DES323 MULTI-PLATFORM SOFTWARE DEVELOPMENT (MSD)
DEPARTMENT OF INFORMATION, COMPUTER, AND COMMUNICATION TECHNOLOGY (ICT),
SIRINDHORN INTERNATIONAL INSTITUTE OF TECHNOLOGY (SIIT)

DIABETIC PREDICTION

Final Presentation

By Apple Group

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   ROLE: FRONTEND, UX/UI DESIGNER

CONTENT

1 Introduction

2 Literature Review

3 Software Design

4 Software Development

5 Conclusion

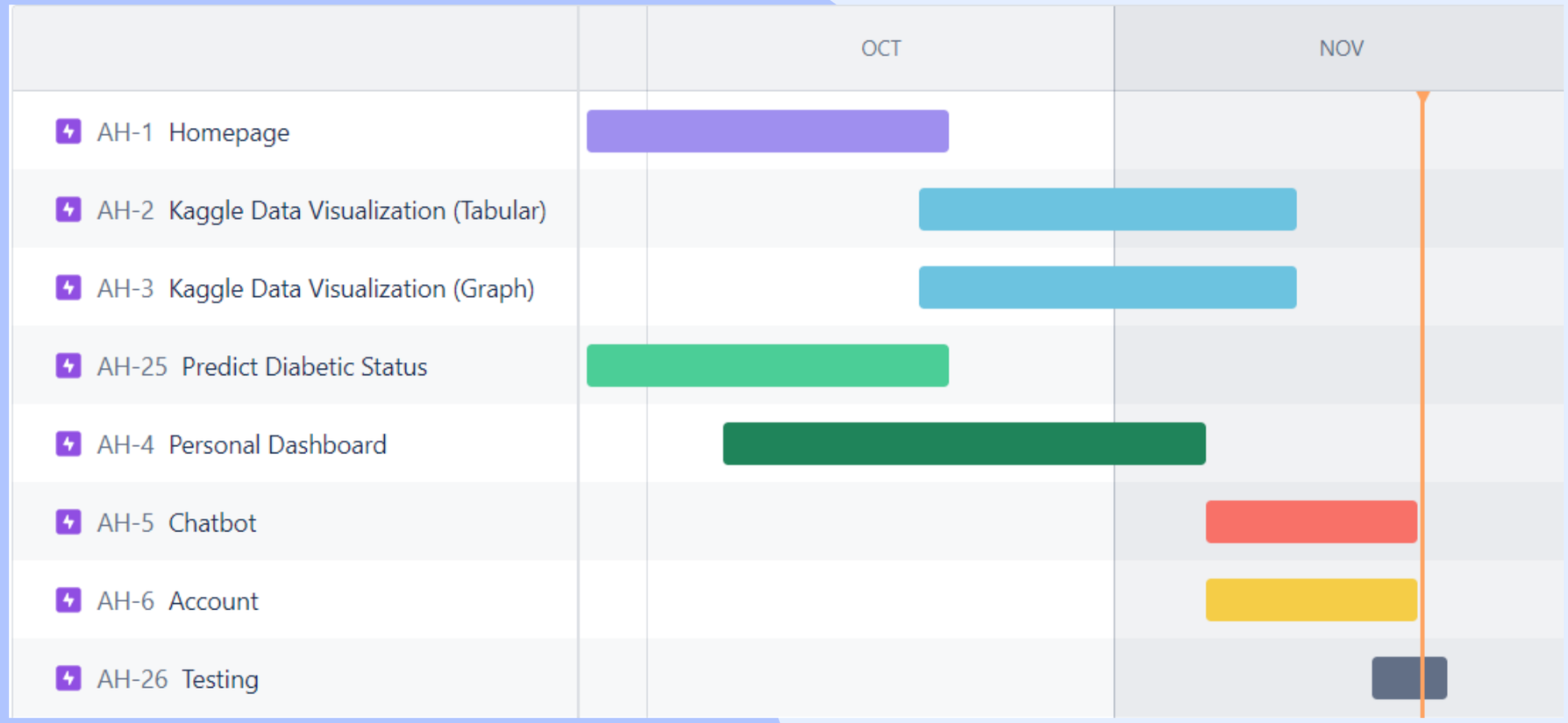
INTRODUCTION

DIABETES

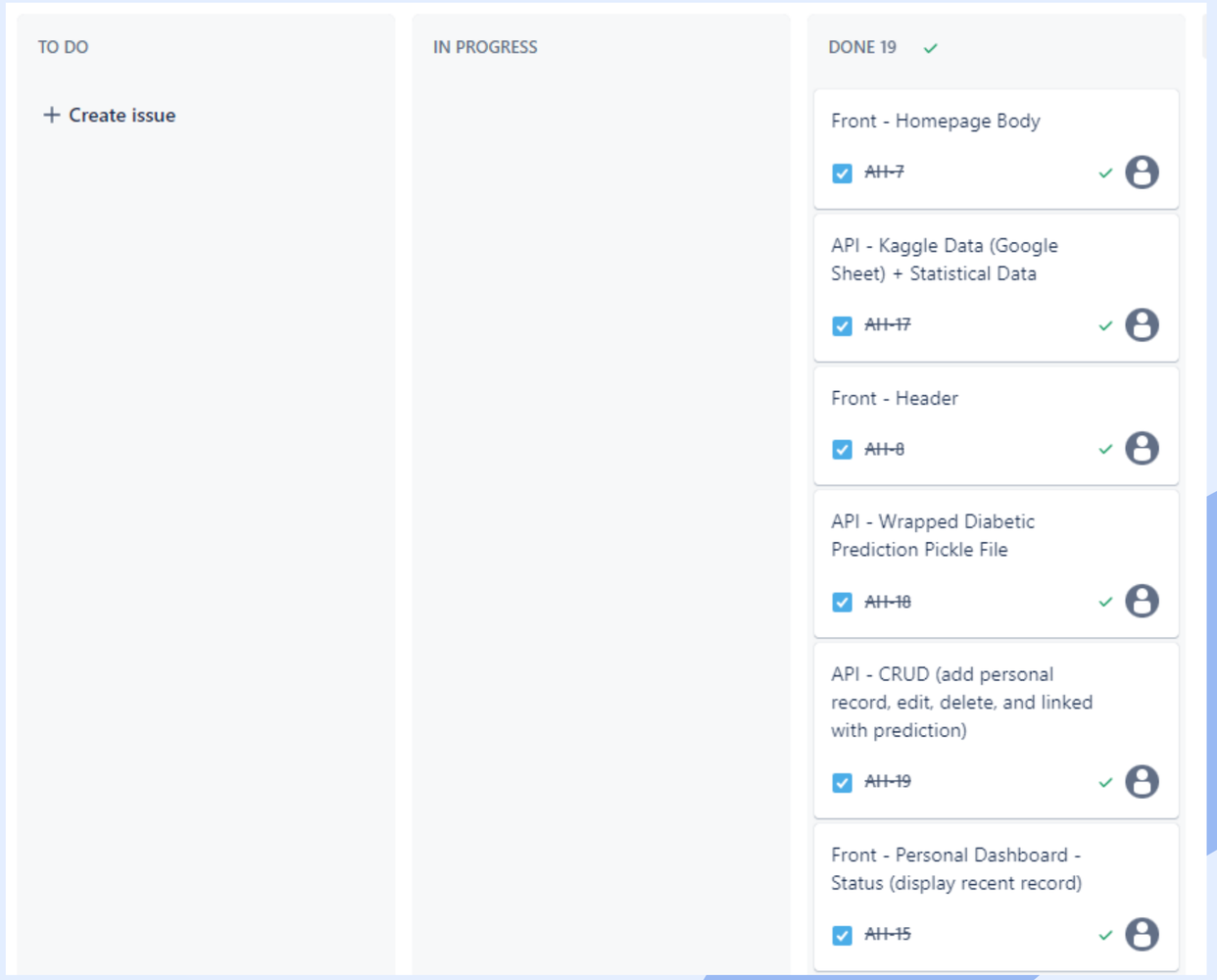
It affected up to 422 million individuals globally in 2014 and represents a **growing health concern** in low- and middle-income countries.

Creation of interface housing a predictive model sourced from Kaggle dataset, **PIMA INDIANS DIABETES**

PLAN AND TIMELINE

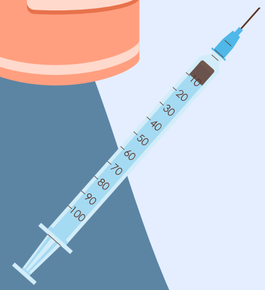


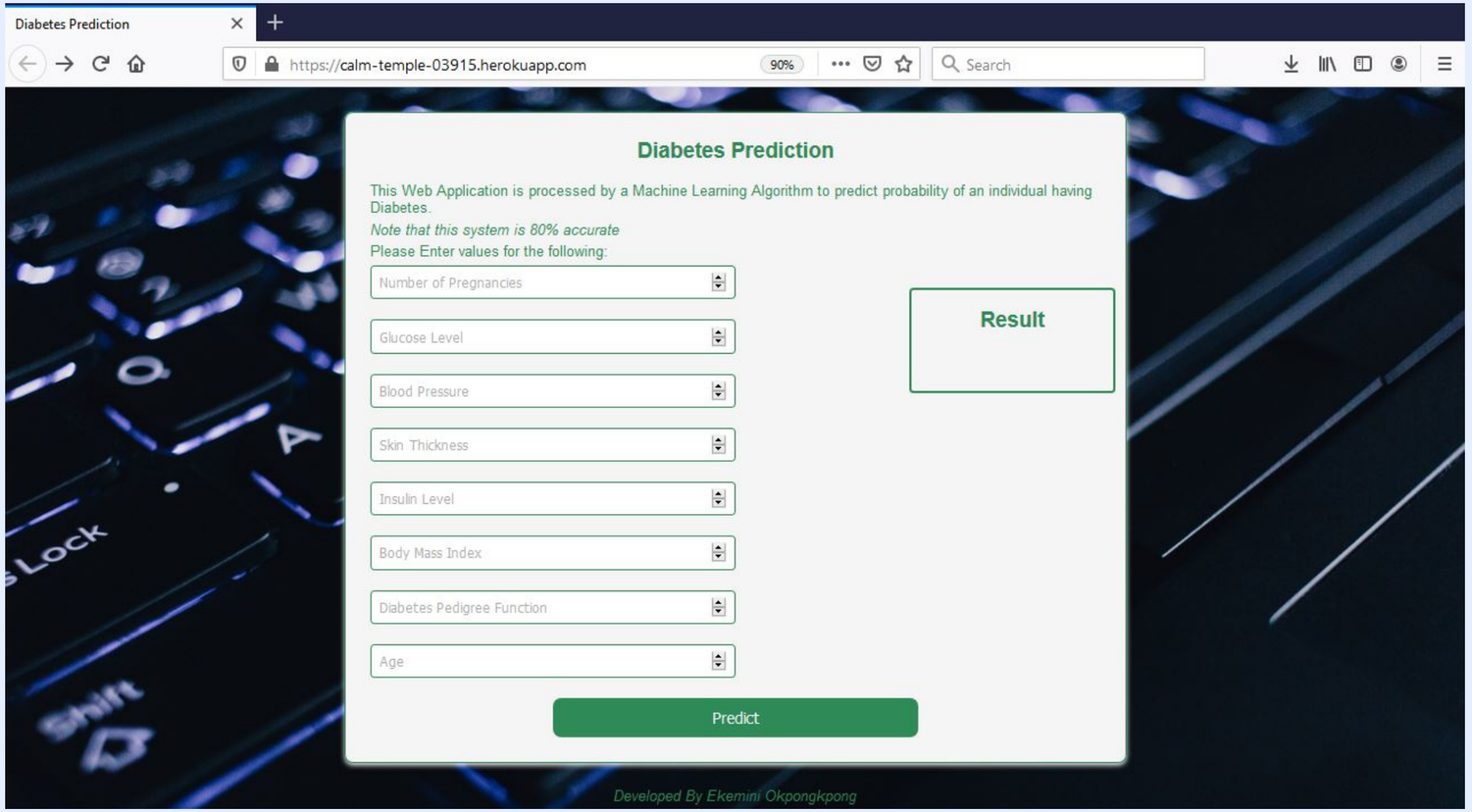
KANBAN BOARD



LITERATURE REVIEW

LINEAR REGRESSION MODEL AND DEPLOYING USING FLASK





REF: EKEMINI OKPONGKPONG'S DIABETES PREDICTION PROJECT

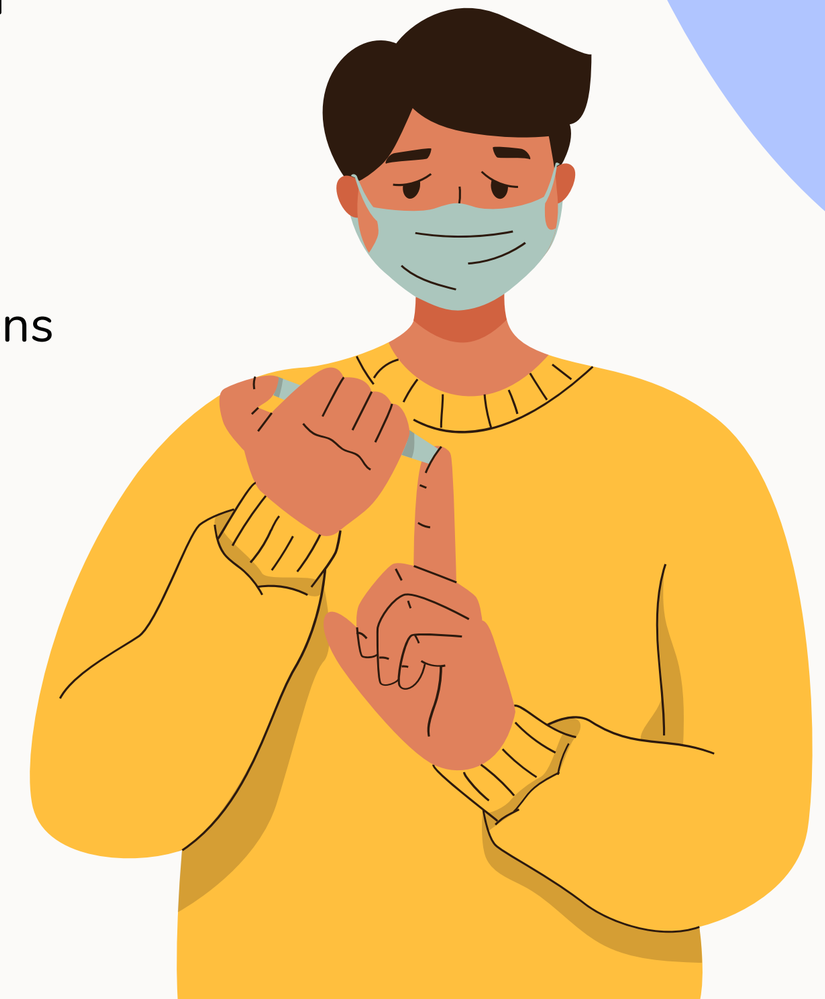
SOFTWARE DESIGN

BUSINESS PROCESS

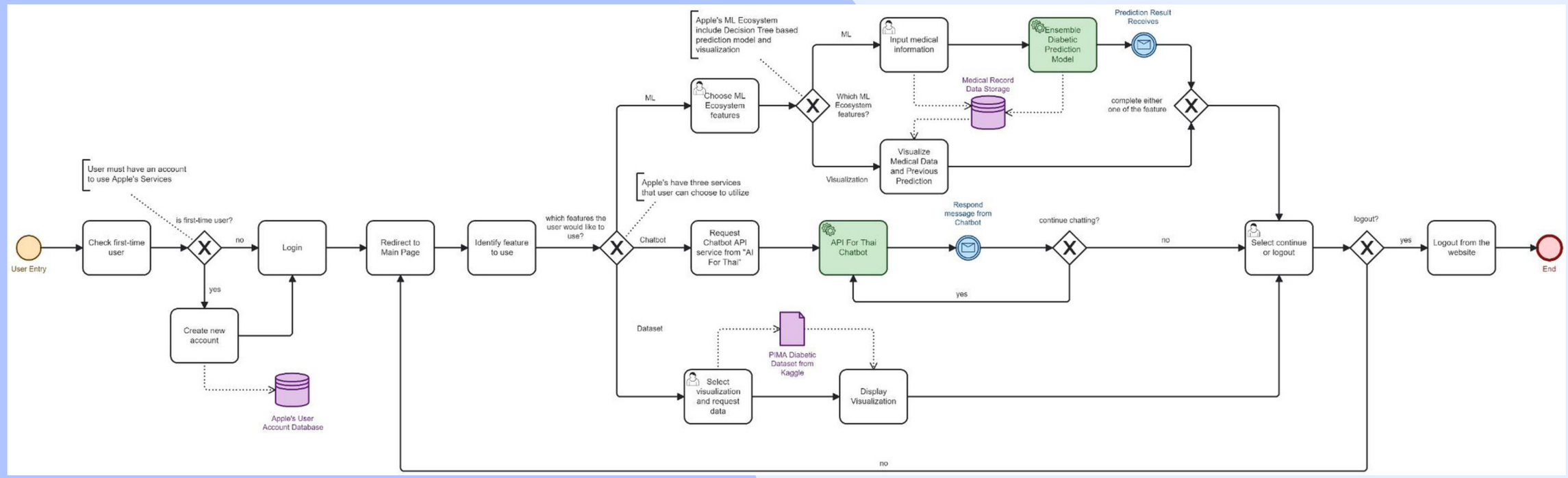
- Create Account
- Log In
- Browse Features
- Input Medical Information
- Talk to Chatbot
- View General Data
- Log out

SYSTEM REQUIREMENT

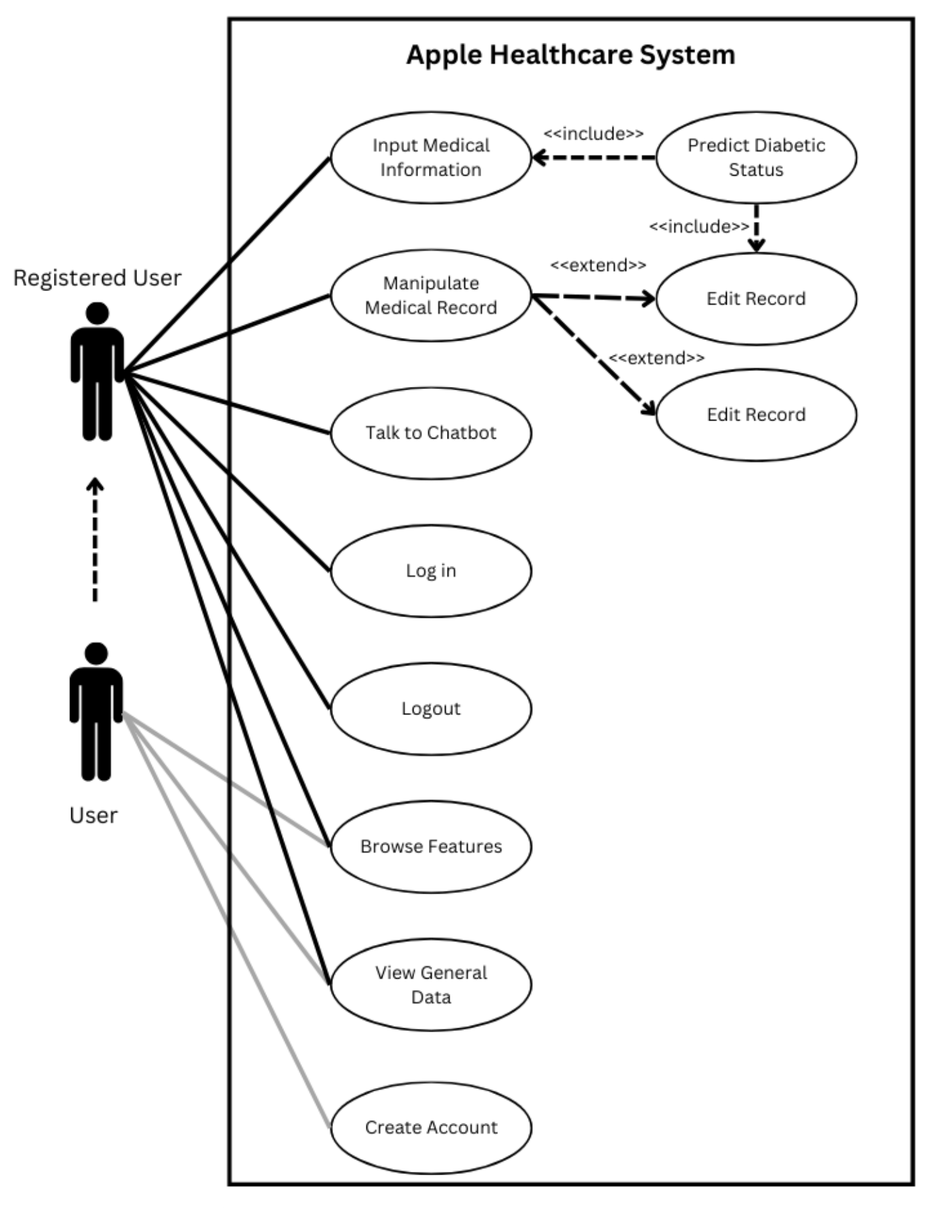
- Authentication
- Input
- Calculation
- Displaying
- User interactions
- Reporting
- Storing



BUSINESS PROCESS MODELING NOTATION FOR THE PLATFORM



USE CASE DIAGRAM



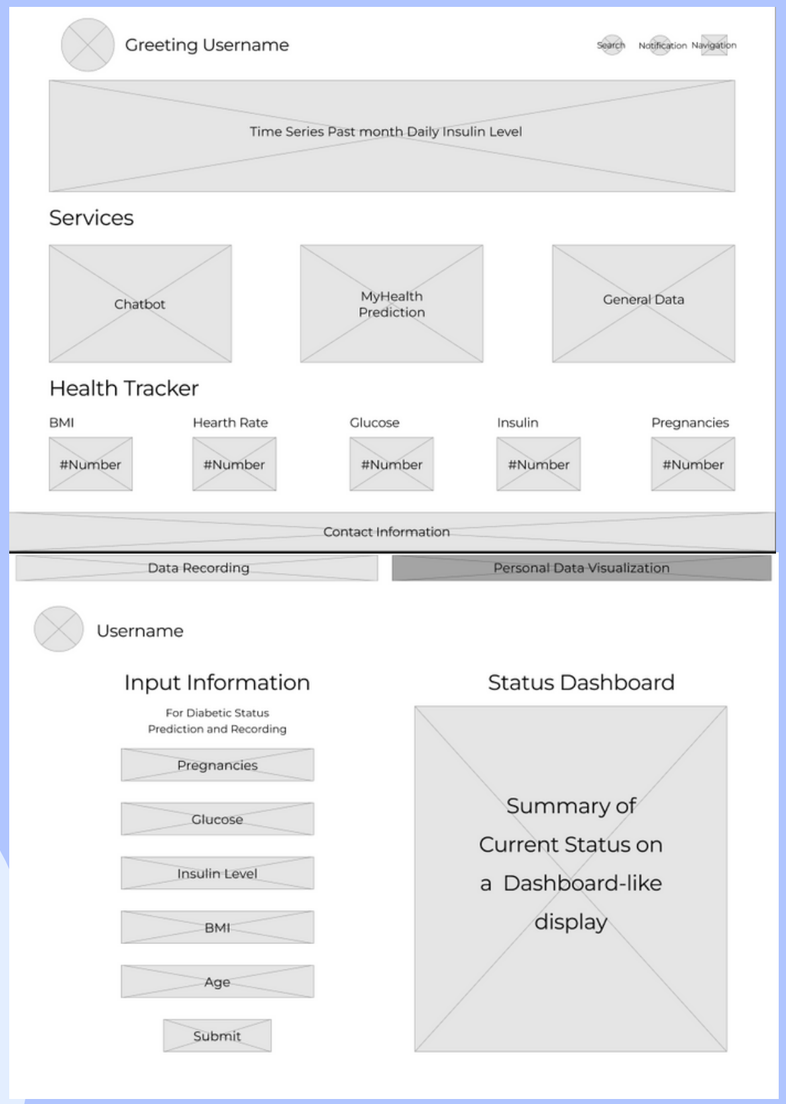
Actors:

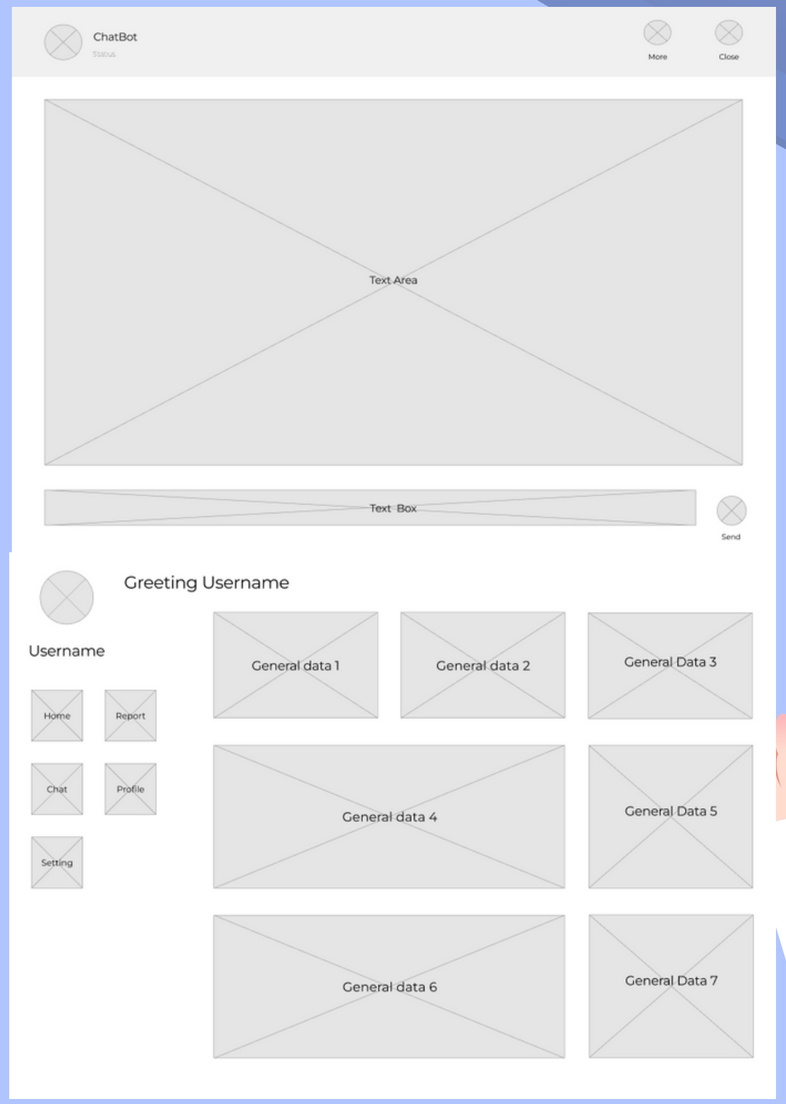
- User
- Registered User

Use cases:

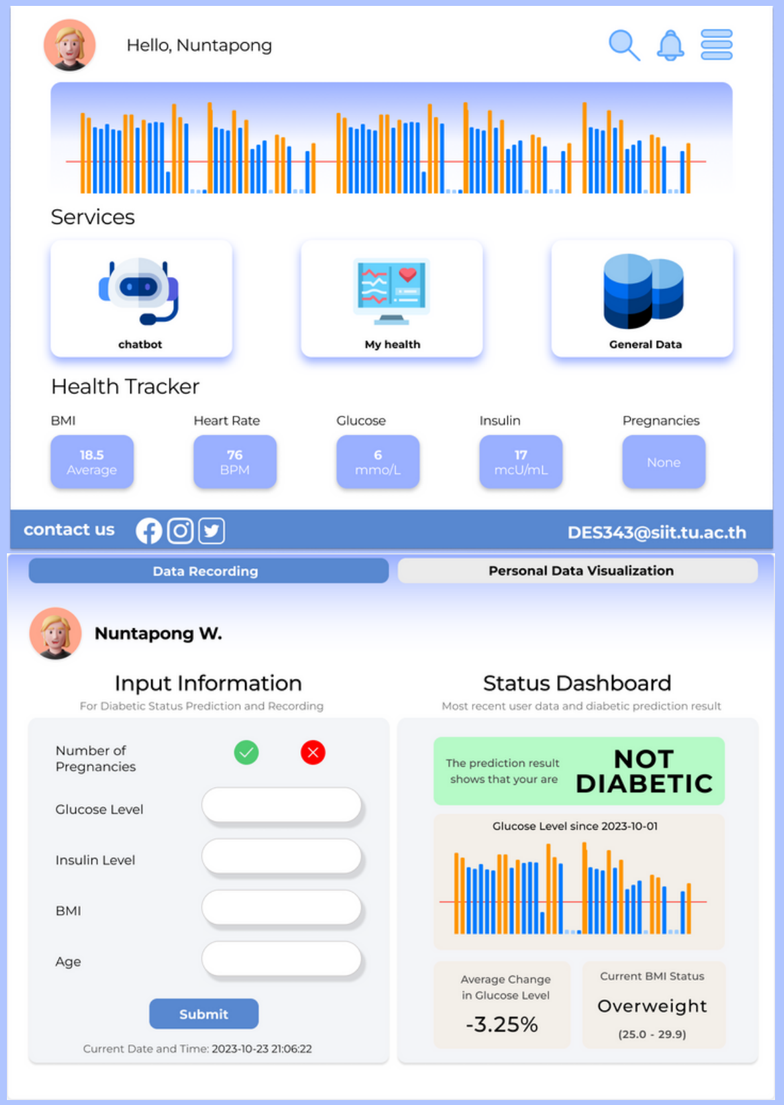
- View general data
- Create account
- Browse Features
- Login
- Put in medical data
- Manipulate medical record
- Input Medical Information
- Talk to chatbot
- Log in
- Log out

WIREFRAME


Greeting Username
Search
Notification
Navigation
Time Series Past month Daily Insulin Level
Services
Chatbot
MyHealth Prediction
General Data
Health Tracker
BMI
Hearth Rate
Glucose
Insulin
Pregnancies
#Number
#Number
#Number
#Number
#Number
Contact Information
Data Recording
Personal Data Visualization
Username
Input Information
For Diabetic Status Prediction and Recording
Pregnancies
Glucose
Insulin Level
BMI
Age
Submit
Status Dashboard
Summary of Current Status on a Dashboard-like display


ChatBot
Status
More
Close
Text Area
Text Box
Send
Greeting Username
Username
Home
Report
Chat
Profile
Setting
General data 1
General data 2
General Data 3
General data 4
General Data 5
General data 6
General Data 7

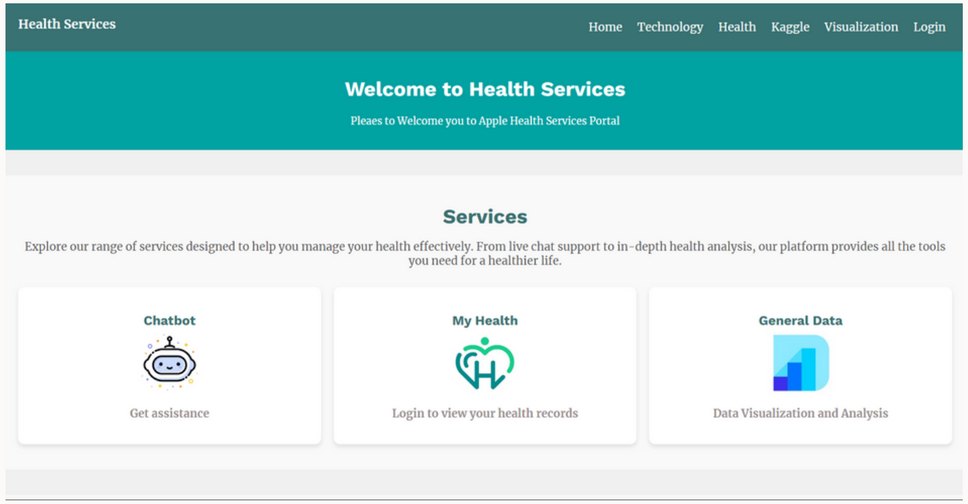
MOCKUP

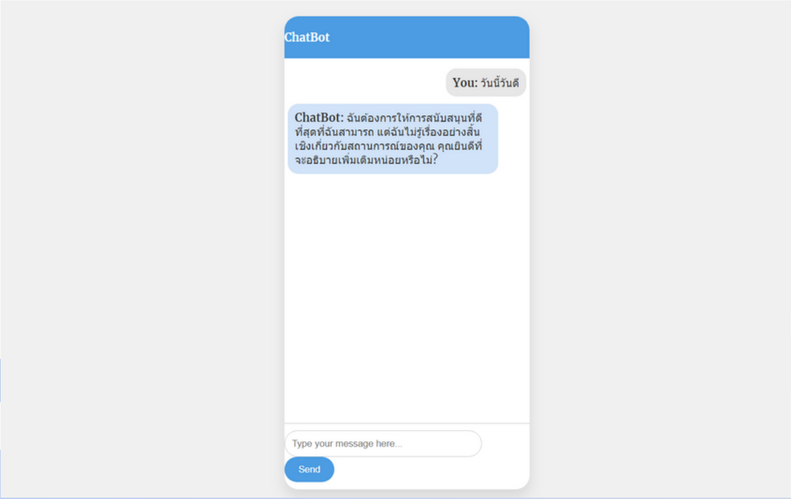

Hello, Nuntapong
Services
chatbot
My health
General Data
Health Tracker
BMI
18.5
Average
Heart Rate
76
BPM
Glucose
6
mmo/L
Insulin
17
mcU/mL
Pregnancies
None
contact us
DES343@siit.tu.ac.th
Data Recording
Personal Data Visualization
Nuntapong W.
Input Information
For Diabetic Status Prediction and Recording
Number of Pregnancies
Glucose Level
Insulin Level
BMI
Age
Submit
Current Date and Time: 2023-10-23 21:06:22
Status Dashboard
Most recent user data and diabetic prediction result
The prediction result shows that your are
NOT DIABETIC
Glucose Level since 2023-10-01
Average Change in Glucose Level
-3.25%
Current BMI Status
Overweight
(25.0 - 29.9)

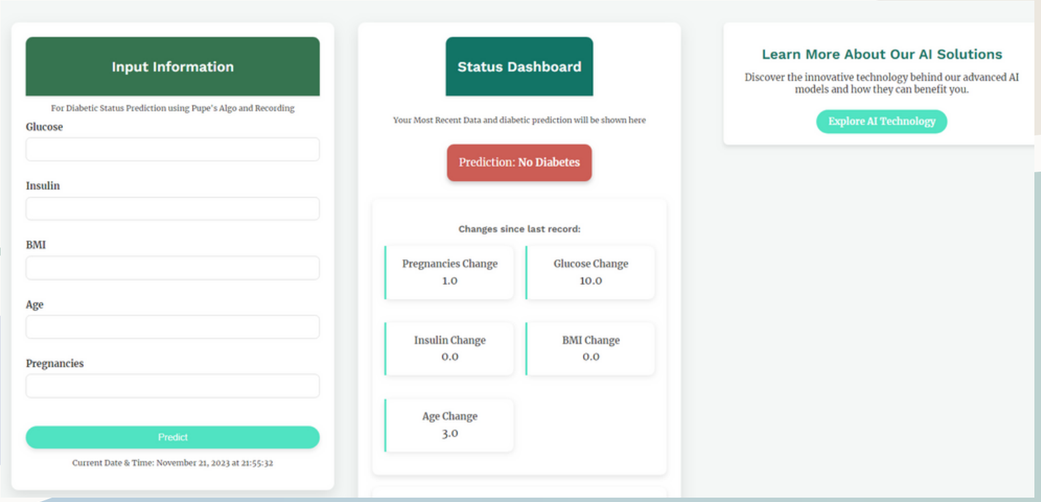
ChatBot
Online
ChatBot
Hello !
How can I assist you today ?
ChatBot
Type your message here
Welcome
Nuntapong
767
data points
33.6
Average BMI
267
Diabetic records
Home
Report
Chatting
Profile
Setting
Diabetic population

SOFTWARE DEVELOPMENT

FRONTEND DEVELOPMENT

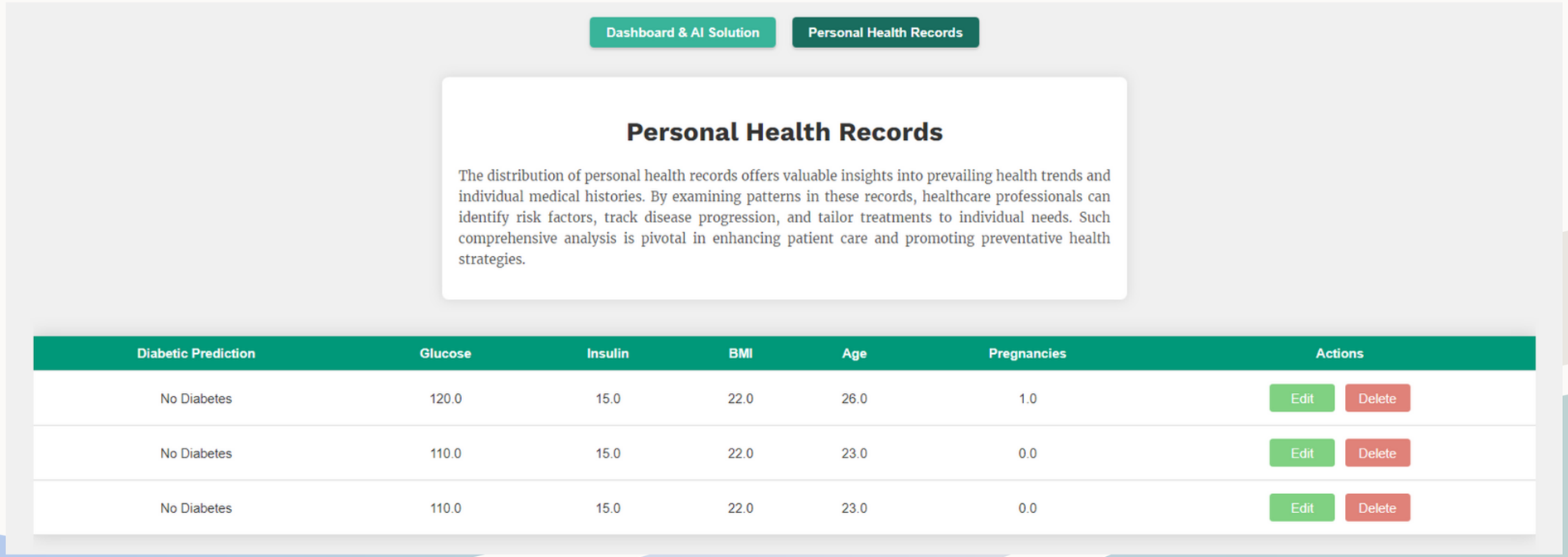






FRONTEND DEVELOPMENT

CRUD (Create, Read, Update, Delete)



BACKEND INTEGRATION - API

api/predict_diabetes/ : custom API End-point for Diabetic Prediction by our ensemble machine learning model	Diabetic
distribution_count: summary statistics and distribution of diabetic and non-diabetic instances in the Kaggle dataset **scatter_plot_data/:** retrieved kaggle data for Scatter plot	Kaggle
ht_average_record: summary of personal statistic (at homepage)	Record
api/sentimental_analysis/: AI for Thai Sentimental Analysis API Call **jokes/:** Web API (RESTful API) for getting random geek jokes (Geek-Jokes)	Chatbot
api/login/: login with existing account **api/register/:** register new user account and login with existing account	Account
debug_delete: delete Kaggle data for debugging	Debug

Total API: 9

DEMO

SOFTWARE TESTING

Medical Data Input

Test Scenario ID	Input-medical-data	Test Case ID	Input-medical-data
Test case description	Add personal medical data to the system in order to request a prediction	Priority	High
Pre-requisite	Login the user account	Post-requisite	NA

Test Execution Steps:

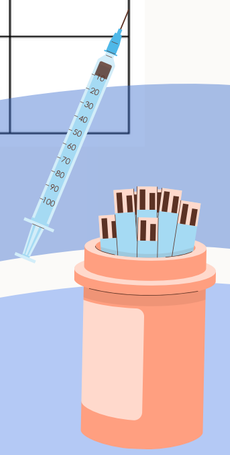
No.	Actions	Inputs	Expected Output	Actual Output	Test Browser	Test Result	Test Comment
1	Send medical data with valiad value (complete all variables)	Complete medical data	"Sucess"'	Displayed result on dashboard	Codespcae	Dashborad displays the result as "No diabetes" or "Diabetes"	
2	Send medical data with invaliad value (incomplete data)	Incomplete medical data	"Error"	"Please fill out this field"	Codespace	Inform user to fill all required variables	

Medical Record Manipulation

Test Scenario ID	Manipulate-medical-record	Test Case ID	Manipulate-medical-record
Test case description	Make change to the previous medical record (edit/delete)	Priority	High
Pre-requisite	Login the user account	Post-requisite	NA

Test Execution Steps:

No.	Actions	Inputs	Expected Output	Actual Output	Test Browser	Test Result	Test Comment
1	Edit record	Click on edit button	"Sucess"'	Inform user to make modification on the selected record	Codespcae	Users is asked to make change on their selected record	
2	Delete record	Click on delete button	"Sucess"	Delete the selected rrecord	Codespace	The selected record is deleted	



Test Scenario ID	Display-PIMA visualization	Test Case ID	Display-PIMA visualization
Test case description	Perform visualization of selected variables from PIMA dataset	Priority	High
Pre-requisite	NA	Post-requisite	NA

Test Execution Steps:

No.	Actions	Inputs	Expected Output	Actual Output	Test Browser	Test Result	Test Comment
1	Select variables to display a scatter plot, showing relationship within the dataset	Click on selected variables	Scatter plot	Scatter plot that showing relationship	Codespcae	The scatter plot shows correlation between 2 selected variables	

SOFTWARE TESTING

Interaction with Chatbot

Test Scenario ID	Text-input-chatbot	Test Case ID	Text-input-chatbot
Test case description	Interaction with the chatbot by send a text into the chat box	Priority	High
Pre-requisite	Login the user account	Post-requisite	NA

Test Execution Steps:

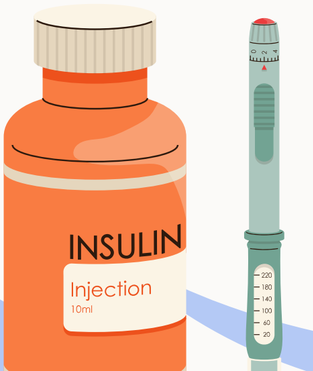
No.	Actions	Inputs	Expected Output	Actual Output	Test Browser	Test Result	Test Comment
1	Send text to chatbot	"Hello"	Respond from chatbot	Respond from chatbot	Codespace	Chatbot send the text back to the user	

Data Visualization

Test Scenario ID	Display-PIMA visualization	Test Case ID	Display-PIMA visualization
Test case description	Perform visualization of selected variables from PIMA dataset	Priority	High
Pre-requisite	NA	Post-requisite	NA

Test Execution Steps:

No.	Actions	Inputs	Expected Output	Actual Output	Test Browser	Test Result	Test Comment
1	Select variables to display a scatter plot, showing relationship within the dataset	Click on selected variables	Scatter plot	Scatter plot that showing relationship	Codespcae	The scatter plot shows correlation between 2 selected variables	



DISCUSSION AND CONCLUSION

MANAGEMENT PLAN

- Agile Software Development
- Utilization of the Kanban board
- Gantt Chart for Scheduling

PROBLEM SOLVING

Problem: GitHub codespace ran out of memory
Solution: Create a new account

Problem: Chatbot API from AI for Thai is not available
Solution: Find an alternative chatbot API

THANK YOU