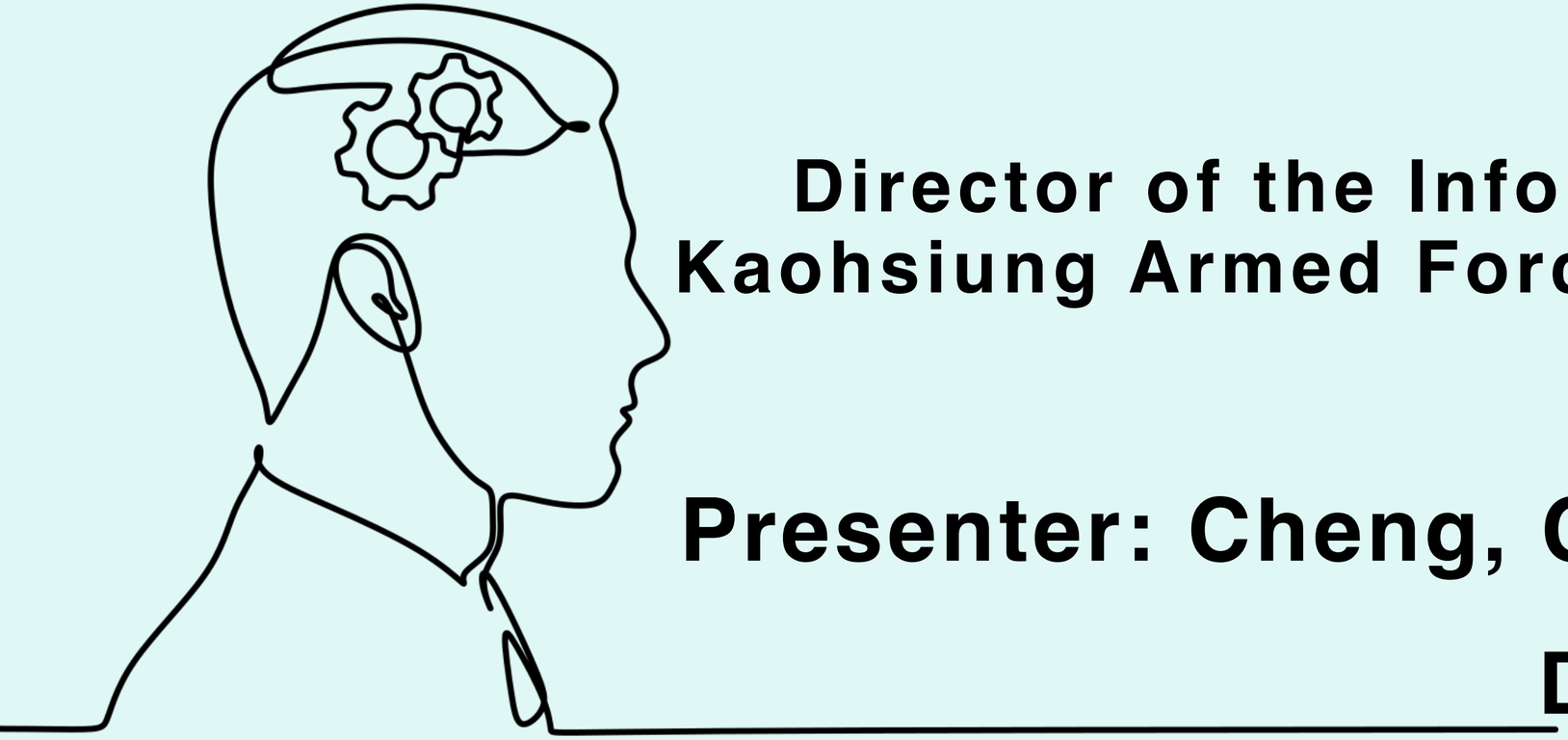
From Ideas to Implementation streamlining military hospital operations in Taiwan



Director of the Information Department, Kaohsiung Armed Forces General Hospital

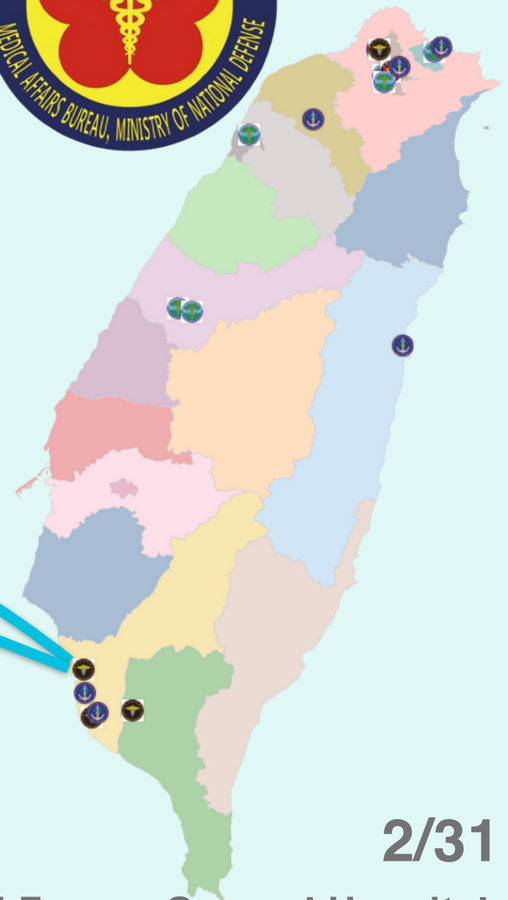
Presenter: Cheng, Chung-Nan(Nickle)

December 06, 2024

ABOUT ME

My name is Nickle
I’m from Kaohsiung, Taiwan

14 military hospitals



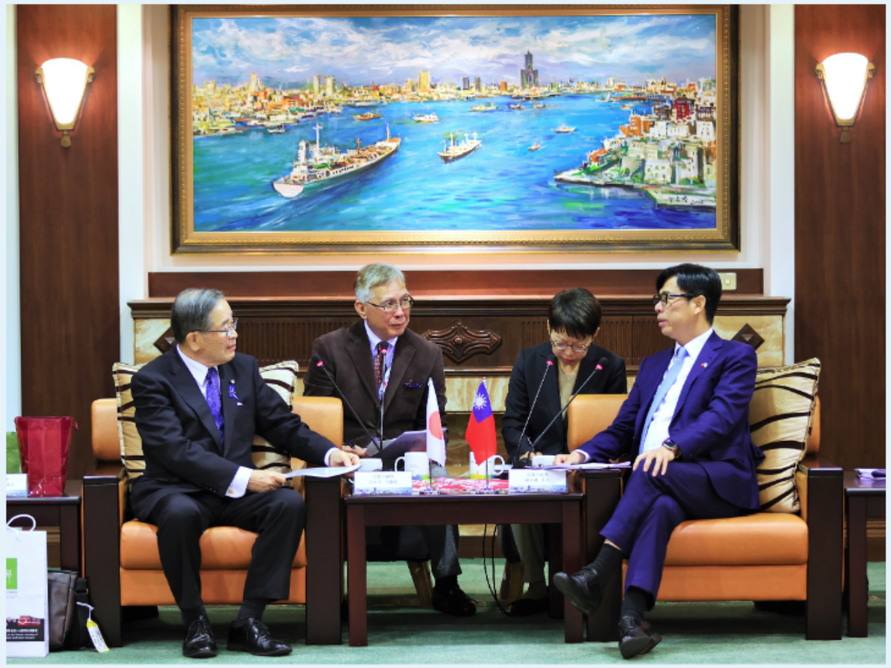
The Mayor of Kaohsiung stated:
"Kaohsiung is the most friendly city towards Japan."

国際交流の最新ニュース

令和6年1月24日

日本の「神の国」出雲市議会議員団がガオ・チェンチーマイを訪問：両市が多角的に交流し、台湾と日本の友好が深まることを期待しています。

More exchanges on Ruby and open source



資料更新

本日（24日）、日本の島根県出雲市議会議員7名が高雄
梅市長と会談し、観光、中等教育、教育分野におけ
いて意見交換した。農業。出雲市は日本の「神の国」とし
り、出雲市には長い歴史があり、豊かな産物があり、有名な出雲大社があ
り、その風景を体験するために多くの台湾人観光客を惹きつけるだろう
と、陳其梅市長は述べた。私たちはまた、将来的には、公的または民間の
交流ルートを通じて、二国間関係を深め、都市の共通の繁栄を達成できる
ことを願っています。

Welcome to Kaohsiung!

訪問中、陳奇梅氏はまず日本の友人たちに能登半島地震に対する哀悼の意を表し、台湾人も同様の気持ちを持ち、被災地の復興と通常の生活の早期回復を願って寄付金で応える行動をとった。できるだけ。日本の311地震に対する台湾の寄付、921台湾地震に対する日本の即時支援、あるいは新型コロナウイルス感染症の流行下での日本から台湾への450万回分のワクチン

AGENDA

- Ruby and Me
- Small Victories(MVPs, Minimum Viable Products)
- Big Platform(Integration)
- The Future

1.RUBY & ME

RUBY, RAILS AND MY OPEN SOURCE HISTORY

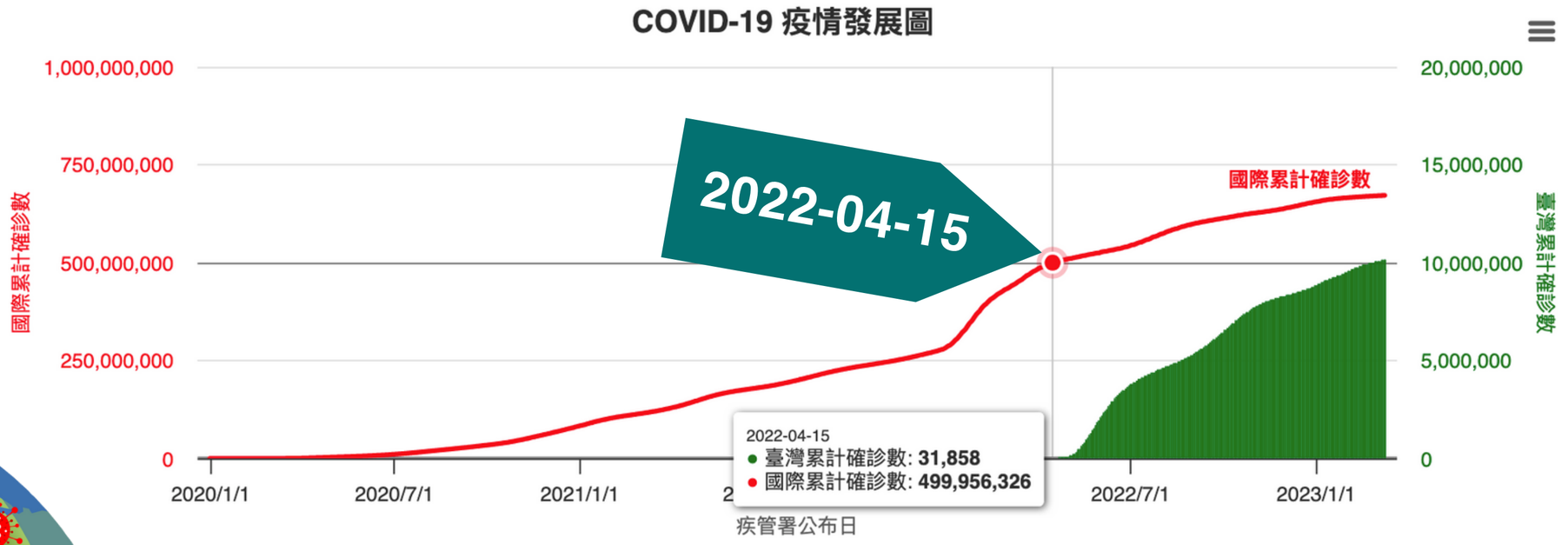
YEAR	1995	2001	2003	2005	2007	2010	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Ruby	1.0	-	1.8	-	1.9	-	2.0	2.1, 2.2	2.3	2.4	-	2.5, 2.6	2.7	3.0	3.1	3.2	3.3
Rails	-	-	-	Rails 1.0	Rails 2.0	Rails 3.0	Rails 4.0	Rails 4.2	-	Rails 5.0	Rails 5.1	-	Rails 6.0	Rails 6.1	Rails 7.0	-	-
Me	-	Oscommerce(PHP) ZH-TW community	Oscommerce ISBN: 986-7693-36-1, **Start working at military hospital**	Oscommerce ISBN: 978-986-7198-65-5	Establish Taiwan Open Source Ecommerce Association	-	**The Golden Age of Rails, Taiwan**	**The Golden Age of Rails, Taiwan**	**First met Redmine, Docker**	-	-	-	-	Start seriously learning Rails	COVID-19	**First Rails MVP (COVID-19)**	ISQua, Seoul

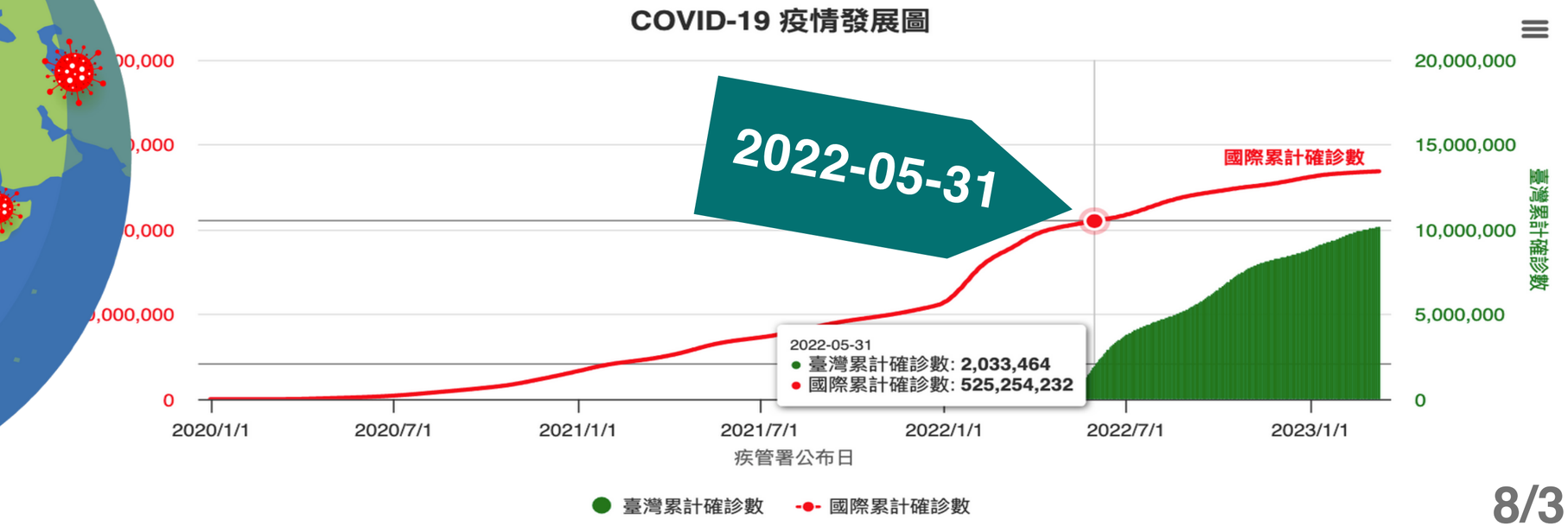
osCommerce
Open Source E-Commerce

2. Small Victories

MVPs Minimum Viable Products

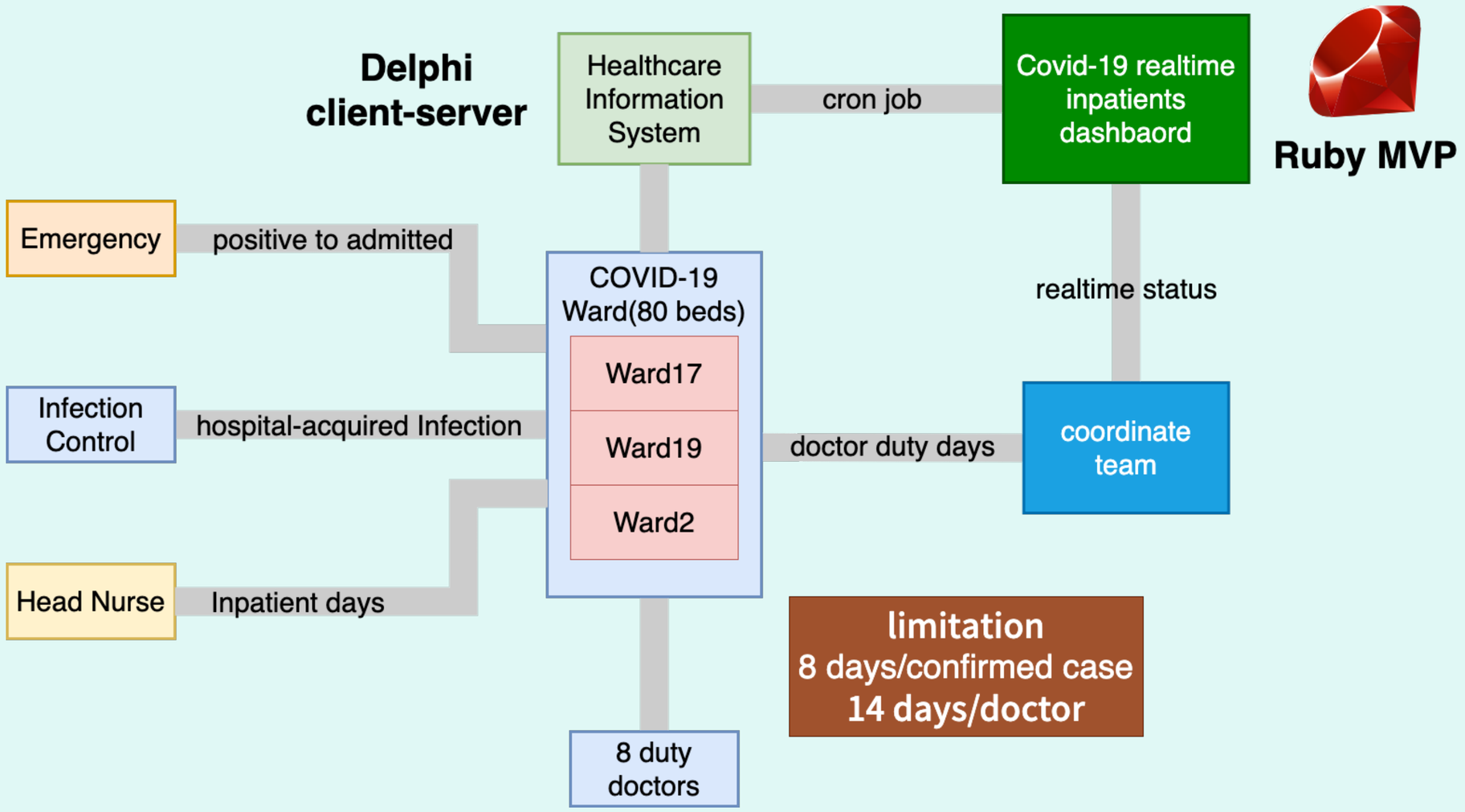
COVID-19


COVID-19 疫情發展圖
1,000,000,000
750,000,000
500,000,000
250,000,000
0
國際累計確診數
20,000,000
15,000,000
10,000,000
5,000,000
0
臺灣累計確診數
2022-04-15
國際累計確診數
2022-04-15
臺灣累計確診數: 31,858
國際累計確診數: 499,956,326
2020/1/1
2020/7/1
2021/1/1
2022/7/1
2023/1/1
疾管署公布日


COVID-19 疫情發展圖
20,000,000
15,000,000
10,000,000
5,000,000
0
臺灣累計確診數
2022-05-31
國際累計確診數
2022-05-31
臺灣累計確診數: 2,033,464
國際累計確診數: 525,254,232
2020/1/1
2020/7/1
2021/1/1
2021/7/1
2022/1/1
2022/7/1
2023/1/1
疾管署公布日
臺灣累計確診數
國際累計確診數

COVID-19 INPATIENTS REAL-TIME DASHBOARD ARCHITECTURE

MVP 1



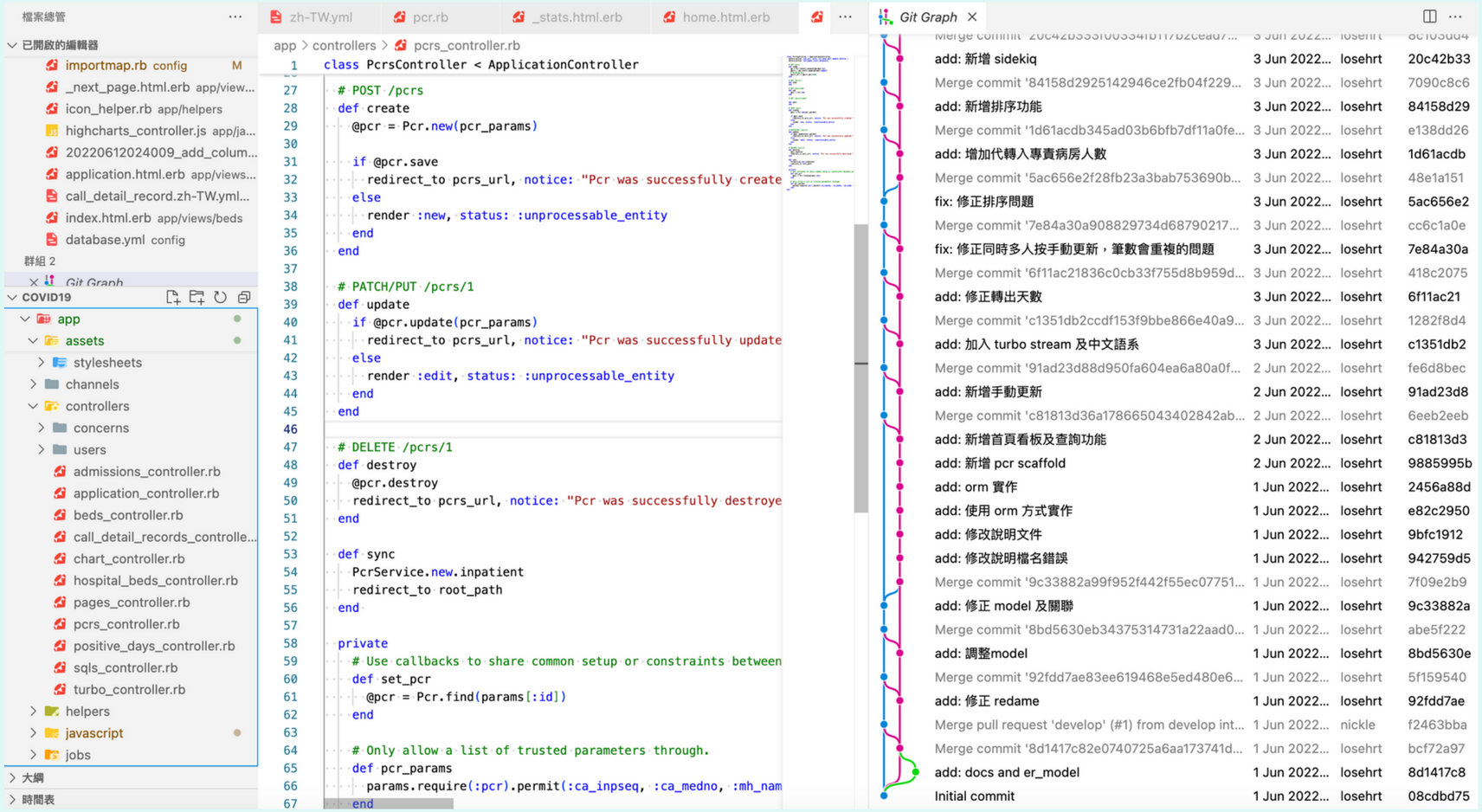
COVID-19 INPATIENTS REAL-TIME DASHBOARD USER STORY

MVP 1

1. As the **ward coordinator**, I need to know the **real-time count of hospitalized patients** with **positive PCR tests across the hospita**l to help with **bed allocation**.
2. As an **inpatient service staff member**, I need to know **the positive cases in general wards** to facilitate their **transfer to covid-19 wards**.
3. As an **inpatient service staff member**, I need to know which **patients in covid-19 wards** have been there for **8 days** to arrange their **transfer to buffer wards**.

COVID-19 INPATIENTS REAL-TIME DASHBOARD DEVELOP

MVP 1



JUN 1, 2022

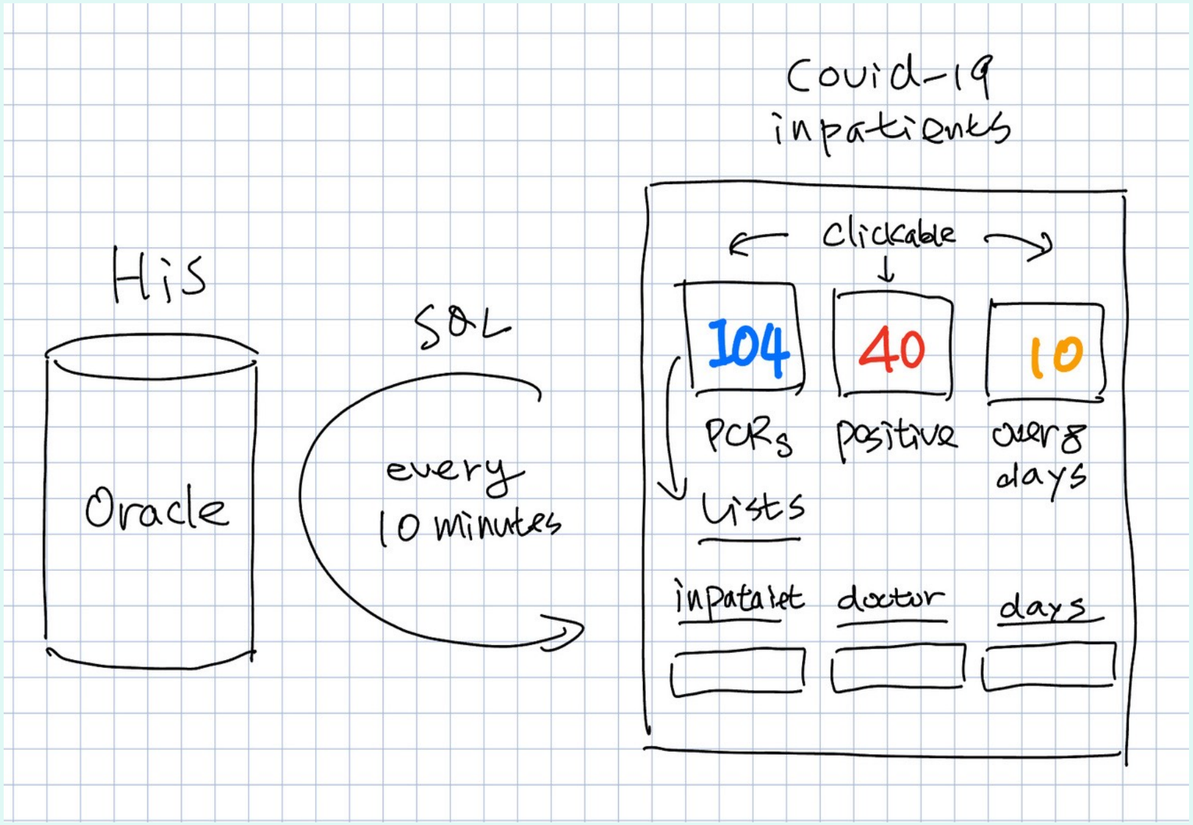
JUN 3, 2022

3 DAYS

ONE PERSON

COVID-19 INPATIENTS REAL-TIME DASHBOARD RESULT

MVP 1



COVID-19 INPATIENTS REAL-TIME DASHBOARD RESULT

MVP 1

BRINGING RUBY INTO INTERNATIONAL SOCIALITY FOR QUALITY IN HEALTH CARE (ISQUA)

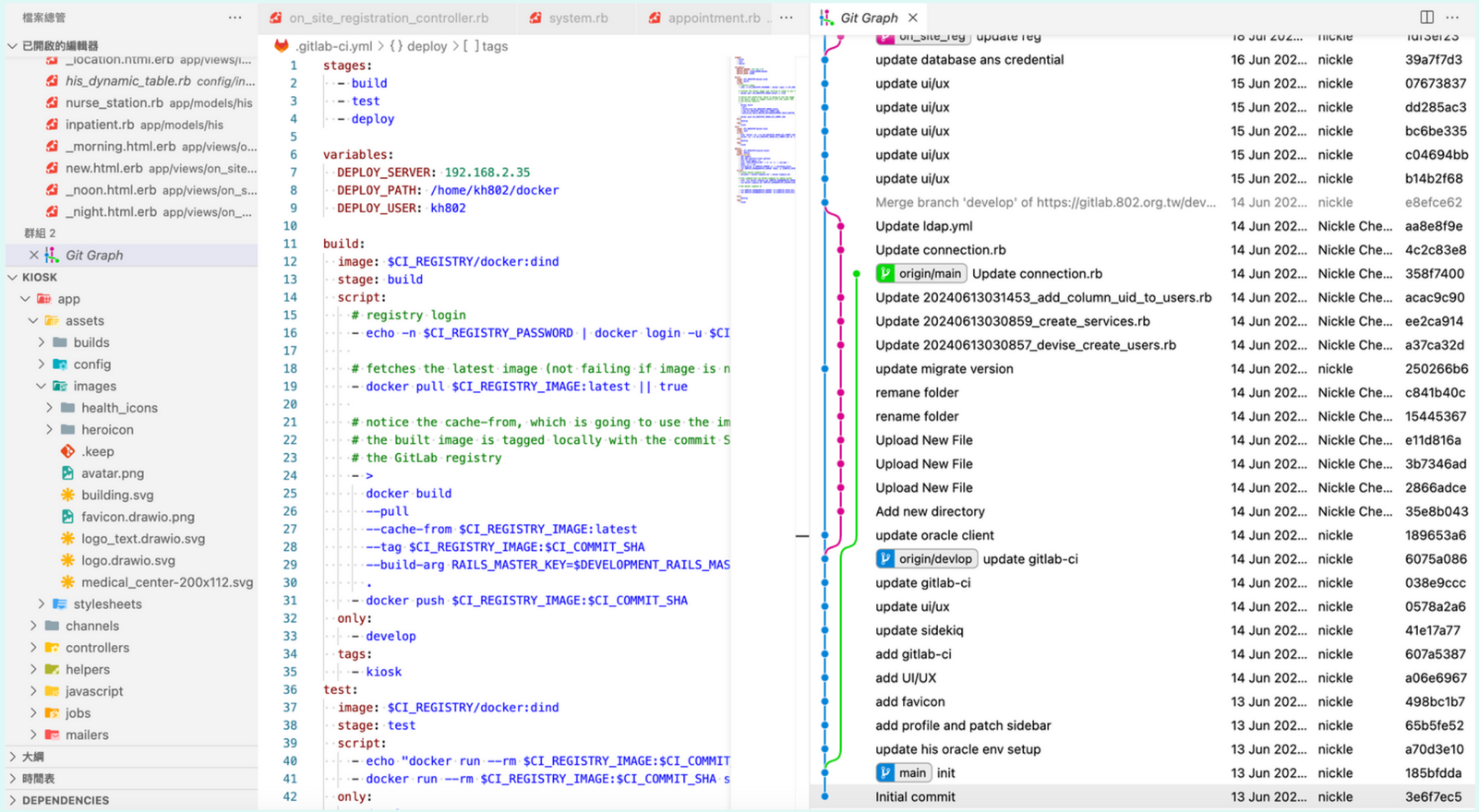
KIOSK INPATIENT LIST

MVP 2

Staff print the list every workday morning at 8:00

KIOSK Inpatient list Develop

MVP 2

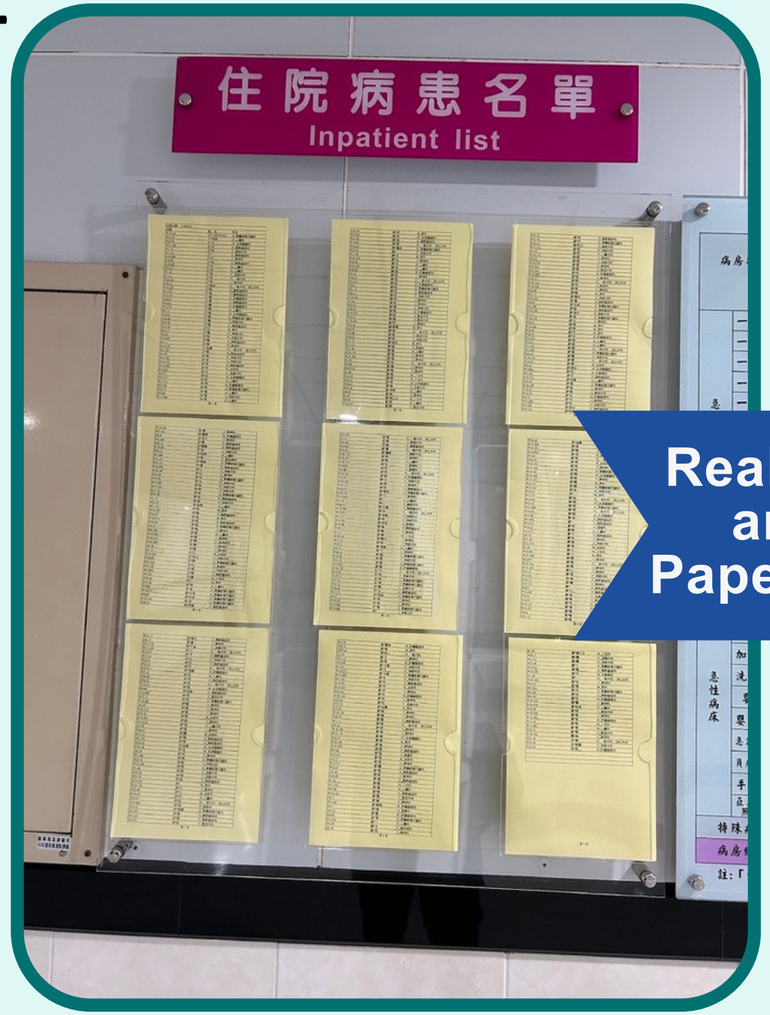


Jun 13, 2024
Jun 16, 2024

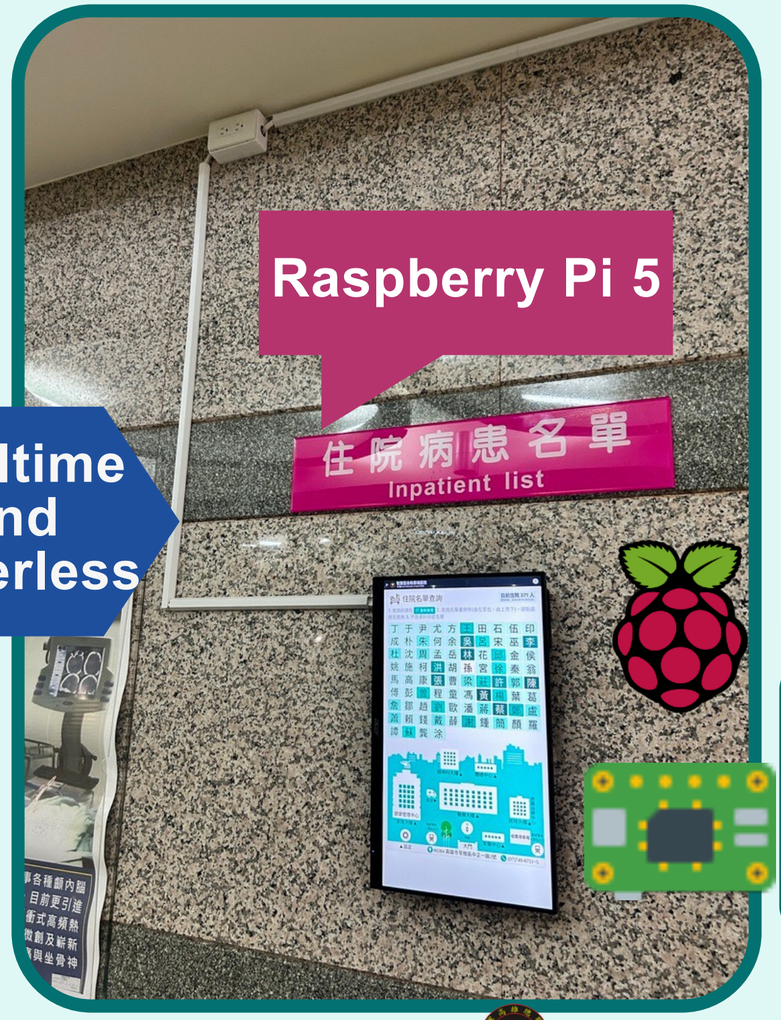
3 days
One person

KIOSK INPATIENT LIST RESULT

MVP 2

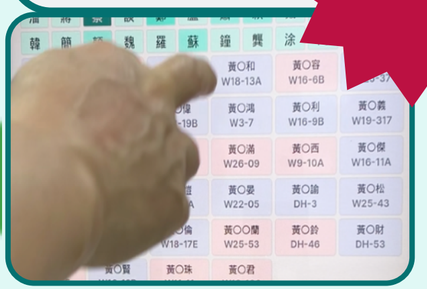


Realtime and Paperless



inpatient last name list

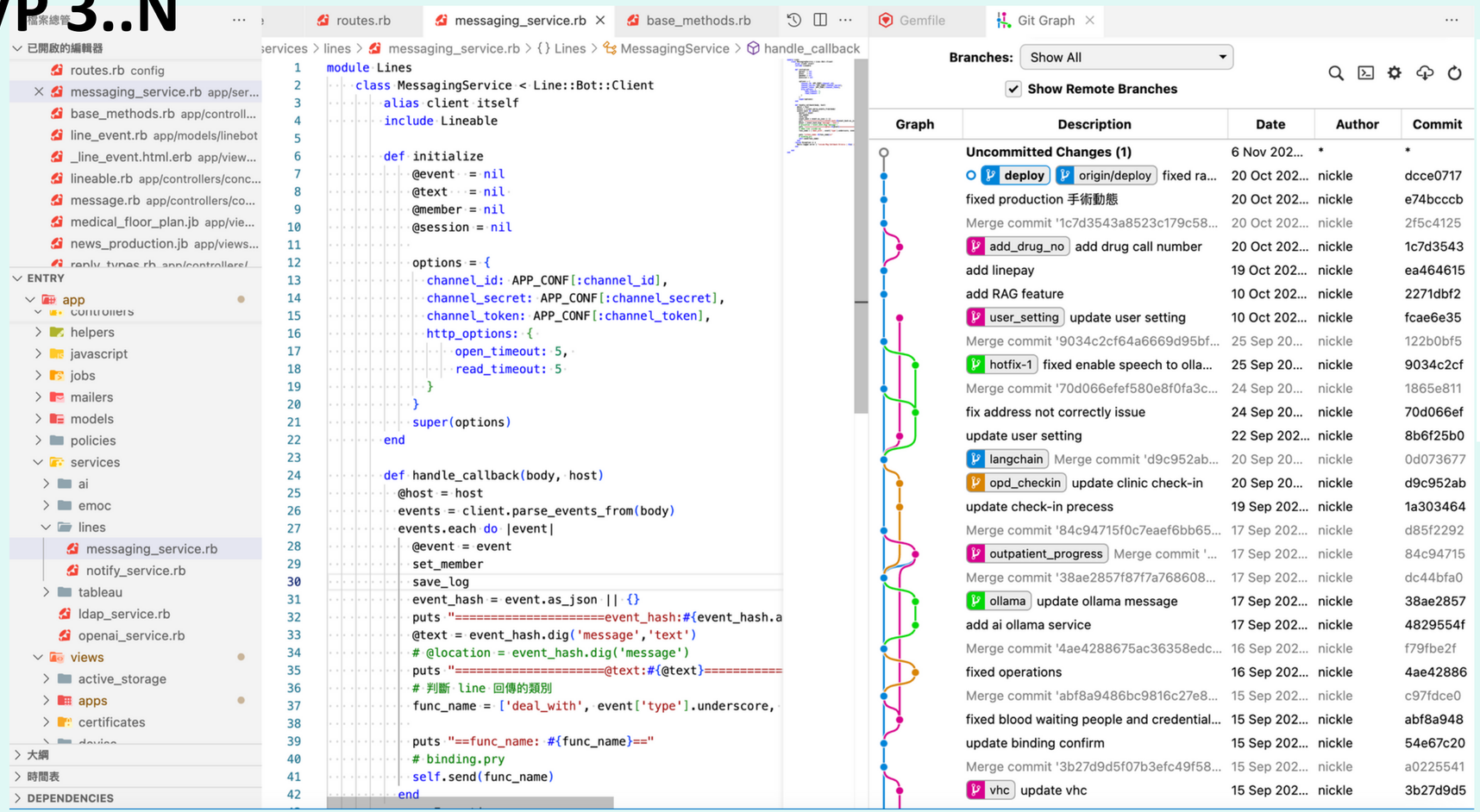
UI/UX



Easy to find

LINE BOT DEVELOP

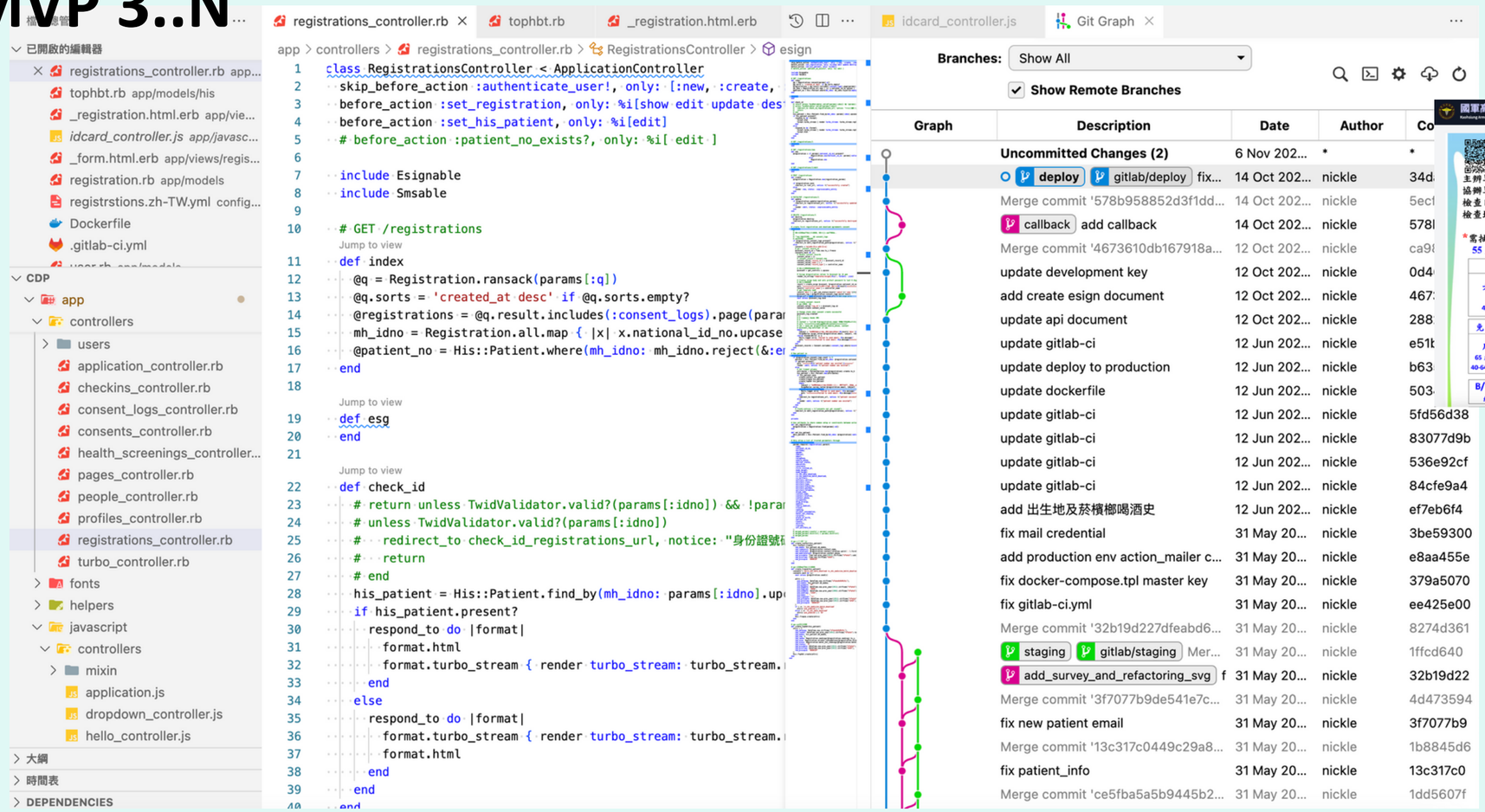
MVP 3..N



▲民眾綁定「虛擬健保卡」及加入「保力質Line群組」，即可獲得50元7–11商品卡。(圖／記者莊全成攝，2024.09.26)

CUSTOMER DATA PLATFORM DEVELOP

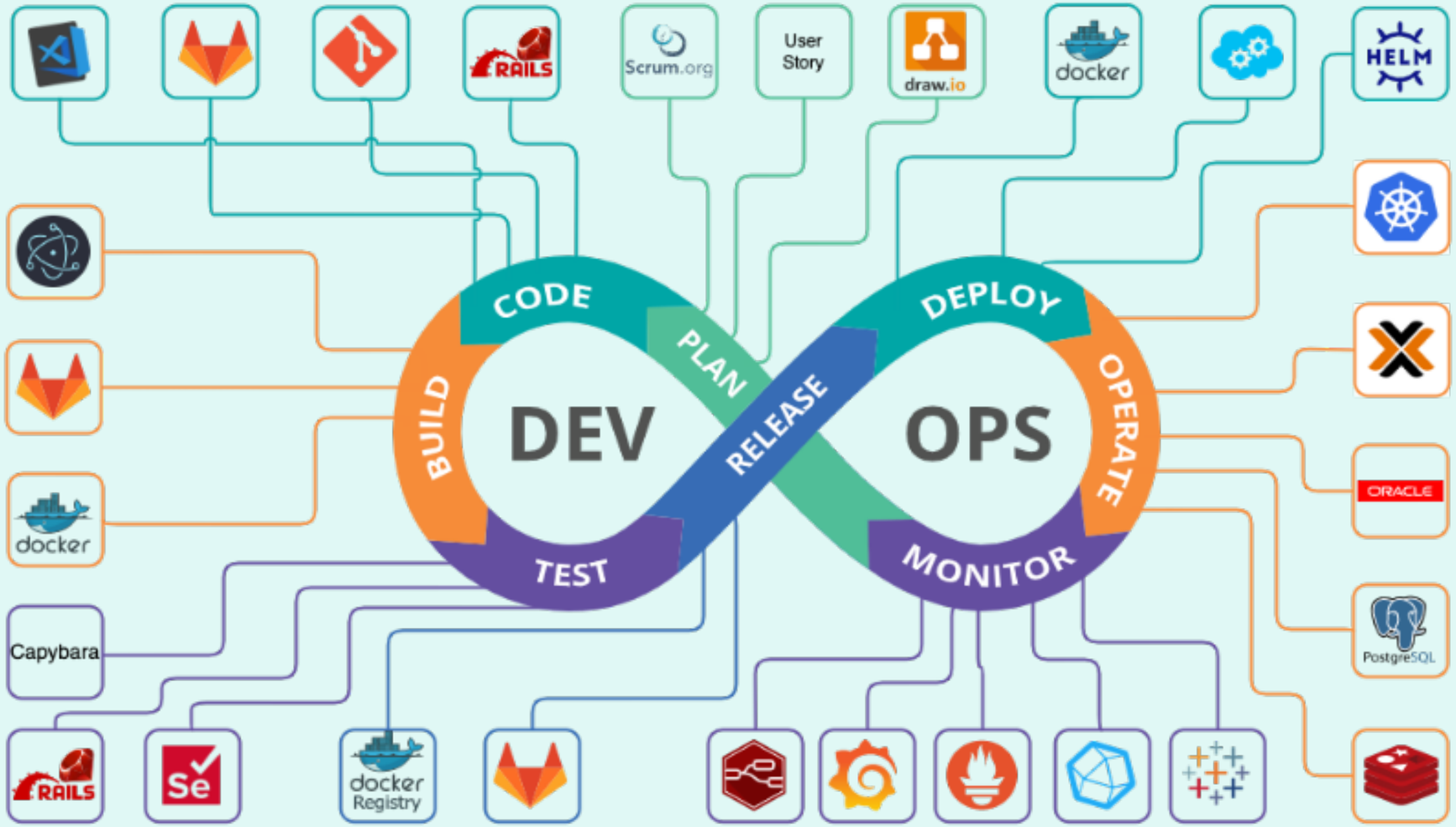
MVP 3..N



3. Big Platform

INTEGRATION

MORE AND MORE MVPS AND SOFTWARE NEED TO INTEGRATION



MORE AND MORE MVPS AND SOFTWARE NEED TO INTEGRATION

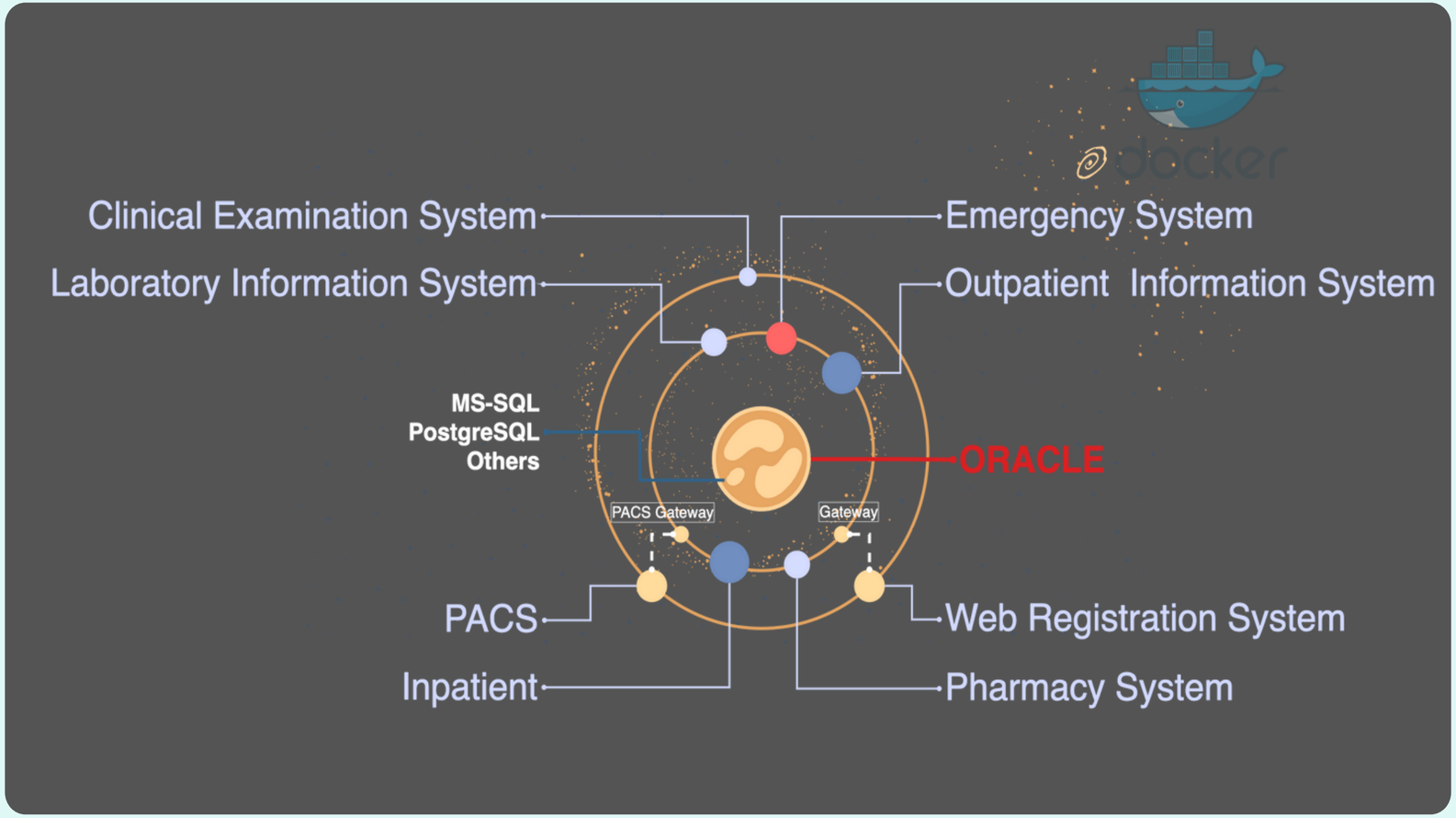
- DOCKER
- OPENLDAP
- KEYCLOAK
- DATABASE

  Oracle

  MS-SQL

  PostgreSQL

  ...

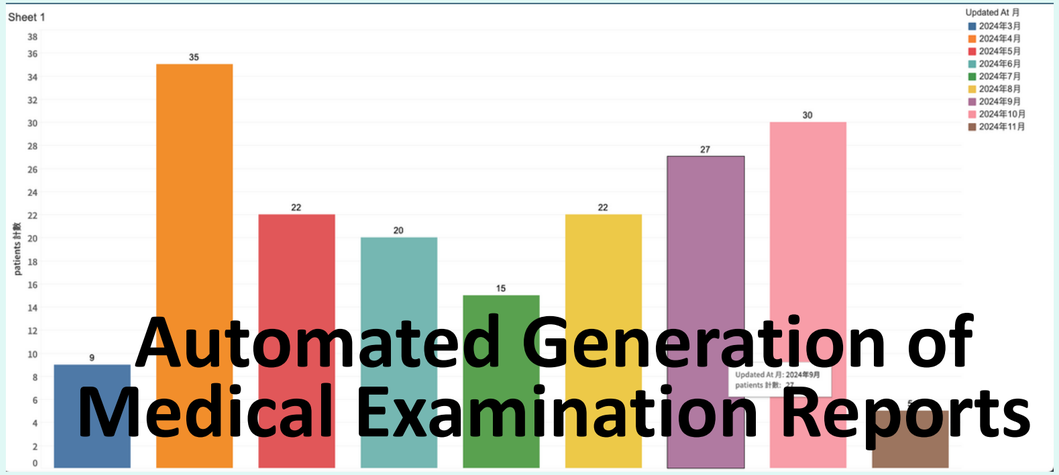


DEVELOP AN EMPLOYEE PORTAL INTEGRATION USING RUBY ON RAILS

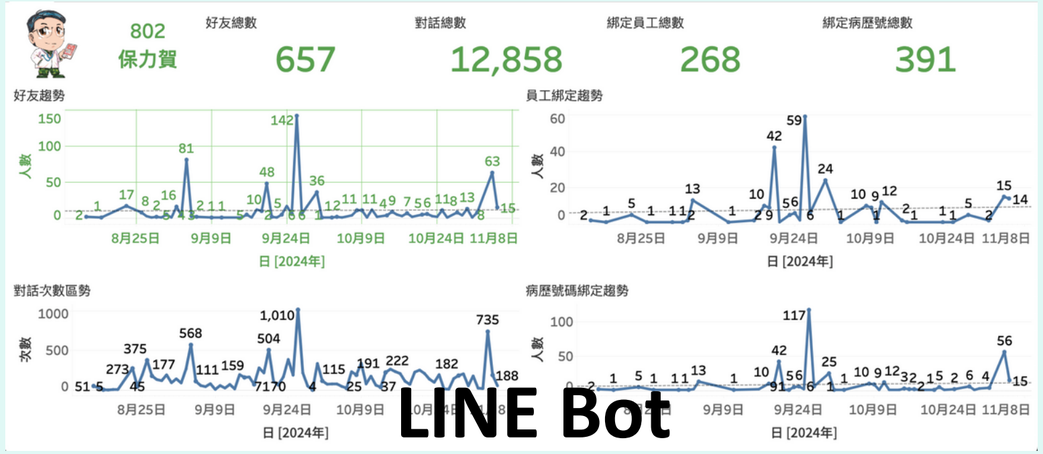
國軍高雄總醫院
Healthcare Cloud

MPV BI (TABLEAU_API GEM)

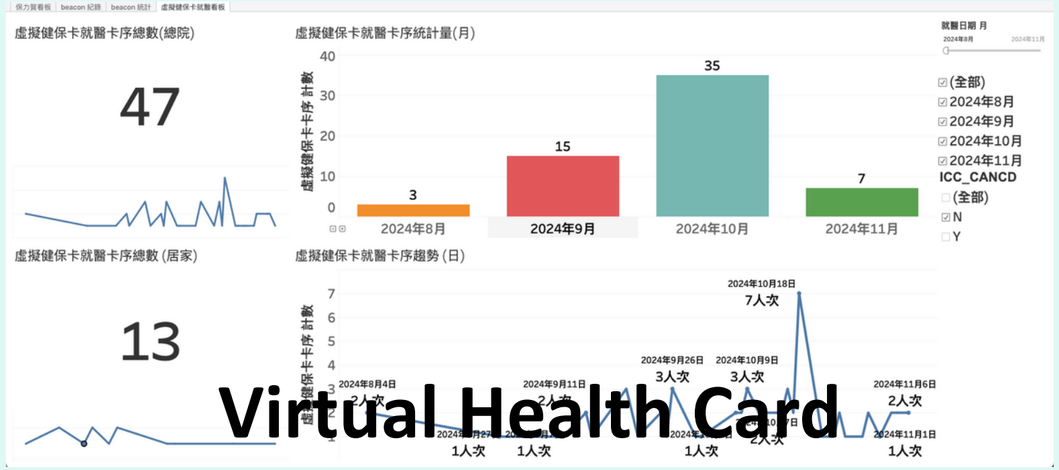
First registration E-Sign



Automated Generation of Medical Examination Reports

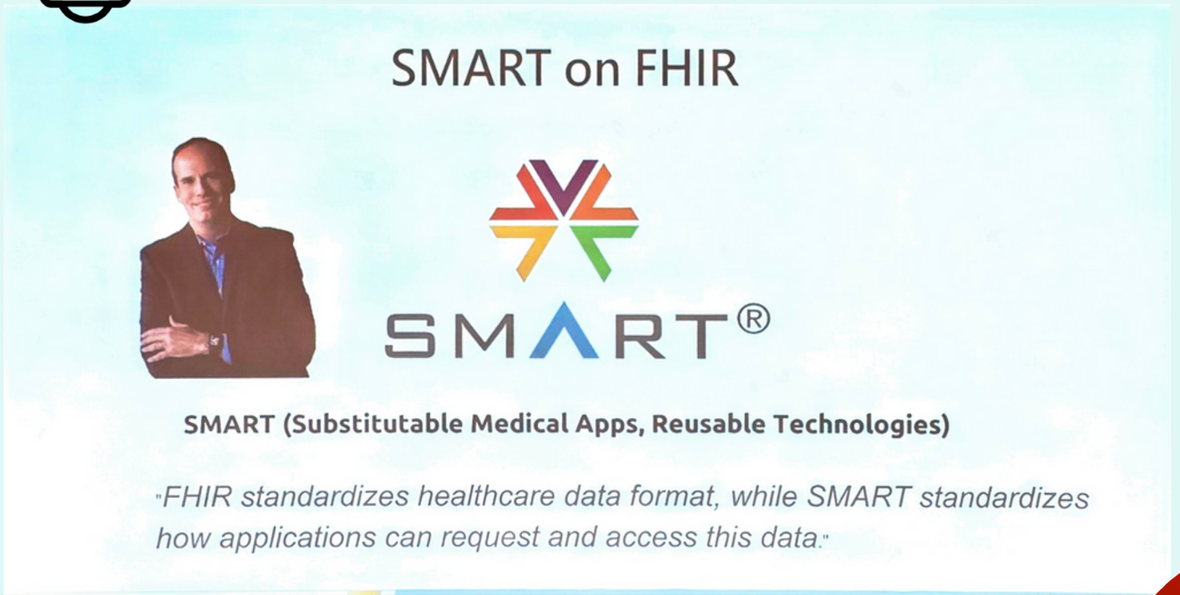


LINE Bot



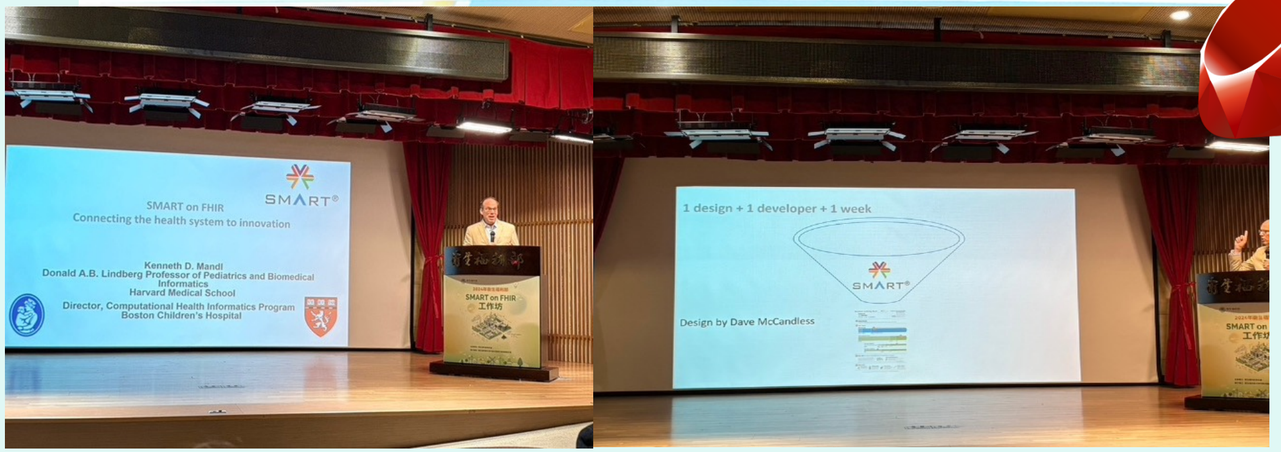
Virtual Health Card

DIGITAL HEALTHCARE PLATFORM



Software Libraries

- JavaScript or TypeScript: Client-side and server-
- Node.js from Vermonster: An alternative Node.js
- Python: Server-side Python library with support
- R
- Ruby
- Swift (iOS)
- Java
- .NET: FHIR client library from Firely



November 8, 2024 – Ministry of Health and Welfare, Taiwan

DIGITAL HEALTHCARE PLATFORM

Ministry of Healthcare and Welfare, Taiwan

SMART on FHIR Ruby Gem

4. The Future

My Life

- I’m starting to feel like a real developer
- Make others believe that we can develop the healthcare system ourselves
- Able to quickly implement any ideas

WE NEED MORE DEVELOPERS TO COME UP WITH MORE IDEAS

MORE DEVELOPERS

IN THE NEXT FEW YEARS, WE WILL HIRE MORE THEN 10 PEOPLE RUBY AND RAILS DEVELOPERS

- MAKE RUBY AND RAILS INTERESTING AGAIN
- MAKE THINGS SIMPLE AGAIN
- MAKE IDEAS EASY TO IMPLEMENT AGAIN
- MAKE HEALTHCARE SOFTWARE SIMPLE AGAIN

IT'S HARD, BUT WORTH DOING

THANK YOU FOR LISTENING.
ANY QUESTIONS?

nickle@mail.802.org.tw
nickle.cheng@gmail.com