Date	**18 November 2022**
Team ID	**PNT2022TMID49546**
Project Name	**Project - Personal Assistance for Seniors Who Are Self-reliant.**
Maximum Marks	**4 Marks**

Personal Assistance for Seniors Who Are Self-Reliant - Project Report

1. INTRODUCTION:

Project Overview

- An app is built for the user (caretaker) which enables him to set the desired time and medicine. These details will be stored in the IBM Cloudant DB.
- IfthemedicinetimearrivesthewebapplicationwillsendthemedicinenametotheIoTDevicethroughtheIBMIoTplatform.
- Thedevicewillreceivethemedicinenameandnotifytheuserwithvoicecommands.

Purpose

- Sometimes elderly people forget to take the medicin eat the correct time.
- They also forget which medicine He/She should take at that particular time.
- Anditisdifficultfordoctors/caretakerstomonitorthepatientsaroundtheclock.Toavoidthisproblem,this medicine reminder system is developed.

2. LITERATURE SURVEY:

2.1 EXISTING PROBLEM:

Elderlypeopleletslipthemedicationsatthecorrecttimeandtheexistingsolutionsfor this problem is setting reminders or using pill boxes, calendars, Personal Assistance.Though the solutions give reminders, the voice commands or assistance given by this system is more efficient.

2.2 REFERENCES:

1) Visual Health Reminder: A Reminder for Medication Intake and Measuring Blood Pressure to Support Elderly People ; René Baranyi; Sascha Rainer; Stefan Schlossarek; Nadja Lederer; Thomas Grechenig
2) Cloud Computing based Medical Assistance & Pill Reminder ; A. Chinnasamy; Ram PrasadJ; Syed Rafeeq Ahmed; AkashS

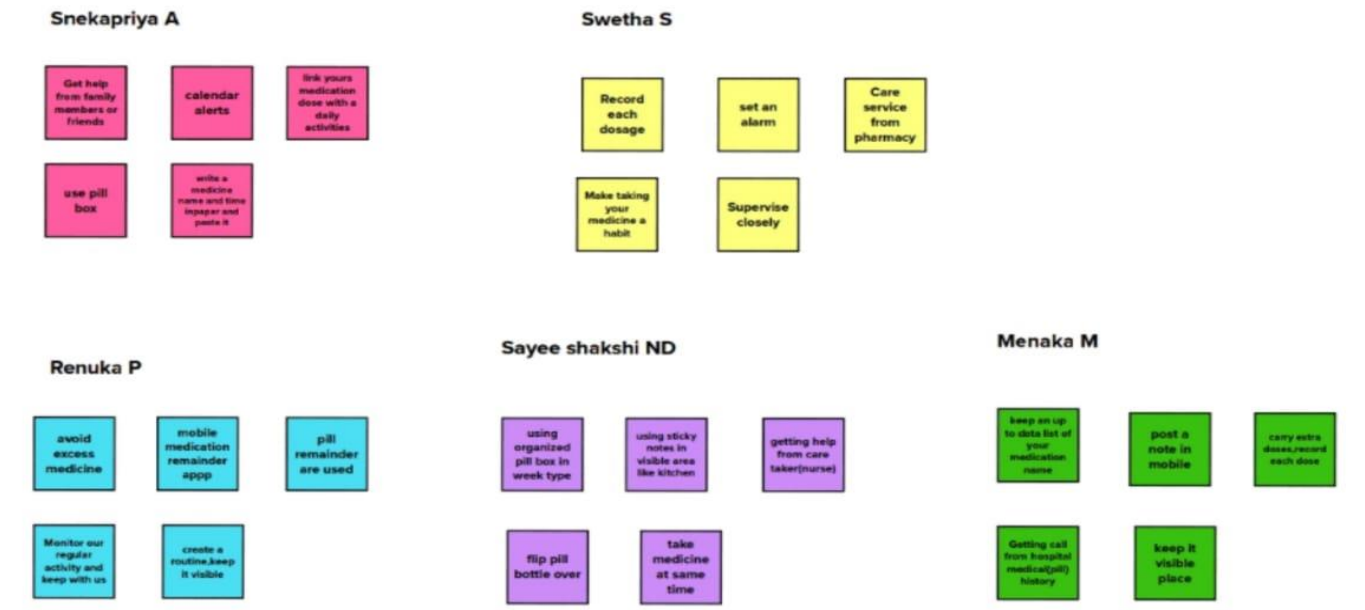
2.3 PROBLEM STATEMENT DEFINITION:

- Who needs Sometimes forget to intake their medicine at prescription time Because life threatening mistakes can be prevented.
- Who needs Due to memory loss Because She needs to cure his illness.

3. IDEATION AND PROPOSED SOLUTION:

EMPATHY MAP:

3.2 IDEATION AND BRAINSTROMING:



3

Group ideas

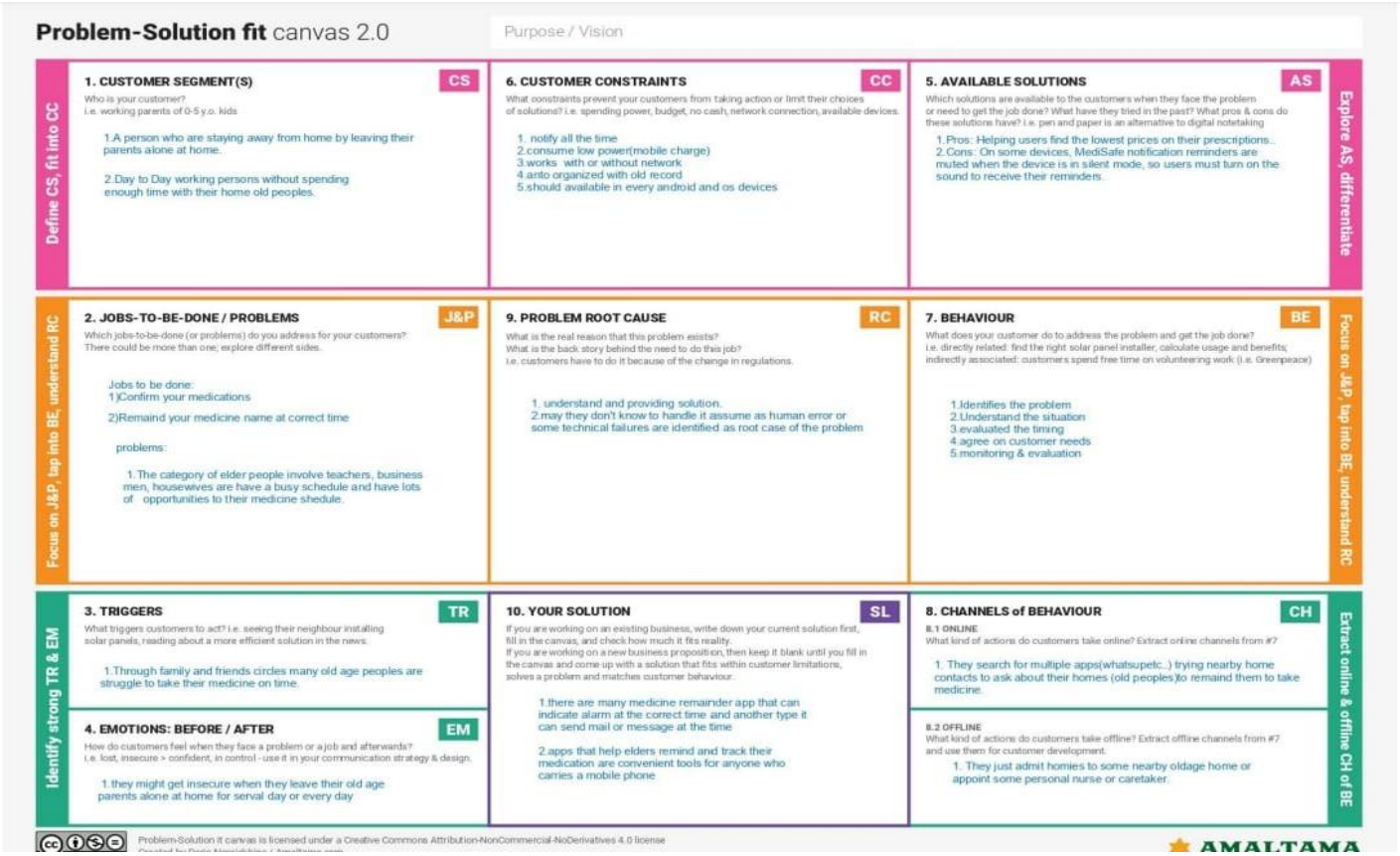
Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

3.3 PROPOSED SOLUTION:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	➢ Elderly People forget to take there medicine at correct time.
2.	Idea/Solution description	➢ A medicine reminder system is developed. An app is built for the user (caretaker) which enables him to set the desired time and medicine.
3.	Novelty/Uniqueness	➢ This device can remind tell the name of medicine at correct time.
4.	Social Impact/Customer Satisfaction	➢ The Quality of life, health issues can be reduced.
5.	Business Model(Revenue Model)	➢ App and device offered for the customers ➢ Elder peoples is our target ➢ By selling our device with app the revenue is generated.
6.	Scalability of the Solution	➢ Elder people are the key target for medicine reminder app and device.

3.4 PROBLEM SOLUTION FIT:



4. REQUIREMENT ANAYSIS:

4.1 FUNCTIONAL REQUIREMENTS:

FR No.	Functional Requirement (Epic)	Sub Requirement(Story/Sub-Task)
FR-1	Flexible Scheduling	➢ Ability to schedule reminders to occurs on a non-daily or monthly basis to schedule medications with stop dates.
FR-2	Time zone support	➢ Ability to change time zone to ensure medication is taken at the right time when traveling.
FR-3	Customizable alert sounds	➢ Availability of different types of notification sounds.
FR-4	Visual aids	➢ Availability of icons (eg: tablets, syringe, drops)
FR-5	Data Security	➢ The App developer ensure data security

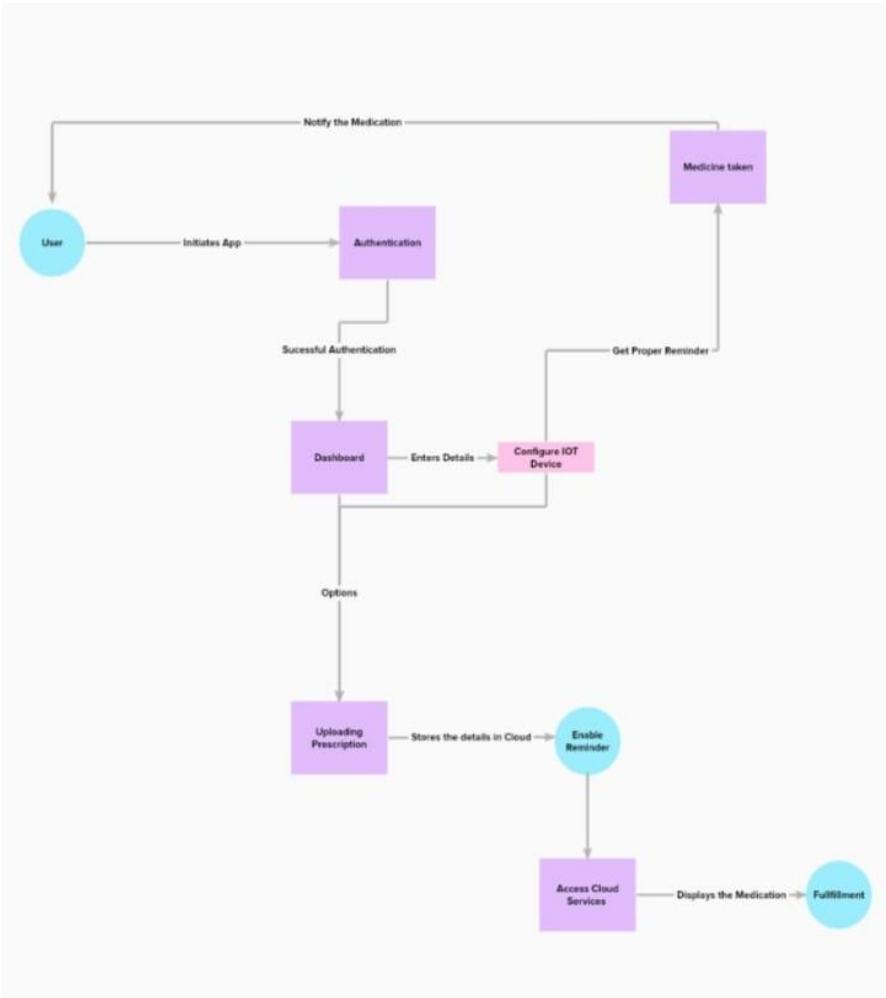
4.2 NON-FUNCTIONAL REQUIREMENTS:

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	➢ Usability Evaluation of a Smartphone Medication Reminder Application.
NFR-2	**Security**	➢ This Application was more secure for the appropriate medication.
NFR-3	**Reliability**	➢ Received a reminder device (pill bottle, strip with toggles etc.)
NFR-4	**Performance**	➢ Despite a broad market proposition, the potential for medication reminder app development is still very high.
NFR-5	**Availability**	➢ The technologies of home health care which are currently used for improving this situation by reminding the scheduled.
NFR-6	**Scalability**	➢ Medication tracker app development is currently very popular sector.

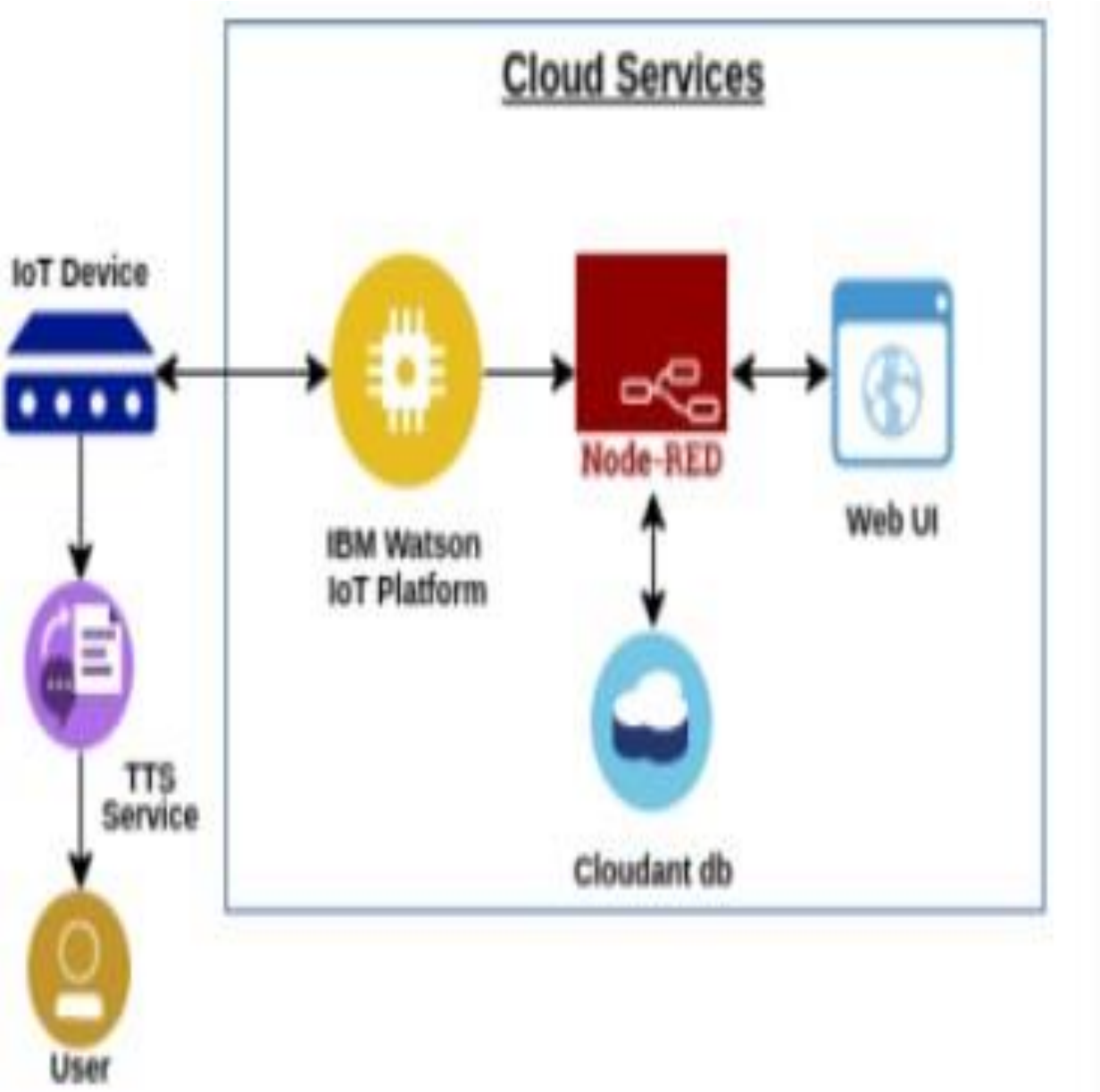
Performance	Performance is better compared to other market products.
Availability	Available on mobile app.
Scalability	Using Cloud services, makes the scalability higher the using traditional locally stored database.

5. PROJECT DESIGN:

5.1 DATAFLOW DIAGRAM:



5.2 TECHNICAL ARCHITECTURE:



5.3 USER STORIES:

User Type	Functional Requirement(Epic)	User Story Number	User Story/Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Caretaker	USN-1	Asauser ,I want to take Medicines on time and monitor my health.	I want to take Medicines on time and monitor my health.	High	Sprint-1
Customer(Alzheimer patients)	Smart Medicine Box	USN-2	As a user, I want to take my tablets on time by voice command.	Need to take my tablets on time by voice command.	High	Sprint-1
Customer(Mentally idle Patients)	Caretaker	USN-3	As a user, my patients needs to take medicine on time and monitor the activity.	My patients needs to take medicines on time.	Medium	Sprint-2
Customer (Handicapped Patients)	Smart Medicine Box	USN-4	As a user,. I need to take my medicine in nearby places with the light notification.	I need to take my medicine in nearby places.	Medium	Sprint-3
Customer (paralysed Patients)	Caretaker	USN-5	As a user, my patient medication time and prescription should load in database for upcoming week	My patient medication time and prescription should be in database.	Low	Sprint-4

6. PROJECT PLANNING AND SCHEDULING:

6.1 SPRINT PLANNING AND ESTIMATION:

Sprint	Functional Requirement(Epic)	User Story Number	User Story/Task	Story Points	Priority	TeamMembers
Sprint-1	Caretaker	USN-1	As a user, I want to take Medicines on time and monitor my health.	2	High	Shenakpriya.A Sayee Shakshi. N.D
Sprint-2	Smart Medicine Box	USN-2	As a user, I want to take my tablets on time by voice command.	2	High	Renuka.P SayeeShakshi.N.D
Sprint-3	Caretaker	USN-3	As a user, my patients needs to take medicine on time and monitor the activity.	2	Medium	Swetha.S Snekapriya. A
Sprint-4	Caretaker	USN-4	As a user, Elder Medication time and prescription should load in the database for the upcoming week.	2	Low	Renuka. P Menaka. KP
Sprint-5	Smart Medicine Box	USN-5	As a User, I need to take my medicine in nearby places with the light notification.	2	Medium	Menaka.K. P Swetha.S

6.2 SPRINT DELIVERY SCHEDULE:

Sprint	Total Story Points	Duration Sprint Start Date Sprint End Date(Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days:25 Oct2022-30 Oct 2022	20	30 Oct2022
Sprint-2	20	6Days:1Nov2022-06Nov2022	20	06 Nov2022
Sprint-3	20	6Days:8 Nov2022-13Nov2022	20	13 Nov2022
Sprint-4	20	6Days:15Nov2022-20Nov2022	20	20 Nov2022

6.3 REPORTS FROM JIRA:

7. CODING AND SOLUTION:

7.1 FEATURE 1:

The mobile application developed has afeature of individual login by different users.

7.2 FEATURE 2:

The mobile application also has the feature of uploading medicine names in the cloud.

7.3.FEATURE 3:

The project includes a cloud database system

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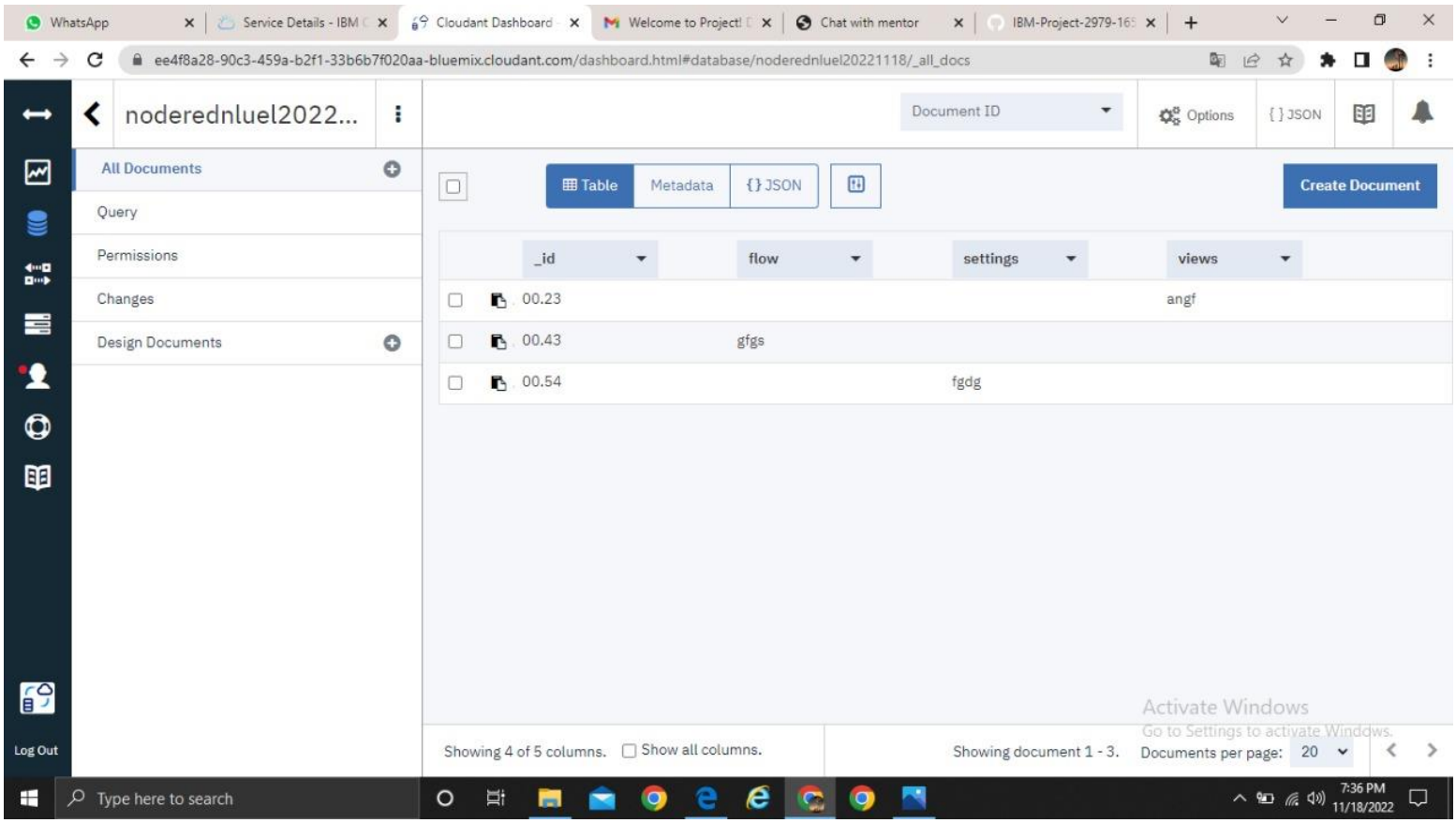

8. TESTING:

8.1 TESTCASES:

Test case	Precondition	Test steps	Test data	Expected result
Verify login with valid credentials	User should have a network connection	1. Launch URL 2. Enter valid username. 3. Enter valid password. 4. Click on the “Login” button.	Username: Maxie Password: 12345	Users should be able to login successfully.
Verify login with invalid credentials	User should have a network connection	1. Launch URL 2. Enter valid username. 3. Enter invalid password. 4. Click on the “Login” button.	Username: Maxie Password: 12346	Users should not be able to login.
Update the medicine name with the time.	User should have a network connection	1. Enter valid medicine name. 2. Enter the time when the medicine has to be consumed. 3. Click on the “Submit” button.	Medicine Name: Paracetamol Medicine Time: 22:03	Users should be able to update it successfully.

8.2 USER ACCECPTANCE TESTING:

8.2.1 Login page testing:

8.2.2 Medicine page testing

9. RESULTS

9.1 PERFORMANCE METRICS:

S.NO	Parameter	Performance
1.	Response Time	0.2s(Averageof10trials)
2.	Workload	500 users (Calculated based on Cloud Space)
3.	Revenue	Individual users and pharmaceutical industries.
4.	Efficiency	Simple and straight forward work flow, which makes the process efficient.
5.	Down Time	Almost no down time due to IBM Cloud enabled solution.

10 ADVANTAGES:

- Help the elderly people to take the medicine at the correct time.
- Avoid personal assistants or caretakers needed for medically sick people.
- Cost efficient.
- Can store multiple data and many notifications can be generated.
- Since it includes voice assistance, even blind people can use our device.

DISADVANTAGES:

- Makes people lethargic and makes them dependent always on others.
- Requires a stable internet connection.

11 CONCULSION:

The project offers the elderly or medically sick people a personal assistant which reminds them of the medicines to be consumed at the particular time. Skipping tablets may lead to serious problems if the person has a severe illness and this can be avoided. Since the cloud is integrated with the mobile application, numerous data can be fed into the database and notifications can be generated. The mobile application developed is highly customizable by the user and easy to use.

12 FURTURE SCOPE:

The project can be further developed by bringing into the feature of informing themedicinenameduringthenotification.Thevoiceassistancewhichisgivencanbecustomizedbyaddingtheuser'svoiceorthecaretaker’svoice.Furtherthemobileapplicationcanupdatemedicinesbytakingvoicecommandsasaninputfromtheuser.

13 APPENDIX

Source Code:

```
import json
import pygame
import sys
import ibmiotf.application # IBM IoT Watson Platform Module
import ibmiotf.device
import time
import random
from threading import Thread
pygame.mixer.init()
pygame.mixer.music.load('C:/Users/ELCOT/Downloads/medicine.mp3')
pygame.mixer.music.play()


#provide your IBM watson device credential
organization="cfdgac"
deviceType="rasberry"
deviceId="2409"
authMethod="token"
authToken="87654321"

for i in range(0,20):
time=["22:03","12:04","01:05","05:06"]
medicinename=["paracetamol","aspirin","asithral","sinrest"]
name="mani"
medicine=random.choice(medicinename)
medicinetime=random.choice(time)


defpublisher_thread():
thread=Thread(target=publish_data)
thread.start()
```

```
defpublish_data():
# Exception Handling
try:
deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method":
authMethod,
"auth-token": authToken}
deviceCli = ibmiotf.device.Client(deviceOptions)
# .....

except Exception as e:
print("Caught exception connecting device: %s" % str(e))
sys.exit()

deviceCli.connect()  # Connect to IBM Watson IoT Platform
while True:
pygame.mixer.music.play()
mydata={"patintname":name,"medicinename":medicinename,"time":time}


defmyOnPublishCallback():
print("Data published to IBM Plataform:",mydata)

success = deviceCli.publishEvent("event", "json", mydata, qos=0,
on_publish=myOnPublishCallback)
time.sleep(1)
if not success:
print("Not connected to IoTF")



publisher_thread()
```

Github link: https://github.com/IBM-EPBL/IBM-Project-20786-1659763117

Projectdemolink:https://drive.google.com/file/d/1qdlQa8C1oUSUk9Rfwiey--PVxKa8eiXc/view?usp=drivesdk