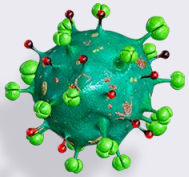
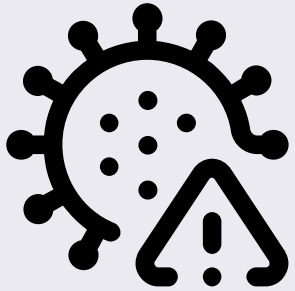
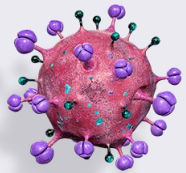
2022



Covid-19 Tracking System





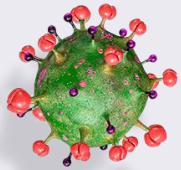
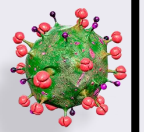
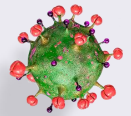


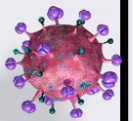
Table of contents



Introduction

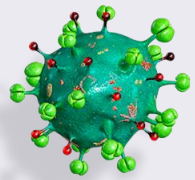
This report aims to track COVID-19 cases in Hong Kong using big data. The community and imported transmission tracking, the patient characteristics, and the service demand of the healthcare system are the major fields of our study in this database management system. The collected data will be used for building the relationship between different tables while the queries will analyze the collected data in the chart after the calculation and further generate reports to display the relationship between the collected data. These relevant reports will help analyze the trend of the epidemic in Hong Kong in the next fourteen days.

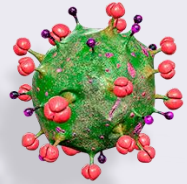




02

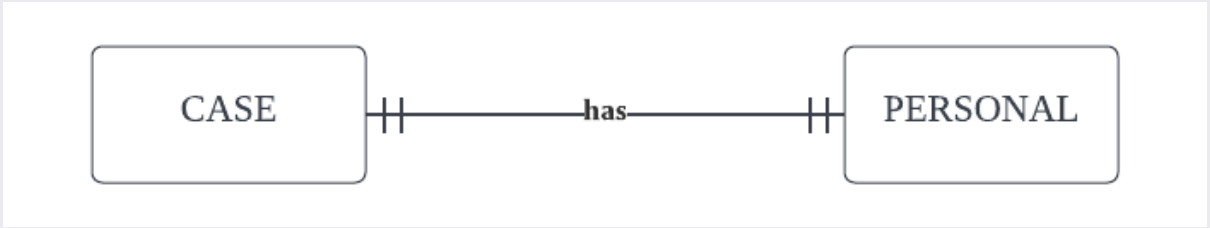
Describe the business rule





Describe the business rule

A CASE has one PERSONAL information, each PERSONAL information belongs to one CASE only.



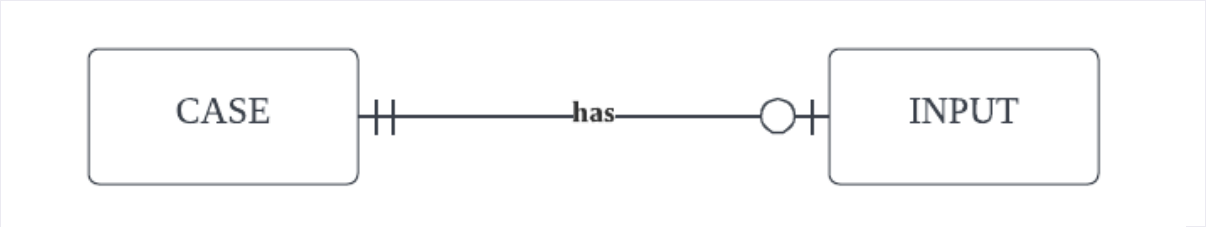
Describe the business rule

A CASE can have none or many VAXHIST, each VAXHIST belongs to one CASE only.

A VAX can be injected by many VAXHIST, each VAXHIST injects one VAX only.

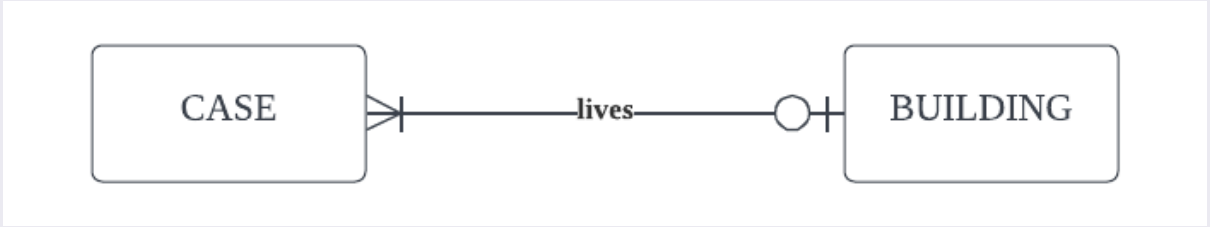
Describe the business rule

A CASE can has none or one INPUT, each INPUT is belonged to one CASE only.



Describe the business rule

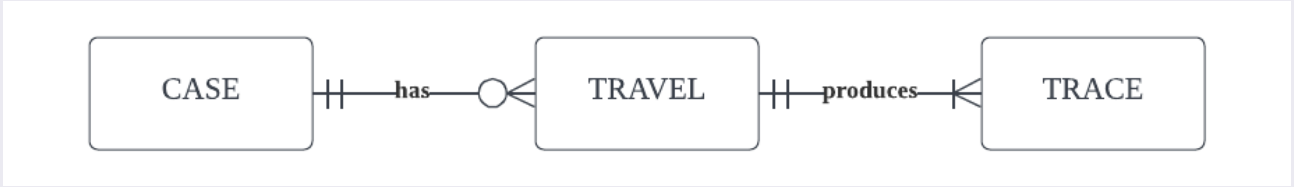
A CASE can live in none or one BUILDING, each BUILDING can belong to many CASE.



Describe the business rule

A CASE can have none or many TRAVEL, each TRAVEL belongs to one CASE only.

A TRAVEL produce many TRACE, each TRACE is produced by one TRAVEL only.



Describe the business rule

A TRACE can use none or one TRANSPORT, each TRANSPORT can be used by many TRACE.

Describe the business rule

A TRACE can have none or one VISIT, each VISIT belongs to one TRACE only.

A VISIT belongs to one BUILDING, each BUILDING can be visited by none or many VISIT.

Describe the business rule

A CASE can have none or many ENROLL, each ENROLL belongs to one CASE only.

An ENROLL admits one PATIENT, each PATIENT is admitted by one ENROLL only.

Describe the business rule

A PATIENT can have none or many BED, each BED belongs to one PATIENT only.

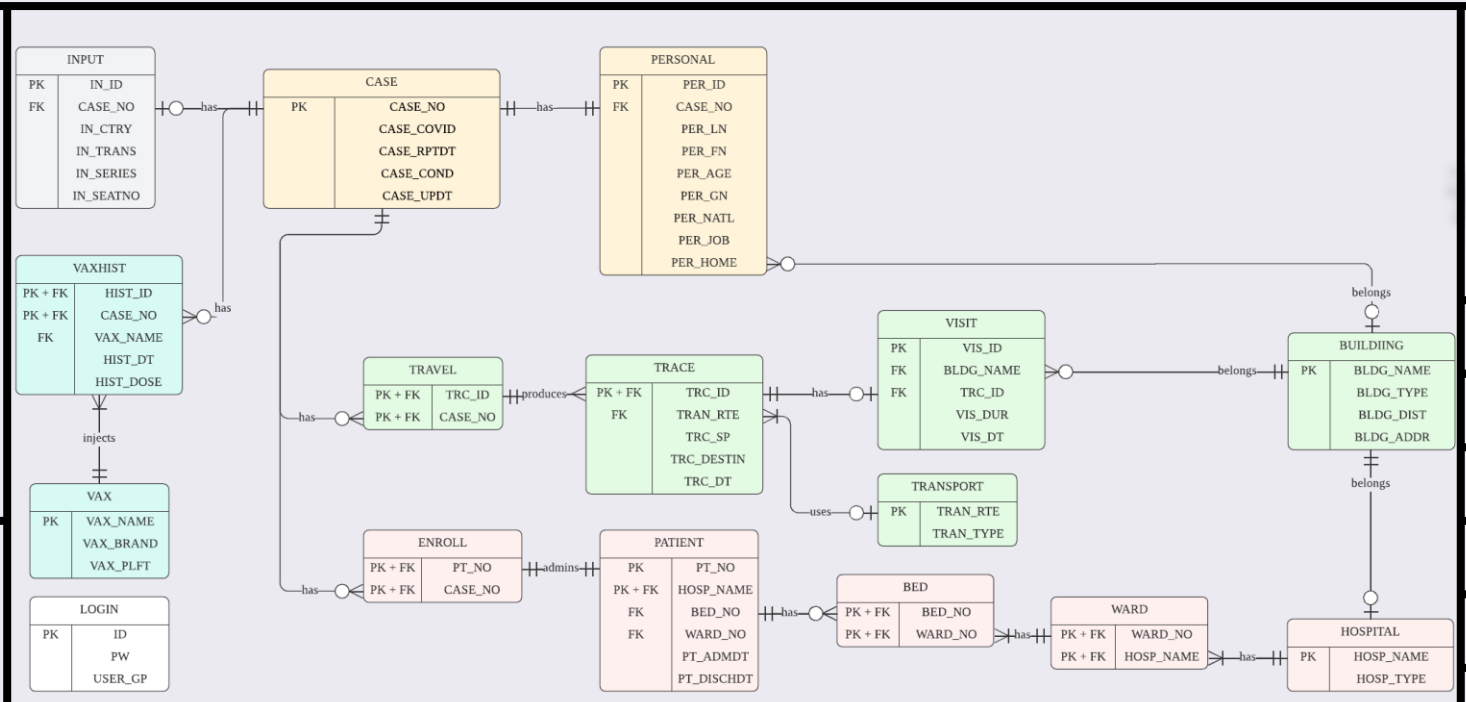
A WARD can have many BED, each BED belongs to one WARD only.

Describe the business rule

A HOSPITAL can have many WARD, each WARD belongs to one HOSPITAL only.

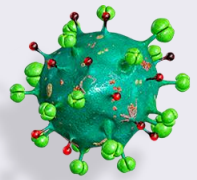
A HOSPITAL belongs to one BUILDING, each BUILDING can be used to none or one HOSPITAL only.

Conceptual model (ERD)



04

Logical design



Past pandemic situation

- **UNION**
  Three column joining

- **Subqueries**
  Counting and group by date

- **LEFT JOIN**
  Five tables join

- **Nz function**

```
SELECT i.DT, i.TOTAL, i.INPUT, Nz([j.INJECTED],"0") AS INJECTED, i.DISCHARGED, i.DECEASED
FROM (SELECT g.DT, g.TOTAL, Nz([h.INPUT],"0") AS [INPUT], g.DISCHARGED, g.DECEASED
FROM (SELECT e.DT, e.TOTAL, e.DISCHARGED, Nz([f.DECEASED],"0") AS DECEASED
FROM(SELECT c.DT, c.TOTAL, Nz([d.DISCHARGED],"0") AS DISCHARGED
FROM (SELECT a.DT, Nz([b.TOTAL],"0") AS TOTAL
FROM (SELECT DT FROM (SELECT CASE.CASE_RPTDT AS DT FROM CASE
UNION SELECT CASE.CASE_UPDT FROM CASE
UNION SELECT HIST_DT FROM VAX_HIST) ORDER BY DT) AS a

LEFT JOIN
(SELECT CASE.CASE_RPTDT AS RPTDT, COUNT(CASE.CASE_NO) AS TOTAL
FROM CASE
GROUP BY CASE.CASE_RPTDT) AS b
ON a.DT = b.RPTDT) AS c
LEFT JOIN
(SELECT CASE.CASE_UPDT AS UPDT, COUNT(CASE.CASE_NO) AS DISCHARGED
FROM CASE
WHERE CASE.CASE_COND="Discharged"
GROUP BY CASE.CASE_UPDT)  AS d
ON c.DT = d.UPDT) AS e
LEFT JOIN
(SELECT CASE.CASE_UPDT AS UPDT, COUNT(CASE.CASE_NO) AS DECEASED
FROM CASE
WHERE CASE.CASE_COND="Deceased"
GROUP BY CASE.CASE_UPDT)  AS f
ON e.DT = f.UPDT)  AS g
LEFT JOIN
(SELECT CASE.CASE_RPTDT AS RPTDT, Count(INPUT.CASE_NO) AS INPUT
FROM CASE, INPUT
WHERE CASE.CASE_NO=INPUT.CASE_NO
GROUP BY CASE.CASE_RPTDT)  AS h
ON g.DT = h.RPTDT) AS i
LEFT JOIN
(SELECT HIST_DT, COUNT(HIST_ID) AS INJECTED
FROM VAX_HIST
GROUP BY HIST_DT) AS j
On i.DT = j.HIST_DT
```

Past pandemic situation

- **UNION**
  Three column joining

- **Subqueries**
  Counting and group by date

- **LEFT JOIN**
  Five tables join

- **Nz function**

DT	TOTAL	INPUT	INJECTED	DISCHARGED	DECEASED
8/15/2021		0	1	0	0
9/15/2021	0	0	1	0	0
10/15/2021	0	0	1	0	0
12/5/2021	0	0	1	0	0
12/14/2021	1	0	0	0	0
12/15/2021	1	0	0	0	0
12/16/2021	0	0	1	0	0
12/18/2021	0	0	1	0	0
12/21/2021	0	0	1	0	0
12/23/2021	1	0	0	0	0
1/1/2022	0	0	3	0	0
1/2/2022	0	0	12	0	0
1/3/2022	0	0	2	0	0
1/5/2022	0	0	1	0	0
1/14/2022	1	0	0	0	0
1/18/2022	0	0	1	0	0
1/20/2022	1	0	0	0	0
2/1/2022	0	0	3	0	0
2/2/2022	1	0	5	0	0
2/3/2022	0	0	1	0	0
2/5/2022	1	0	0	0	0
2/10/2022	1	0	0	0	0
2/16/2022	1	0	0	0	0
2/18/2022	1	0	0	0	0
2/21/2022	1	1	0	0	0
3/1/2022	1	0	1	1	0
3/2/2022	0	0	4	1	0

Past pandemic situation

- TOTA
- **CASE_RPTDT**
- DISCHARGED
- DECEASED
- **CASE_UPDT**
- **LEFT JOIN**

CASE

CASE_NO	CASE_COVID	CASE_RPTDT	CASE_COND	CASE_UPDT
0001	Delta	15-Dec-21	ischarged	01-Mar-22
0002	Omicron	14-Dec-21	ischarged	02-Mar-22
0003	Omicron	23-Dec-21	ischarged	16-Mar-22
0004	Omicron	14-Jan-22	ischarged	13-Mar-22
0005	Omicron	20-Jan-22	ischarged	17-Apr-22
0006	Delta	02-Feb-22	ospitalized	03-Apr-22
0007	Omicron	05-Feb-22	ospitalized	06-Mar-22
0008	Omicron	10-Feb-22	eceased	25-Mar-22
0009	Omicron	16-Feb-22	ospitalized	17-Mar-22
0010	Delta	18-Feb-22	eceased	17-Mar-22
0011	Delta	21-Feb-22	eceased	23-Mar-22
0012	Omicron	01-Apr-22	ospitalized	02-Apr-22
0013	Omicron	01-Apr-22	ospitalized	02-Apr-22
0014	Omicron	01-Apr-22	ospitalized	02-Apr-22
0015	Omicron	01-Mar-22	eceased	31-Mar-22
0016	Omicron	01-Apr-22	eceased	04-Apr-22
0017	Omicron	01-Apr-22	ospitalized	02-Apr-22
0018	Omicron	02-Apr-22	ospitalized	02-Apr-22
0019	Omicron	02-Apr-22	ospitalized	02-Apr-22
0020	Omicron	02-Apr-22	ritical	05-Apr-22

Past pandemic situation

HIST_ID	VAX_NAME	HIST_DT	HIST_DOSE	CASE_RPTDT	CASE_UPDT
0001	BNT	15-Aug-21	1st	15-Dec-21	01-Mar-22
0002	BNT	15-Sep-21	2nd	14-Dec-21	02-Mar-22
0003	BNT	15-Oct-21	3rd	23-Dec-21	16-Mar-22
0004	CoronaVac	05-Dec-21	1st	14-Jan-22	13-Mar-22
0005	CoronaVac	05-Jan-22	2nd	20-Jan-22	17-Apr-22
0006	CoronaVac	18-Dec-21	1st	02-Feb-22	03-Apr-22
0007	CoronaVac	18-Jan-22	2nd	05-Feb-22	06-Mar-22
0008	BNT	21-Dec-21	1st	10-Feb-22	25-Mar-22
0009	BNT	16-Dec-21	1st	16-Feb-22	17-Mar-22
0010	BNT	01-Jan-22	1st	18-Feb-22	17-Mar-22
0011	BNT	01-Feb-22	2nd	21-Feb-22	23-Mar-22
0012	BNT	01-Mar-22	3rd	01-Apr-22	02-Apr-22
0013	CoronaVac	01-Feb-22	1st	01-Apr-22	02-Apr-22
0014	CoronaVac	01-Jan-22	1st	01-Apr-22	02-Apr-22
0015	BNT	01-Jan-22	1st	01-Mar-22	31-Mar-22
0016	BNT	01-Feb-22	2nd	01-Apr-22	04-Apr-22
0017	BNT	02-Jan-22	1st	01-Apr-22	02-Apr-22
0018	CoronaVac	02-Jan-22	1st	02-Apr-22	02-Apr-22
0019	CoronaVac	02-Jan-22	1st	02-Apr-22	02-Apr-22
0020	BNT	02-Jan-22	1st	02-Apr-22	05-Apr-22

Past pandemic situation

- **UNION**
  Combine three columns and remove duplicate data
- **ORDER BY**
  Reorder the combined columns
- **LEFT JOIN**
  Combine the DT with TOTAL
- **Nz Function**
  Change all null values to 0

DT	TOTAL	INPUT	INJECTED	DISCHARGED	DECEASED
8/15/2021		0	1	0	0
9/15/2021	0	0	1	0	0
10/15/2021	0	0	1	0	0
12/5/2021	0	0	1	0	0
12/14/2021	1	0	0	0	0
12/15/2021	1	0	0	0	0
12/16/2021	0	0	1	0	0
12/18/2021	0	0	1	0	0
12/21/2021	0	0	1	0	0
12/23/2021	1	0	0	0	0
1/1/2022	0	0	3	0	0
1/2/2022	0	0	12	0	0
1/3/2022	0	0	2	0	0
1/5/2022	0	0	1	0	0
1/14/2022	1	0	0	0	0
1/18/2022	0	0	1	0	0
1/20/2022	1	0	0	0	0
2/1/2022	0	0	3	0	0
2/2/2022	1	0	5	0	0
2/3/2022	0	0	1	0	0
2/5/2022	1	0	0	0	0
2/10/2022	1	0	0	0	0

Case by age group

- **UNION**
  Joining 7 sub-queries

- **Subqueries**
  - counts the frequency of age
  - group by calculating PER_AGE

- **JOIN Table**
  Two tables join
  (CASE, PERSONAL)

(Report) (General) Case by age group

```
SELECT "0-10" AS AGE_GROUP, [0-10] AS FREQUENCY
FROM (SELECT COUNT(*) AS [0-10] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 0 AND PER_AGE < 10)
UNION
SELECT "10-20" AS AGE_GROUP, [10-20] AS FREQUENCY
FROM (SELECT COUNT(*) AS [10-20] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 10 AND PER_AGE < 20)
UNION
SELECT "20-30" AS AGE_GROUP, [20-30] AS FREQUENCY
FROM (SELECT COUNT(*) AS [20-30] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 20 AND PER_AGE < 30)
UNION
SELECT "30-40" AS AGE_GROUP, [30-40] AS FREQUENCY
FROM (SELECT COUNT(*) AS [30-40] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 30 AND PER_AGE < 40)
UNION
SELECT "40-50" AS AGE_GROUP, [40-50] AS FREQUENCY
FROM (SELECT COUNT(*) AS [40-50] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 40 AND PER_AGE < 50)
UNION
SELECT "50-60" AS AGE_GROUP, [50-60] AS FREQUENCY
FROM (SELECT COUNT(*) AS [50-60] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 50 AND PER_AGE < 60)
UNION SELECT "70+" AS AGE_GROUP, [70+] AS FREQUENCY
FROM (SELECT COUNT(*) AS [70+] FROM [CASE], PERSONAL
        WHERE CASE.CASE_NO = PERSONAL.CASE_NO
        AND PER_AGE >= 70);
```

Case by age group

CASE

CASE_NO	CASE_COVID	CASE_RPTDT	CASE_COND	CASE_UPDT
0001	Delta	15-Dec-21	Discharged	01-Mar-22
0002	Omicron	14-Dec-21	Discharged	02-Mar-22
0003	Omicron	23-Dec-21	Discharged	16-Mar-22
0004	Omicron	14-Jan-22	Discharged	13-Mar-22
0005	Omicron	20-Jan-22	Discharged	17-Apr-22
0006	Delta	02-Feb-22	Hospitalized	03-Apr-22
0007	Omicron	05-Feb-22	Hospitalized	06-Mar-22
0008	Omicron	10-Feb-22	Deceased	25-Mar-22
0009	Omicron	16-Feb-22	Hospitalized	17-Mar-22
0010	Delta	18-Feb-22	Deceased	17-Mar-22
0011	Delta	21-Feb-22	Deceased	23-Mar-22
0012	Omicron	01-Apr-22	Hospitalized	02-Apr-22
0013	Omicron	01-Apr-22	Hospitalized	02-Apr-22
0014	Omicron	01-Apr-22	Hospitalized	02-Apr-22
0015	Omicron	01-Mar-22	Deceased	31-Mar-22
0016	Omicron	01-Apr-22	Deceased	04-Apr-22
0017	Omicron	01-Apr-22	Hospitalized	02-Apr-22
0018	Omicron	02-Apr-22	Hospitalized	02-Apr-22
0019	Omicron	02-Apr-22	Hospitalized	02-Apr-22
0020	Omicron	02-Apr-22	Critical	05-Apr-22

Case by age group

- Count total case number
- Classified into different age group
- group by calculating PER_AGE

CASE | (Report) (Genral) Case by age group

CASE_NO	PER_ID	PER_LN	PER_FN	PER_AGE	PER_GN	PER_NATL	PER_JOB	PER_HOME
0001	D123456	Kunde	Chad	18	M	Hong Kong resident	Student	Ho Man Tin Estate
0002	E123456	Pollich	Jerrell	18	M	Hong Kong resident	Student	Ho Man Tin Estate
0003	F123456	Skiles	Francisco	43	F	Hong Kong resident	Professor	Sorrento
0004	G123456	Leuschke	Melody	41	M	Hong Kong resident	Lawmaker	Hung Hom Estate
0005	H123456	Funk	Samanta	40	M	Hong Kong resident	Student	Lai Kok Estate
0006	I123456	Johns	Marion	31	F	Hong Kong resident	Nurse	Lai Kok Estate
0007	A123456	Grant	Ray	27	M	Hong Kong resident	Student	Ho Man Tin Estate
0008	B123456	Moen	Freeda	65	M	Hong Kong resident	Student	Lai Kok Estate
0009	C123456	Schumm	Kailey	18	F	Hong Kong resident	Student	Hung Hom Estate
0010	D123456	Dietrich	Kelley	81	F	British	Jobless	Kai Ching Estate
0011	E123456	Zieme	Noel	75	M	United States	Jobless	Ho Man Tin Estate
0012	F123456	Cummerata	Elna	43	F	Hong Kong resident	Proferssor	Sorrento
0013	G123456	Price	Jesse	30	M	Hong Kong resident	Clerk	Ho Man Tin Estate
0014	H123456	Jakubowski	Alvina	27	M	Hong Kong resident	Jobless	Kai Ching Estate
0015	I123456	Romaguera	Jay	12	F	Hong Kong resident	Student	Hung Hom Estate
0016	J123456	Wilkinson	Nash	72	M	Hong Kong resident	Jobless	Ho Man Tin Estate
0017	K123456	Graham	Elinor	18	M	Hong Kong resident	Police	Choi Hung Estate
0018	L123456	Lockman	Robbie	29	M	Hong Kong resident	Bus driver	Hung Hom Estate
0019	M123456	Langosh	Roy	16	F	Japan	Student	Kai Ching Estate
0020	N123456	Frami	Tomasa	31	M	Hong Kong resident	Cleaner	Ho Man Tin Estate
0021	O123456	Keeling	Brendon	58	M	Hong Kong resident	Bus driver	Hung Hom Estate
0022	P123456	Steuber	Jeffery	36	F	Hong Kong resident	Lawmaker	Sorrento
0023	Q123456	Huels	Shany	28	M	Hong Kong resident	Lawmaker	Sorrento

Case by age group

- **UNION**
  Combine the two columns counting the total case number classified by different age group

(Report) (General) Case by age group

AGE_GROU	FREQUENC
0-10	1
10-20	10
20-30	8
30-40	7
40-50	4
50-60	2
70+	5

Bed used by Hospital

- **UNION**
  Joining 9 sub-queries

- **Subquery**
  Count & Group by Hospital Name

- **JOIN Table**
  Five tables join
  (WARD, BED, PATIENT,
  ENROLL, CASE)

```
SELECT b.HOSP_NAME AS HOSPITAL, a.USED_BED/b.SUM_BED AS USAGE
FROM
(SELECT COUNT(BED.BED_NO) AS USED_BED
FROM WARD, BED, PATIENT, ENROLL, [CASE]
WHERE WARD.WARD_NO = BED.WARD_NO
AND BED.BED_NO = PATIENT.BED_NO
AND PATIENT.PT_NO = ENROLL.PT_NO
AND ENROLL.CASE_NO = CASE.CASE_NO
AND (CASE_COND = "Hospitalized" OR CASE_COND = "Critical")
AND WARD.HOSP_NAME = "United Christian Hospital") AS a,
(SELECT COUNT(BED.BED_NO) AS SUM_BED, HOSPITAL.HOSP_NAME
FROM BED, WARD, HOSPITAL
WHERE BED.WARD_NO = WARD.WARD_NO
AND WARD.HOSP_NAME = HOSPITAL.HOSP_NAME
AND HOSPITAL.HOSP_NAME = "United Christian Hospital"
GROUP BY HOSPITAL.HOSP_NAME) AS b
GROUP BY b.HOSP_NAME, a.USED_BED/b.SUM_BED
UNION
SELECT b.HOSP_NAME AS HOSPITAL, a.USED_BED/b.SUM_BED AS USAGE
FROM
(SELECT COUNT(BED.BED_NO) AS USED_BED
FROM WARD, BED, PATIENT, ENROLL, [CASE]
WHERE WARD.WARD_NO = BED.WARD_NO
AND BED.BED_NO = PATIENT.BED_NO
AND PATIENT.PT_NO = ENROLL.PT_NO
AND ENROLL.CASE_NO = CASE.CASE_NO
AND (CASE_COND = "Hospitalized" OR CASE_COND = "Critical")
AND WARD.HOSP_NAME = "Queen Elizabeth Hospital") AS a,
(SELECT COUNT(BED.BED_NO) AS SUM_BED, HOSPITAL.HOSP_NAME
FROM BED, WARD, HOSPITAL
WHERE BED.WARD_NO = WARD.WARD_NO
AND WARD.HOSP_NAME = HOSPITAL.HOSP_NAME
AND HOSPITAL.HOSP_NAME = "Queen Elizabeth Hospital"
GROUP BY HOSPITAL.HOSP_NAME) AS b
GROUP BY b.HOSP_NAME, a.USED_BED/b.SUM_BED
UNION
```

Bed used by Hospital

(Report) (Hospital) Bed used by hospital

HOSPITAL	USAGE
Caritas Medical Centre	0.45
Evangel Hospital	0.05
Fanling Community Isolation Facilitiy	8.33333333333333E-02
Hong Kong Baptist Hospital	0.05
Kwong Wah Hospital	0.1
Penny’ s Bay Community Isolation Facility	8.33333333333333E-02
Precious Blood Hospital	0.05
Queen Elizabeth Hospital	0.15
United Christian Hospital	0.35

Death Rate by vaccine

- **Multiple Sub-queries**
  - Counting & group by VAX_NAME
- **INNER JOIN**
  Two table join (CASE, VAX_HIST)

(Report) (Vaccine) Death rate by vaccine

```
SELECT a.VAX_NAME, ROUND(a.DEATH/b.TOTAL, 2) AS DEATH_RATE
FROM (SELECT A.VAX_HIST.VAX_NAME, Count(*) AS DEATH
FROM (SELECT VAX_HIST.VAX_NAME, COUNT(CASE.CASE_NO)
        FROM [CASE]
        INNER JOIN VAX_HIST ON CASE.CASE_NO = VAX_HIST.CASE_NO
        WHERE CASE.CASE_COND="deceased"
        GROUP BY VAX_HIST.VAX_NAME, CASE.CASE_NO)  AS A
        GROUP BY A.VAX_HIST.VAX_NAME)  AS a,
       (SELECT VAX_HIST.VAX_NAME, Count(*) AS TOTAL
FROM (SELECT VAX_HIST.VAX_NAME, COUNT(CASE.CASE_NO)
        FROM [CASE]
        INNER JOIN VAX_HIST ON CASE.CASE_NO = VAX_HIST.CASE_NO
       GROUP BY VAX_HIST.VAX_NAME, CASE.CASE_NO)  AS B
       GROUP BY B.VAX_HIST.VAX_NAME)  AS b
WHERE a.VAX_NAME=b.VAX_NAME
GROUP BY a.VAX_NAME, a.DEATH, b.TOTAL;
```

Death Rate by vaccine

Count no. of deceased people

CASE

CASE_NO	CASE_COVID	CASE_RPTDT	CASE_COND	CASE_UPDT
0001	Delta	15-Dec-2	Discharged	01-Mar-22
0002	Omicron	14-Dec-2	Discharged	02-Mar-22
0003	Omicron	23-Dec-2	Discharged	16-Mar-22
0004	Omicron	14-Jan-2	Discharged	13-Mar-22
0005	Omicron	20-Jan-2	Discharged	17-Apr-22
0006	Delta	02-Feb-2	Hospitalized	03-Apr-22
0007	Omicron	05-Feb-2	Hospitalized	06-Mar-22
0008	Omicron	10-Feb-2	Deceased	25-Mar-22
0009	Omicron	16-Feb-2	Hospitalized	17-Mar-22
0010	Delta	18-Feb-2	Deceased	17-Mar-22
0011	Delta	21-Feb-2	Deceased	23-Mar-22
0012	Omicron	01-Apr-2	Hospitalized	02-Apr-22
0013	Omicron	01-Apr-2	Hospitalized	02-Apr-22
0014	Omicron	01-Apr-2	Hospitalized	02-Apr-22
0015	Omicron	01-Mar-2	Deceased	31-Mar-22
0016	Omicron	01-Apr-2	Deceased	04-Apr-22
0017	Omicron	01-Apr-2	Hospitalized	02-Apr-22
0018	Omicron	02-Apr-2	Hospitalized	02-Apr-22
0019	Omicron	02-Apr-2	Hospitalized	02-Apr-22
0020	Omicron	02-Apr-2	Critical	05-Apr-22

Death Rate by vaccine

Retrieve match CASE_NO by **INNER JOIN VAX_HIST ON** CASE.CASE_NO= VAX_HIST.CASE_NO

GROUP BY VAX_NAME

VA | PERSONAL | (Report) (Genral) Case by age gr

CASE_NO	HIST_ID	VAX_NAME	HIST_DT	HIST_DOSE
0001	0001	BNT	5-Aug-21	1st
0001	0002	BNT	5-Sep-21	2nd
0001	0003	BNT	5-Oct-21	3rd
0008	0004	CoronaVac	5-Dec-21	1st
0008	0005	CoronaVac	5-Jan-22	2nd
0010	0006	CoronaVac	8-Dec-21	1st
0010	0007	CoronaVac	8-Jan-22	2nd
0011	0008	BNT	1-Dec-21	1st
0012	0009	BNT	6-Dec-21	1st
0013	0010	BNT	1-Jan-22	1st
0013	0011	BNT	1-Feb-22	2nd
0013	0012	BNT	1-Mar-22	3rd
0015	0013	CoronaVac	1-Feb-22	1st
0016	0014	CoronaVac	1-Jan-22	1st
0017	0015	BNT	1-Jan-22	1st
0017	0016	BNT	1-Feb-22	2nd
0018	0017	BNT	2-Jan-22	1st
0019	0018	CoronaVac	2-Jan-22	1st
0020	0019	CoronaVac	2-Jan-22	1st
0022	0020	BNT	2-Jan-22	1st

Death Rate by vaccine

- **INNER JOIN**
  Combine VAX_NAME & Death Rate by calculating total injected death case & total injected case respectively

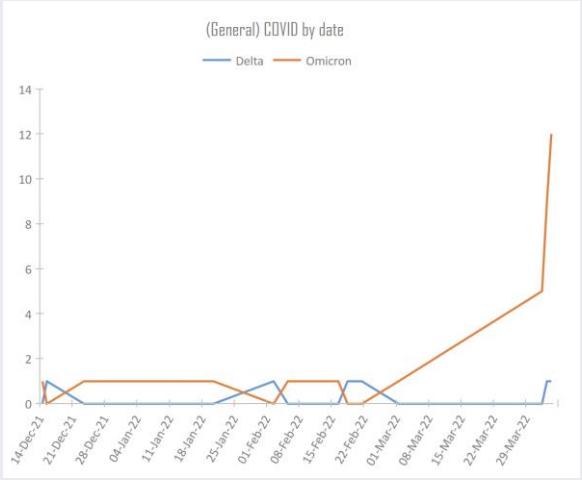
(Report) (Vaccine) Death rate by vaccine

VAX_NAME	DEATH_RATE
BNT	0.2
CoronaVac	0.55

- **GROUP BY**
  Calculating the death rate **Group by** VAX_NAME

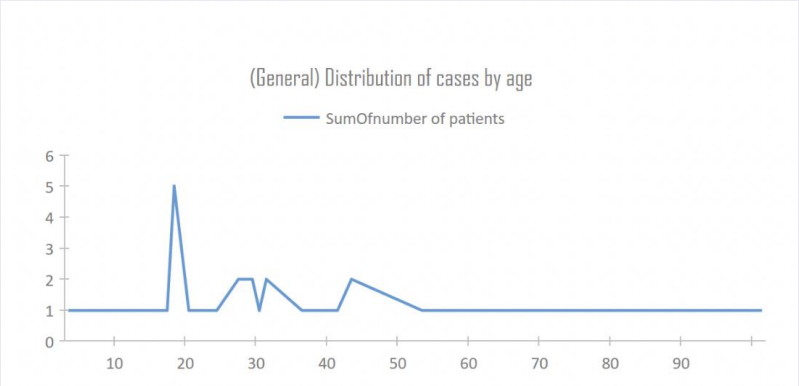
Logical design- General Report

- The number for Covid cases.
- Clearly there is an upward trend for Omicron.



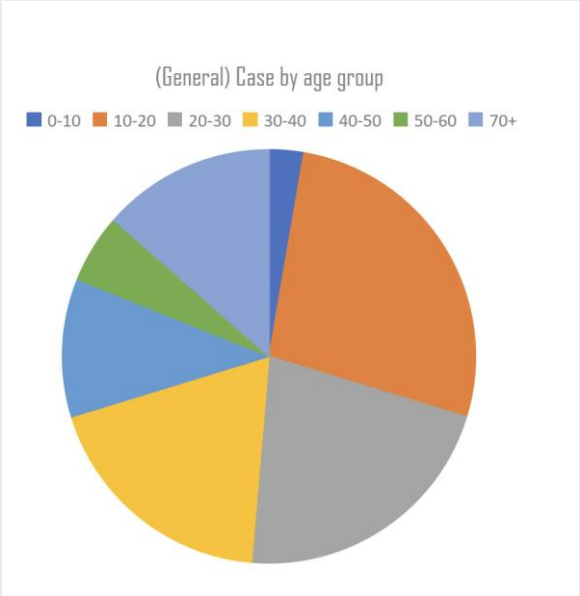
Logical design- General Report

- The number for distribution cases in different age.
- Visualization of the different age of distribution case.



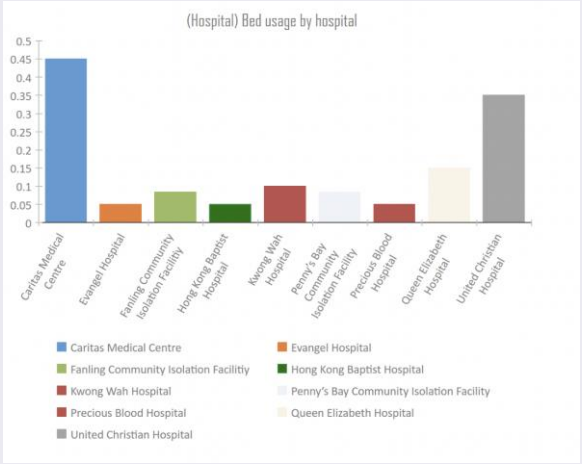
Logical design- General Report

- The percentage for cases in different age.
- Visualization percentage in different ages for the covid case.



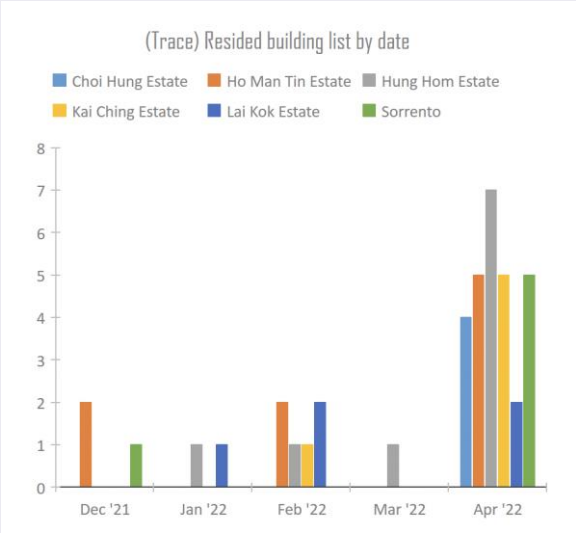
Logical design- Hospital Report

- The number for hospital Bed usage.
- Visualization of the bed pressure in different hospital.



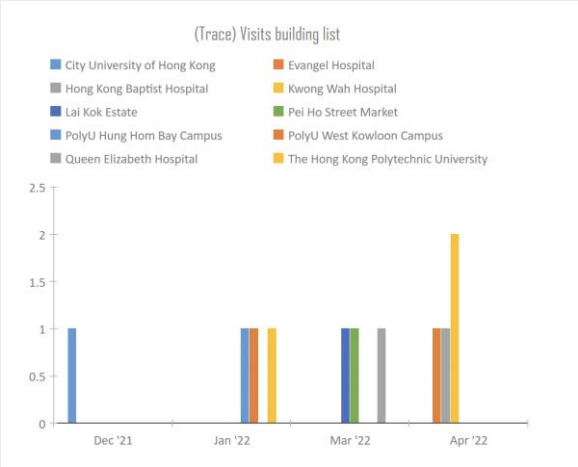
Logical design- Trace Report

- Trace **target**
- Statistics for infect living area.
- Visualization of the trend and statistics for case.



Logical design- Trace Report

- Trace **target**
- Statistics for the patient visiting history.
- Visualization the data and trend of patient building visiting history .



Logical design-(Portal) Homepage

navigation bar

Covid-19 Tracking System

14-Apr-22 17:46

current date and time

General | Vaccine | Medical | Community | Input | Login

login button

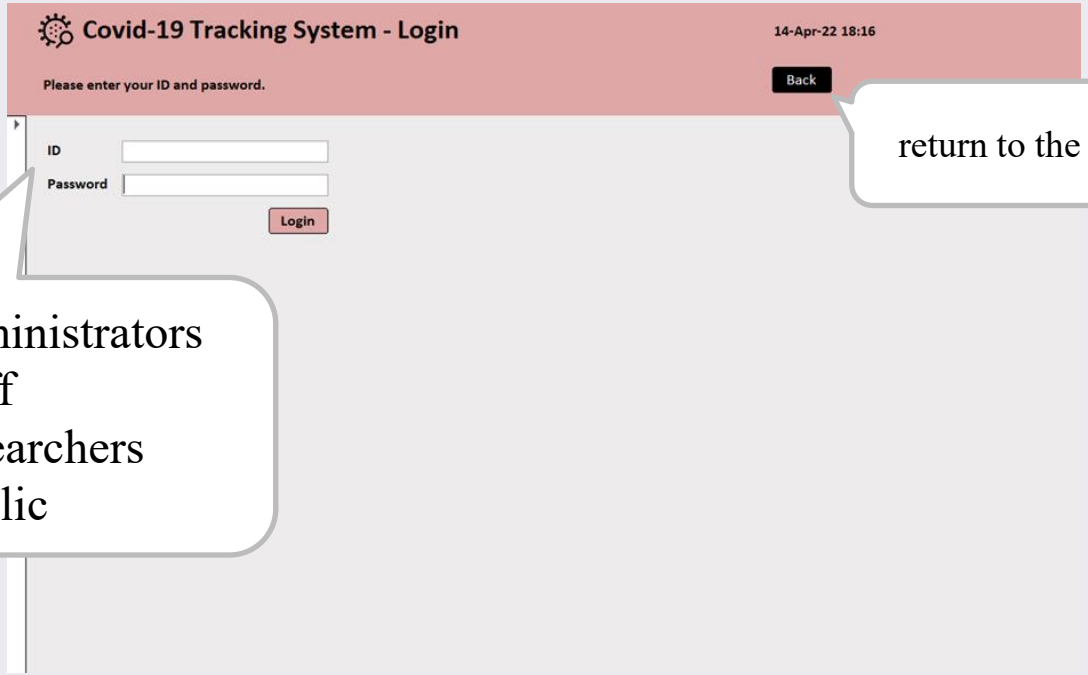
TOTAL	DISCHARGED	HOSPITALIZED	CRITICAL	DECEASED
40	5	27	4	8

Current pandemic situation.

Wear a mask and keep social distance. Always clean your hands, stay home if you feel unwell.

total number of cases, discharges, critical cases, and death cases

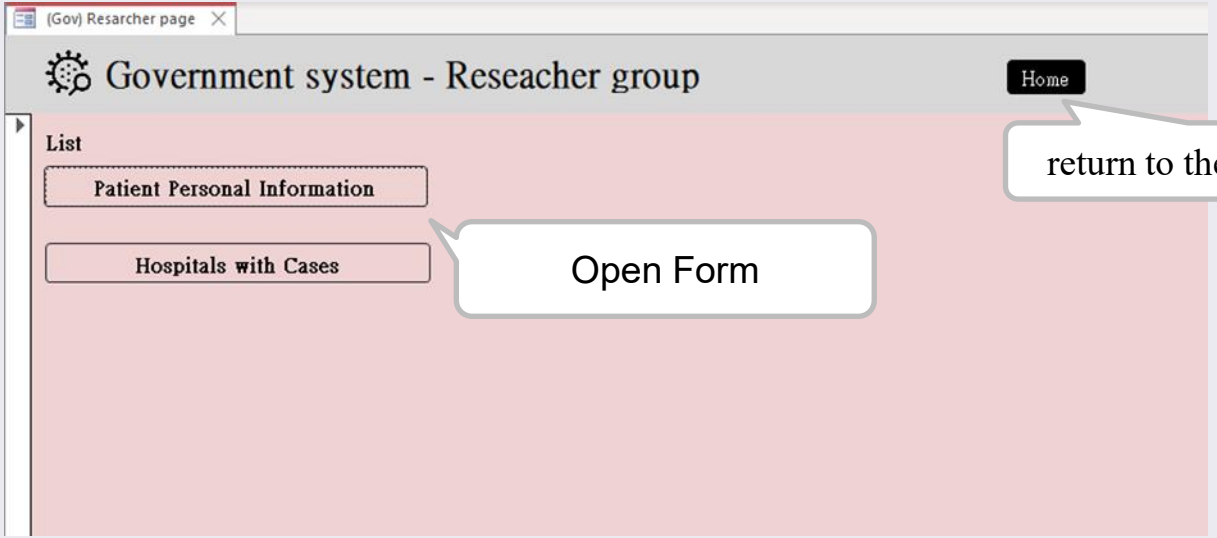
Logical design-(Portal) Login page



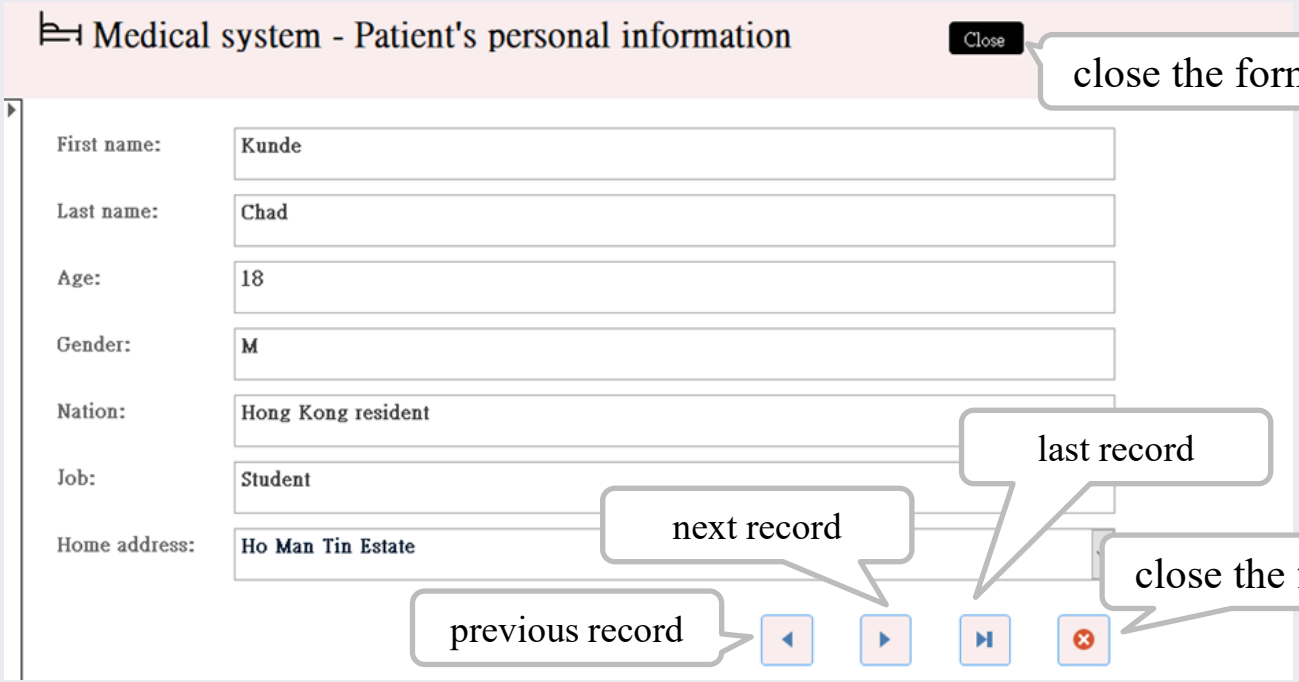
- administrators
- staff
- researchers
- public

return to the home page

Logical design-(Portal) (Gov) Researcher page



Logical design-(Hospital) (Gov) Patients personal information



Logical design-(Hospital) Patient records

Medical system - Hospital's patients record

Close

Please select hospital from the list.

Hospital: Caritas Medical Centre

Hospital Type: Public Hospital

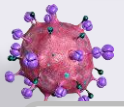
Patient:

PT_NO	BED_NO
C001	C01
C002	C02
C003	C03
C004	C04
C005	C05
C006	C06
C007	C07
C008	C08
C009	C09
C010	C10

Record: 1 of 10 No Filter Search

sub form

Logical design-(Portal) General



navigation bar

Open Form

current date and time

return to the home page

Open report

General

15-Apr-22 1:56

General | Vaccine | Medical | Community | Input | Back

List

List of Confirmed Cases | History pandemic situation

Case by Covid

Report

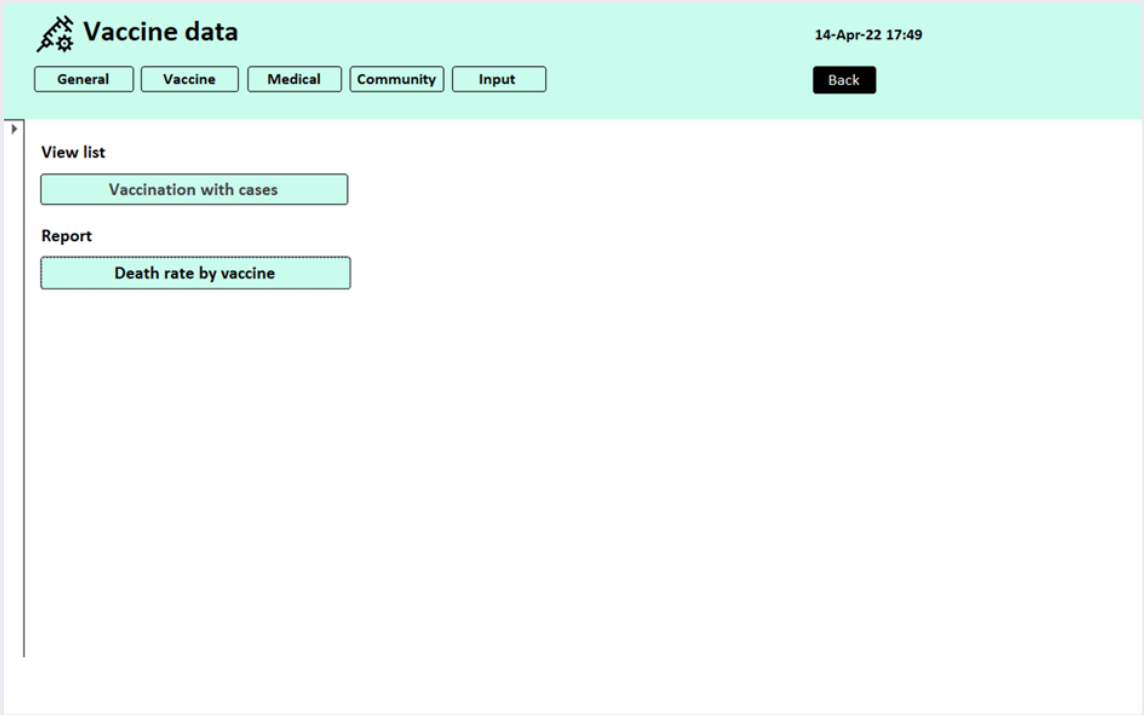
Case by Covid | Covid trending

Case by age group | Case trending

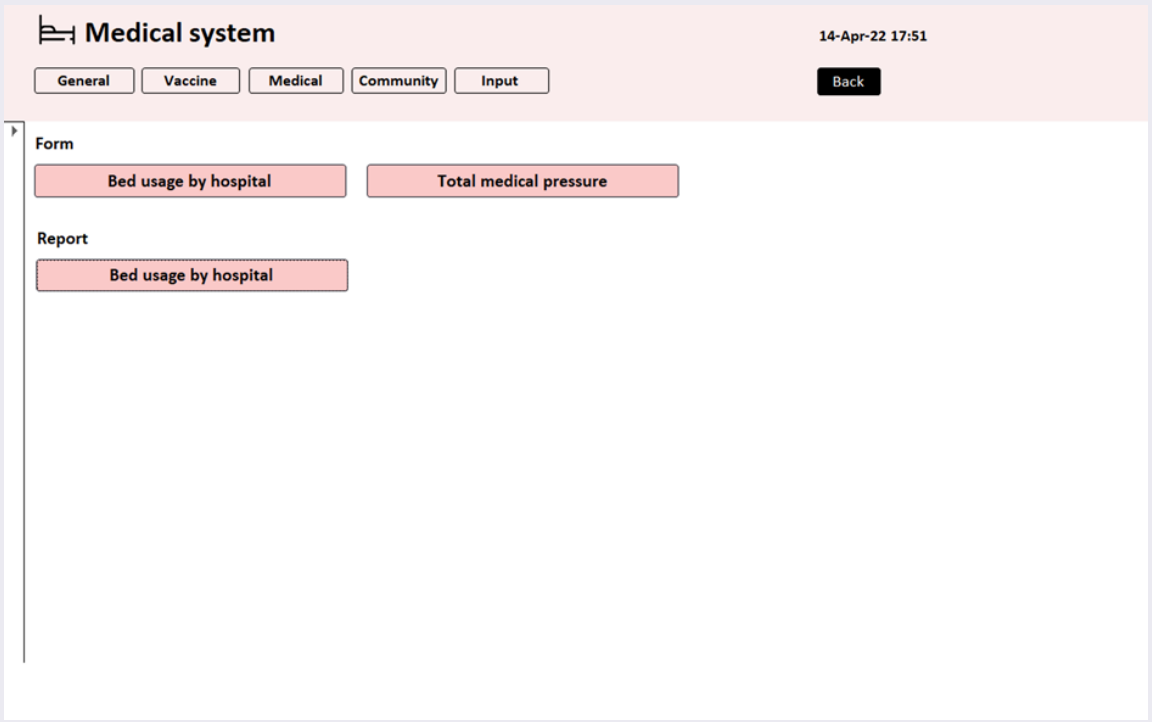
Distribution of cases by age | Case by distrcit and date

Max, Min and Avg of patient

Logical design-(Portal) Vaccine data



Logical design-(Portal) Medical system



Logical design-(Portal) Community tracking

Community tracking

14-Apr-22 17:51

General | Vaccine | Medical | Community | Input

Back

View list

Building with Case Visited

Local transportation list

Report

KMB route visit listeport

MTR route visit list

Resided building list

Resided building list by date

Transporation usage

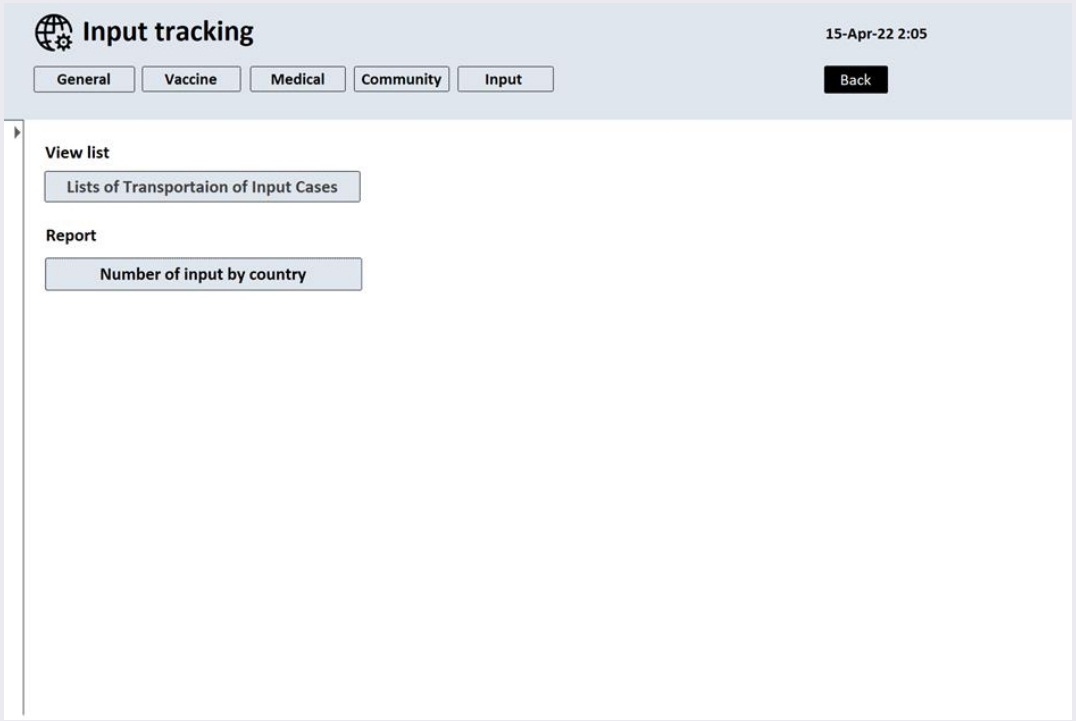
Visits building list

Search

Case by distrcits and date

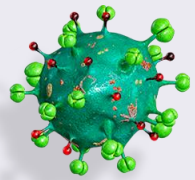
Resides building list

Logical design-(Portal) Input tracking



04

Demonstration



Conclusions

Designing the project

- ER Diagram
- SQL writing
- Business

What we learn from the group project

Knowledge

- SQL writing skills
- Database management

Personal

- Teamwork
- Solving skills
- Emulate effective peers