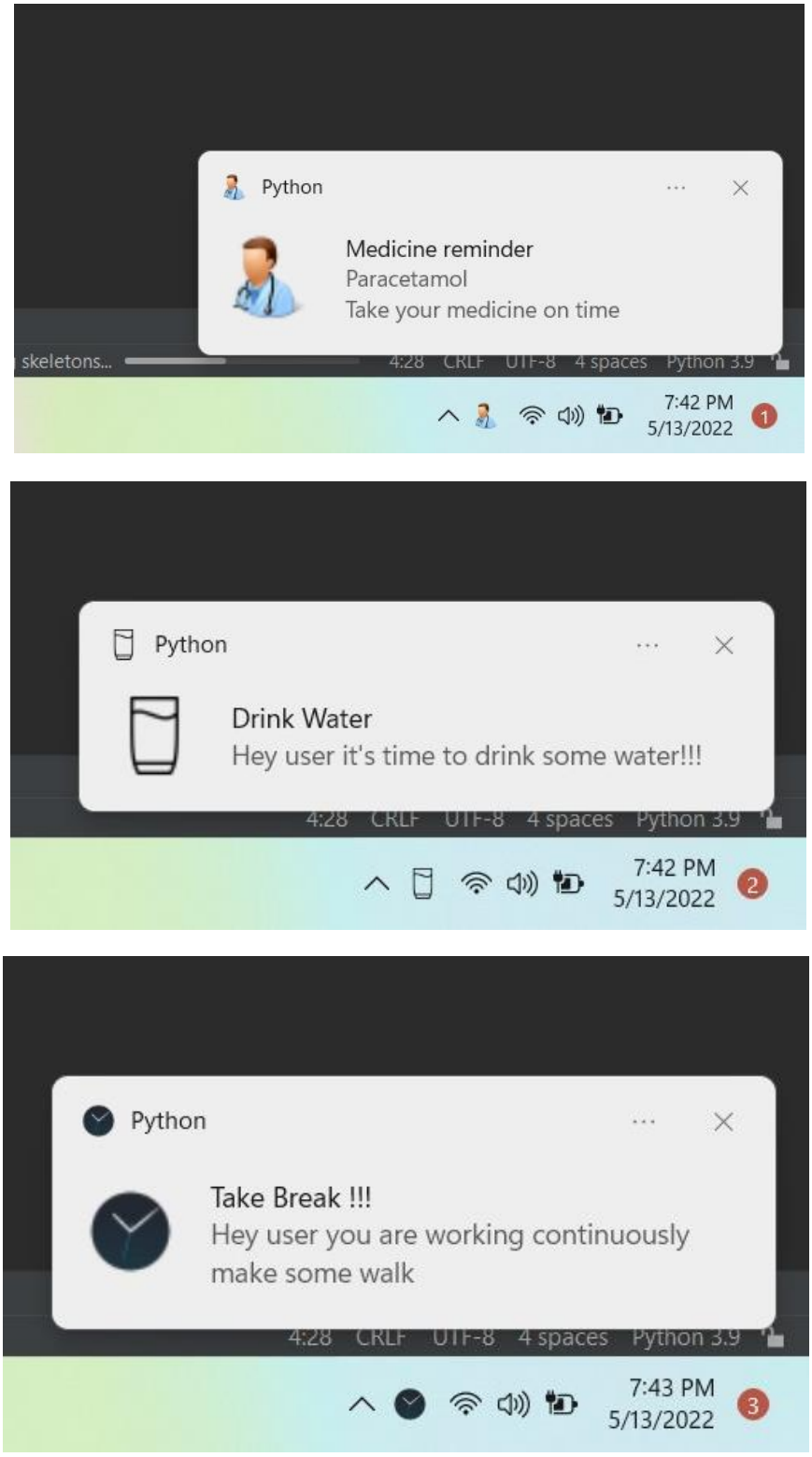


Figure 4. Screenshot of Get Notification Module (Notification through message mode)

Healthcare Module: In it, the patients can read different posts, articles, new technologyin medical sciences, tips and other information of staying fit because staying fit is important for an International Journal of Managing Public

Sector Information and Communication Technologies (IJMPICT) Vol. 6, No. 2, June 2015 44 good social life, becoming a good wellbeing, looking and feeling better, and a happy healthy life. Patients can get knowledge of new treatments.

Registered Patients Module: The Doctor can view all the patients registered to him withall of his details.

Appointment Schedule Module: The doctor can view the appointment schedule and canset the new appointments accordingly. This module will help in making proper adjustments.

Reply Mode Module: The reply mode module allows the patient to

ask some questions

related to the prescribed pills, medicine schedules and other queries. The doctors can replyin yes or no mode

Table 1. Data Description for Set Alarm Module

Data Name	Data Type	Description
A_Id	Digit	Stores the unique id of the alarm set by the patient.
A_Name	String	Stores the description of the alarm.
A_Time	Digit	Stores the time of alarm.
A_Date	Digit	Stores the date of alarm.
A_Medicine_Name	String	Stores the name of the medicine with its description.
A_Doctor_Name	String	Stores Doctor’s Name.

Table 2. Data Description for Get_Notification Module

Data Name	Data Type	Description
N_Id	Digit	Stores the unique id of the notification.
N_Status	String	Stores the status of the notification.
N_Email_Status	String	Stores the information of the notification sent through email.
N_Message_Status	String	Stores the information of the notification sent through message.
N_Message_Content	String	Stores the information to be shown regarding notification.

Chapter 4] COMPARISON WITH OTHER SYSTEMS

Meds Log, a software only for the iPhone users, is very complex software as compared to others. The users need to spend much more time with the software to understand its functionalities in a proper manner. The main problem with the system is it has "consumed by" box where a user is supposed to fill his username in the provided space. Still the system shows "no people" [12]. In contrast the proposed system is very much user friendly because it is made for the people of all ages. So, one can utilize the time in using the system rather than wasting the time in understanding the software. The users can easily manage their profile.

Motion PHR Health Record Manager which is available for $10 for full version on Software and iPhone and $2 for a Lite version on iPhone, is less rated by the users because of the problem about the flaws in the reminder system and a service that backs up user data [12]. Medsy is also a software which tries to provide medicine remaindering system but it is loaded with less features. If the user is supposed to take a medicine three times a day, then this software does not allow to set alarm accordingly. But in our work this disadvantage has been overcome by allowing users to set multiple alarms and notifications [12].

Another software Dose Cast is loaded with some good features but it fails to provide notifications if the users do not have a 3G or Wi-Fi connection [12]. Webjet also serves the same purpose. It can revise the in-take schedule automatically when a dose was missed without the doctor's prescription [8]. Because of the implementation of health care module in our system, a user will be provided with a daily health care tip along with the related videos and articles. So, the proposed work tries to overcome all the listed disadvantages of other systems.

Table 3 shows a comparison of Medication Reminder and Healthcare App with three other Apps- MedHelper App, OnTimeRX App and Dosecast App. Proposed App supports disease wise, area wise (location-based) searching, also provides tips and articles and availability timings of all registered doctors which is not a feature of the remaining three Apps.

2. Problem and Weaknesses of Current System

- Need of extra manual effort.
- It used to take much time to find any employee Not very much accurate.
- Danger of losing the files in some cases.

4.3 Requirements of New System

Decision in assigning proper skillful hands for the project is an important issue in OBS Module. The OBS Administrator should report with the personal holdingthe necessary skills required for the project assignment. The decision in makinganalysis about the employee's skills is a prime important before booting in. Theproposed system of OBS Module is the right software to be incorporated into the Automation of OBS Software for helping the organization needs with respect to skillful Human Resource. The proposed system provides detail general information about the employee along with Educational, Certification, Skill and Project details. It enhances the OBS Management in adding, viewing and

updating employees' details and generates various reports regarding employee's skill and experience. Suggestions and Grievances posted by the employees are upheld for taking care of the necessary steps in forwarding company's obligation.

ADVANTAGES OF PROPOSED SYSTEM:

- Very fast and accurate.
- No need of any extra manual effort.
- No fever of data loss.
- Just need a little knowledge to operate the system.
- Doesn't require any extra hardware device.
- At last, very easy to find the employees.

4. FEASIBILITY STUDY:

Once the problem is clearly understood, the next step is to conduct feasibility study, which is high-level capsule version of the entered systems and designprocess. The objective is to determine whether or not the proposed system isfeasible. The OBSee tests of feasibility have been carried out.

- Technical Feasibility
- Economic Feasibility
- Operational Feasibility

❖ TECHNICAL FEASIBILITY

In Technical Feasibility study, one has to test whether the proposed system can be developed using existing technology or not. It is planned to implement the proposed system using java technology. It is evident that the necessary hardware and software are available for development and implementation of the proposed system. Hence, the solution is technically feasible.

❖ ECONOMIC FEASIBILITY

As part of this, the costs and benefits associated with the proposed system compared and the project is economically feasible only if tangible or intangible benefits outweigh costs. The system development costs will be significant. So, the proposed system is economically feasible.

- OPERATIONAL FEASIBILITY

It is a standard that ensures interoperability without stifling competition and innovation among users, to the benefit of the public both in terms of cost and service quality. The proposed system is acceptable to users. So, the proposed system is operationally feasible.

Chapter 5] ADVANTAGES OF THE PROPOSED SYSTEM

The users will get the notifications through SMS also. It will provide the information about the medicine timings. The scheduled appointment with the doctor with the contact details including visiting time, venue and availability at different hospitals in case the appointment is missed at the scheduled place. The new appointment will be set accordingly. The system focuses on improving the rate of attendance at healthcare appointments. The personal phone notifications and reminders are a strong supporting tool in improving medication adherence strategies. The New England Healthcare Institute estimates that $290 billion of healthcare expenditures could be avoided if medication adherence were improved [13]. It supports an easy implementation as it is less expensive, reliable, scalable, accessible to anyone with smartphones, and do not require separate devices, packaging or extra hardware. In caseif the user's phone is switched off and he has set the alarm and the notification is set on

, still, he will be able to get the notifications through email or message (on his device as well as on other registered number), so it works even when you are running out of the battery. Also, a facility of reminding the doctor's next appointment in the system has been focused. We have also implemented a navigation system which will allow usersto locate the nearest registered hospitals according to their current location. The location-based searching of the doctors as well as disease wise searching has been focused which makes the software more suitable, more user friendly with great features and satisfactory results.

Chapter 6] RESULTS

The software gives reliable reminders, good user interface, nice user experience and it supports many new features supporting medication adherence.We made a survey of 100 people including people of all ages. The following graph (Figure 6) shows the interest of different age groups to the different functionalities provided by the system. This showed that the combination of all the functionalities provided is useful to the people of all ages. Searching doctor disease wise was surveyed beneficial to the people aged around 40 of the total population on whom the survey was made. Again, the location based (Area wise)searching of the doctor was a good choice to the population ageing 58. People ageing under 55 found useful the feature of scheduling of the appointment. People of the greater ages are more likely to forget the medicine timings as wellas remembering their appointments. The users will get the schedule of medicine in-take time with medicine description, starting and ending date of medicine, notification through message or email, automatic alarm ringing system and navigation system. If the phone is running out of battery, then too the system givesthe notifications through email and other registered number. So, this was found beneficial to the people ageing under 45 as they are more likely to access emails. The automatic alarm ringing feature was proved beneficial to 100% of the total population. The youths are very much concerned with the new health care awareness and are interested in knowing about new medical techniques being developed every day. So, this feature was found useful to the youths. Hence the overall system served well in our survey and it truly supports MedicationAdherence.

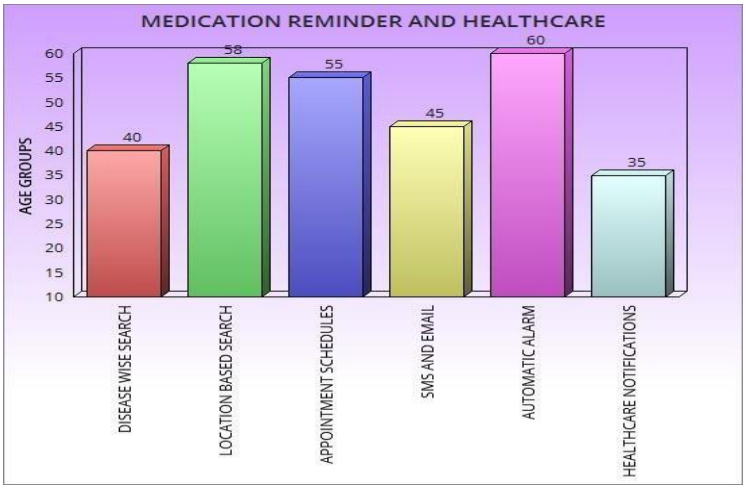


Figure 6. Graph showing different functionalities of beneficial to different age groups

CHAPTER 7] CONCLUSION AND FUTURE WORK

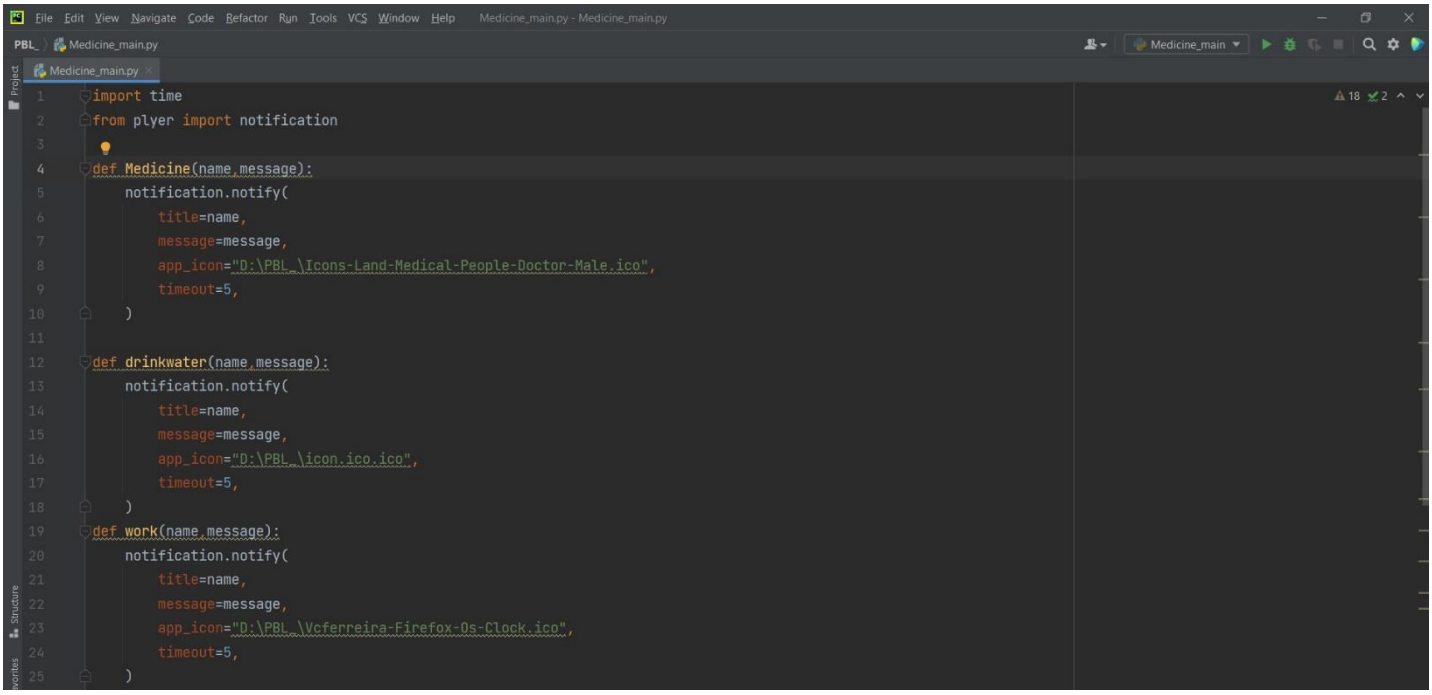
Many Medication Reminder Systems have been developed on different platforms. Many of these systems require special hardware devices to remind the patients about the medicine in-take timings. Purchasing new hardware devices becomes costly and more time and money consuming. So, in the given work an attempt has been made to implement a system which is economical, easily accessible and improves medication adherence. Medication non-adherence reduces the effectiveness of a treatment and imposes a financial burden on health care systems [14] [15]. The patients will get the schedule of medicine in-take time with medicine description, starting and ending date of medicine, notification through message or email, automatic alarm ringing system and navigation system. The scheduled reminder will not suggest any kind of medicine which is not prescribed by the doctor that will assure the safety of the patient and also will avoid wrong dosages. The patients can also search doctors' disease wise (depending upon the specialization of the doctor), which provides easy searching facility to the users and saves the time. Doctors can view all the fixed appointments along with date and time, which he fixed and through this he can make new appointment schedules. We plan to focus on improving the overall performance of the system. Also, interaction between patients and doctors through video calling and secure prescription will be focused upon. Some more ways to achieve medication adherence will be focused.

Chapter 8] CONCLUSION

Back in 1969, Chemical Bank announced that a new form of banking was being launched. With that, customers were provided with plastic cards designed with a magnetic strip that could be used with a machine built into a wall. Gone were the days of having to stand in line for a teller or not having money on hand after normal banking hours. Almost everyone has heard of and used an ATM machine. Interestingly, some of people feel that ATM machines are the best thing to happen in the banking world while other people consider them a curse. The main complaint heard about ATM machines is that while they are convenient, they are expensive touse. However, if we look at it from a banking perspective, business is business.

Regardless of what we think of ATM machines, there is no doubt that they have changed the world and the way in which we do things. For example, think how manytimes we have been out somewhere only to discover we have no cash and we are outof checks, ah, but in the corner, there is an ATM machine. In the blink of an eye, weswipe the card and now have cash on hand. In addition to pulling money out, the ATM machine also makes it convenient to deposit money, transfer money, and check balances. Best of all, to use an ATM machine, we do not have to go to the bank. We will find ATM machines at other banks, grocery stores, shopping malls, along the roadside, Buckingham Palace, airports, in casinos, and even on the SouthRim of the Grand Canyon. For this reason, ATM machines are extremely helpful!

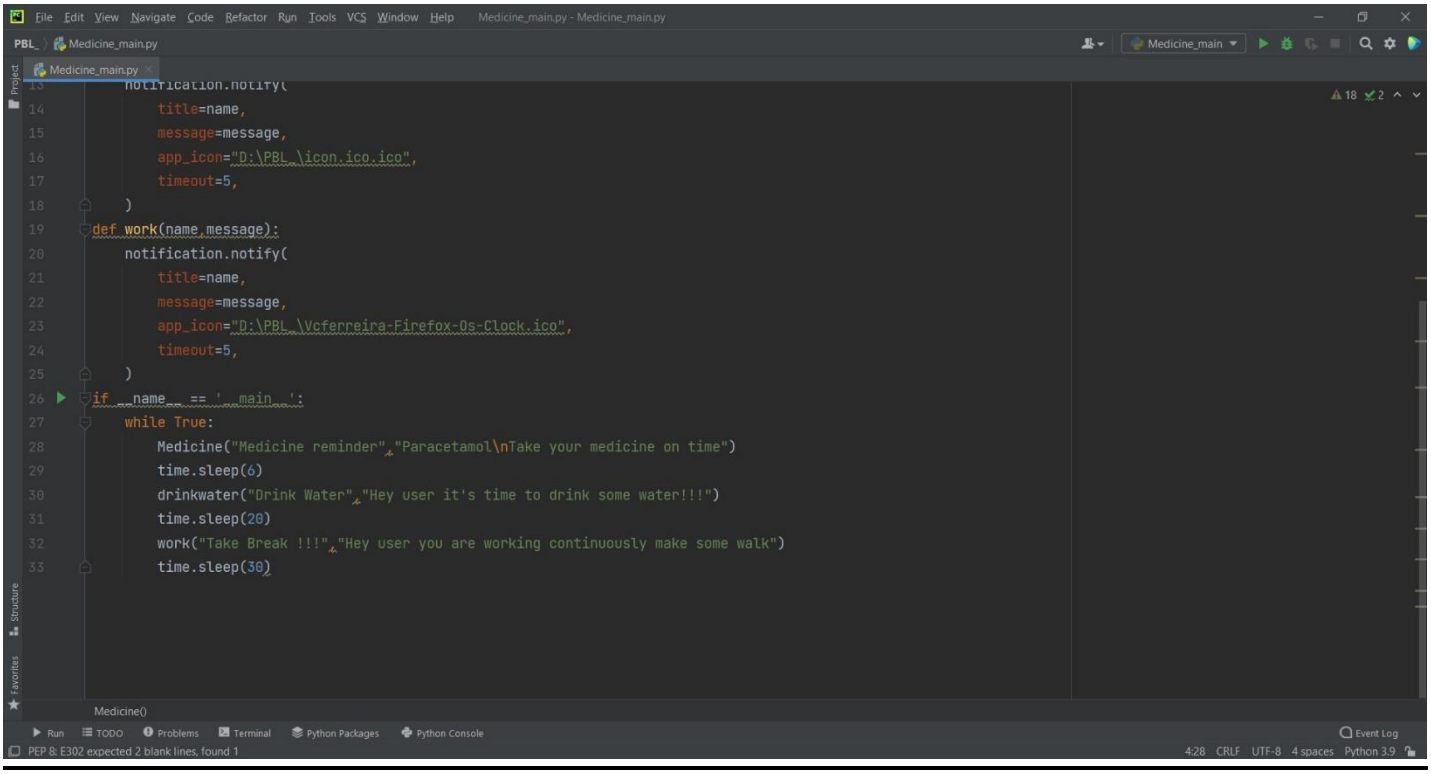
CODE FILE :



```python
import time
from plyer import notification

def Medicine(name,message):
    notification.notify(
        title=name,
        message=message,
        app_icon="D:\PBL_\Icons-Land-Medical-People-Doctor-Male.ico",
        timeout=5,
    )

def drinkwater(name,message):
    notification.notify(
        title=name,
        message=message,
        app_icon="D:\PBL_\icon.ico.ico",
        timeout=5,
    )
def work(name,message):
    notification.notify(
        title=name,
        message=message,
        app_icon="D:\PBL_\Vcferreira-Firefox-Os-Clock.ico",
        timeout=5,
    )
```



```python
    notification.notify(
        title=name,
        message=message,
        app_icon="D:\PBL_\icon.ico.ico",
        timeout=5,
    )
def work(name,message):
    notification.notify(
        title=name,
        message=message,
        app_icon="D:\PBL_\Vcferreira-Firefox-Os-Clock.ico",
        timeout=5,
    )
if __name__ == '__main__':
    while True:
        Medicine("Medicine reminder","Paracetamol\nTake your medicine on time")
        time.sleep(6)
        drinkwater("Drink Water","Hey user it's time to drink some water!!!")
        time.sleep(20)
        work("Take Break !!!","Hey user you are working continuously make some walk")
        time.sleep(30)
```

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4) **https://www.elprocus.com/automated-teller-machine-types-working- advantages/**

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