



My Medicine Manager

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C16437464



Objectives

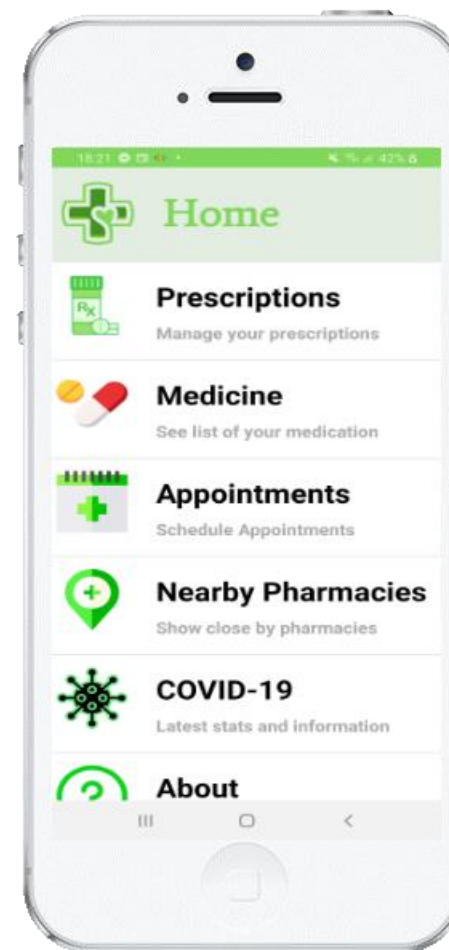
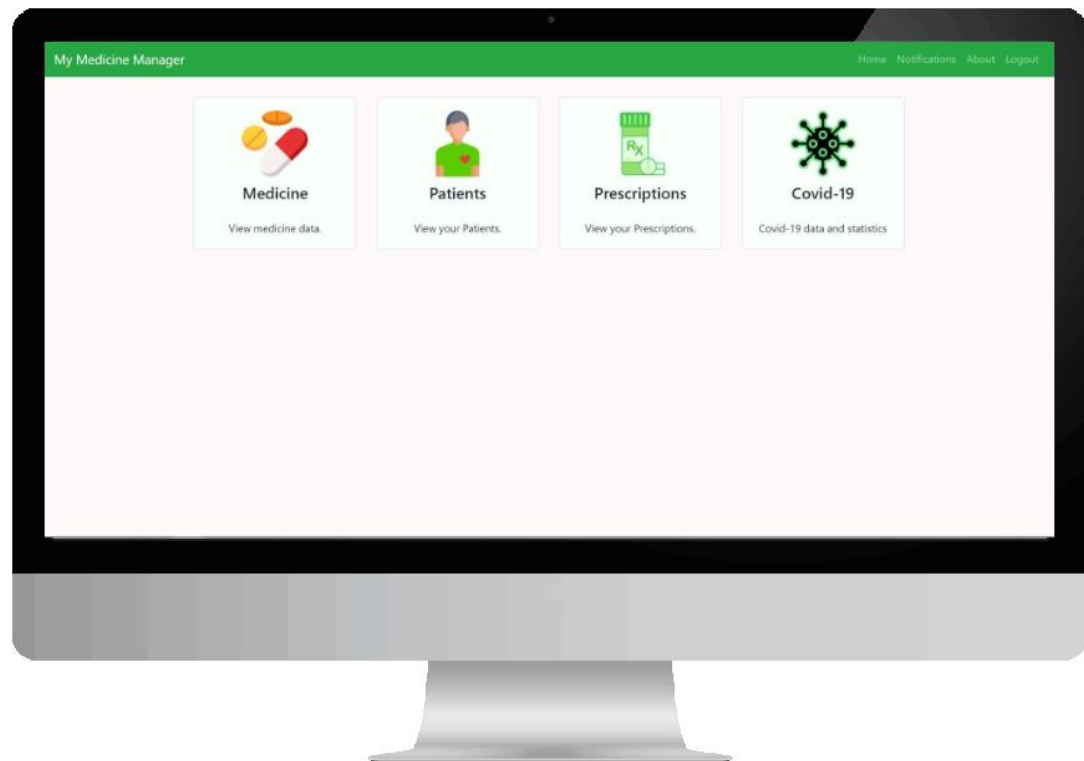
- Better patient experience with Pharmacies
 - Reduce waiting times
 - Notify patients when prescriptions are ready
 - Be patient centric by patients in control e.g. when and to send their prescription and to who
- Help Pharmacies workflow:
 - To give a better service to their patients
 - Be better informed to advise patients e.g. about potential drug interactions
 - Manage work loads
 - Help manage stock and reduce the amount of cash tied up in stock
 - Keep records required by law and for good clinical practice
 - Comply with data protection law (GDPR)
- Keep Patients informed about relevant medical issues
 - I added a module on Covid – 19. The system also helps with social distancing
- A personal objective to learn and apply many different useful technologies



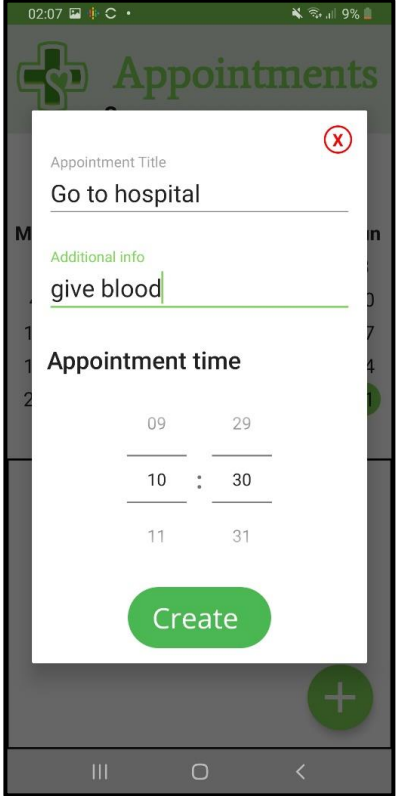
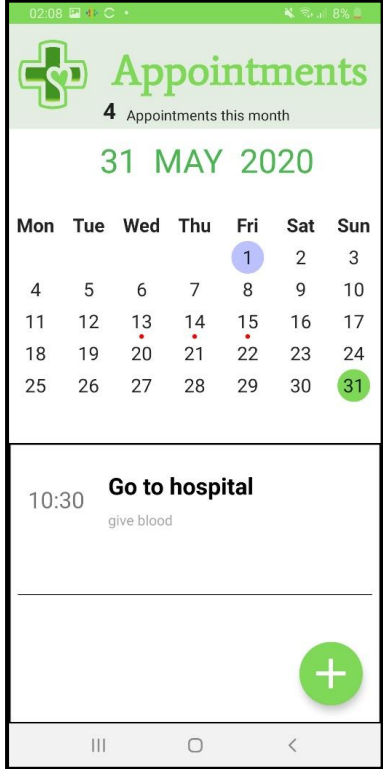
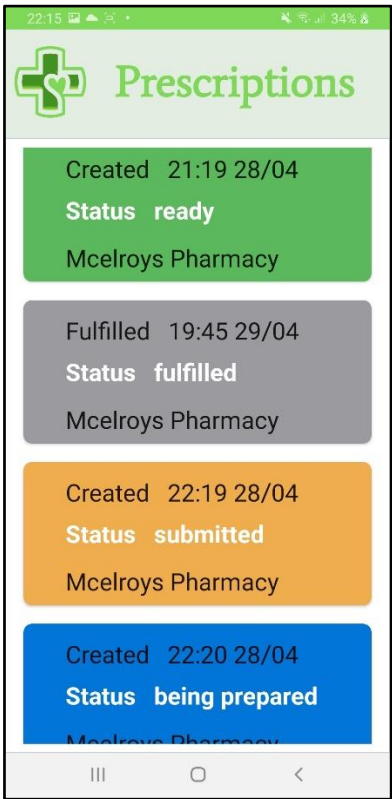
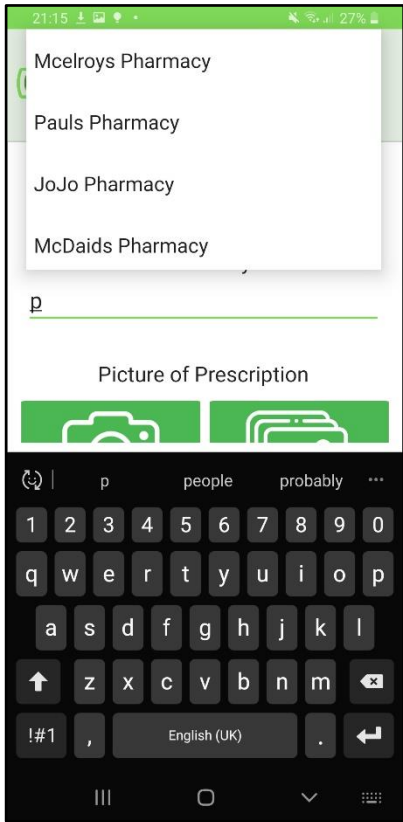
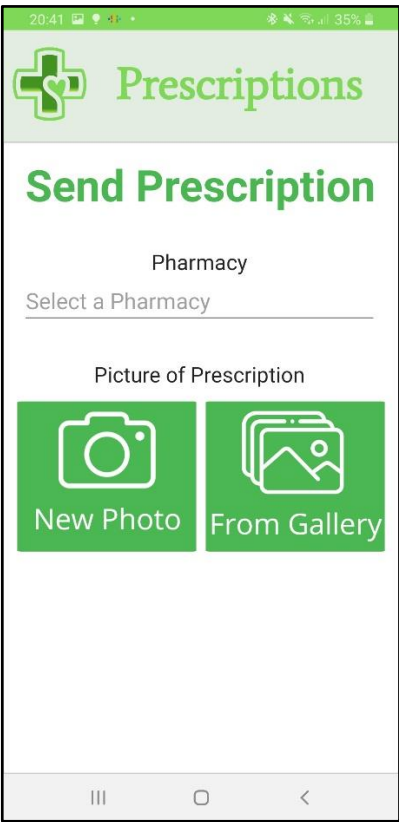
Current process

- Patient goes to doctor or hospital and if required gets prescription for medication
- Patient goes to pharmacy and waits for pharmacist or has to come back
- Pharmacist dispenses medication which can include:
 - Double check suitability for patients
 - E.g. Drug interactions (e.g a common antibiotic, klacid interacts badly with many things such as anti-cholesterol medication) so with klacid the pharmacist will need to ask the patient if they are on such other medication and if they are may advise them to stop taking it for the duration of their antibiotic
 - Consult doctor or hospital if required (which the patient perceives as delay)
 - Get the medication from their stock and if they do not have it order it from their supplier which adds delay
 - (even though supplies can be available relatively quickly with up to 5 deliveries a day e.g. an order placed at 12 noon will be delivered by 2:30pm this is still a delay for the patient, which if they would not see as a problem if they knew when to collect their prescription and only have to visit the pharmacy once)
 - Use professional judgement on whether the patient might need other advice or help with their medication (e.g. by looking at the pattern of medication has might the patient have become dependent on pain killers)
 - Pharmacies have to staff up and stock up to deal with peaks that they have to try to anticipate
- Note right now with Covid-19
 - Emergency rules have been put in place for doctors to email prescriptions to pharmacies via a secure HSE email system, but that is not the normal process as doctors are very busy and this is an extra task, nobody pays them for this and patients may want more control e.g. to select a different pharmacy or when to get medication they get (e.g. advice may be to only get pain medication when required).
 - Patients do come to pharmacies by appointment, but a lot of time is spent of the phone liaising with patients about the status of their prescriptions
 - Currently this whole process is very labour intensive

Web App & Phone App



Patient's view ... samples



Pharmacist's view ... samples



My Medicine Manager

Home Admin About Logout

Patients

Patients

6

Your total patients

First Name	Last Name	D.O.B	Address
marge	Simpson	08/12/1954	Springfield
Homer	Simpson	08/12/1954	Springfield

My Medicine Manager

Home Admin About Logout

Prescriptions

Your Prescriptions

9

Total Prescriptions

ready

Mary Schmidt

2 Line Items

fulfilled

Mary Schmidt

0 Line Items

submitted

Mary Schmidt

0 Line Items

being prepared

Mary Schmidt

0 Line Items

My Medicine Manager

Home Admin About Logout

Patient: John Cena phone Number: +(353) 8252399

Prescriptions Fulfilled

1

Number of patient's prescriptions Fulfilled

Patient Prescriptions

5

Total number of patient's prescriptions

Prescriptions Cancelled

1

Number of patient's prescriptions Cancelled

ready

Created 09:19, 28/04/2020

fulfilled

Fulfilled 07:45, 29/04/2020

submitted

Created 10:19, 28/04/2020

being prepared

Created 10:20, 28/04/2020

My Medicine Manager

Home Admin About Logout

Patient First Name

Mary

Patient Last Name

Schmidt

Prescription Creation Date

10:20, April 28th 2020

Patient Message to pharmacy

Could you add headache medication. i forgot to tell doctor

Doctor/prescriber

Michael Roberts

Add a line item

MICHAEL ROBERTS, M.D.

344 City Heights

New York, NY 10023

Name Mary Schmidt

Address 232 Park Lane Blvd, NY, NY 10023 Date: 12/1/17

Rx

Discom 65 Receiver Dispense 1 / 0 Refills

Discom 65 Transmitter Dispense 1 / 3 Refills

Discom 64 / 65 Sensors Dispense 1 box

(4 sensors/12-day supply) / 10 Refills

Use As Directed

(Signature)

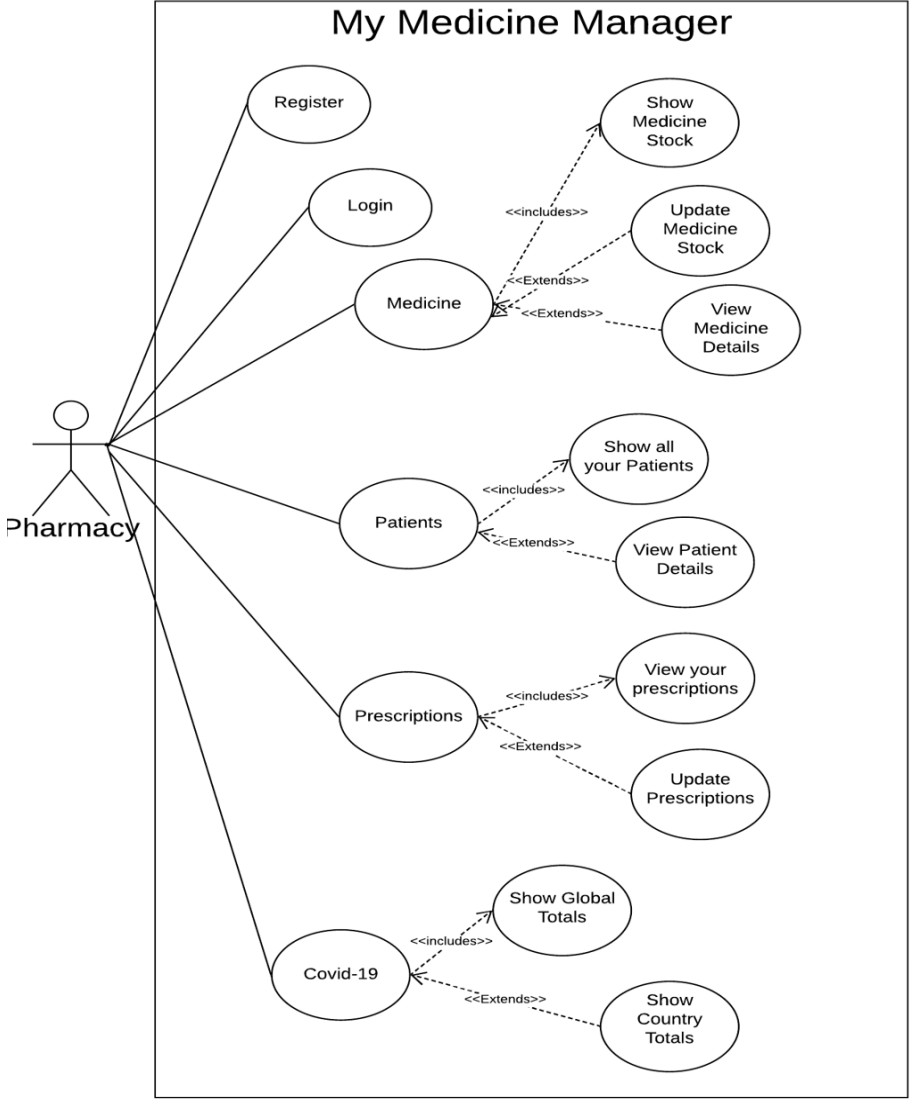
Business Actors



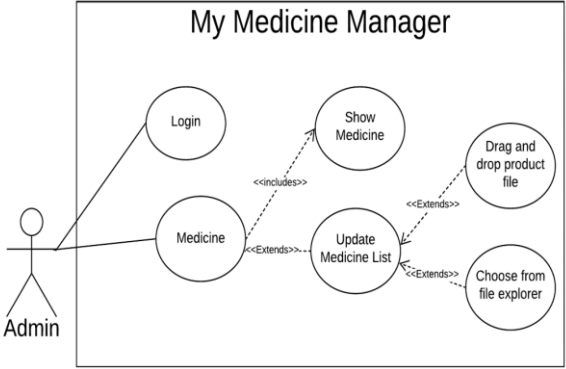
Patient



Pharmacy



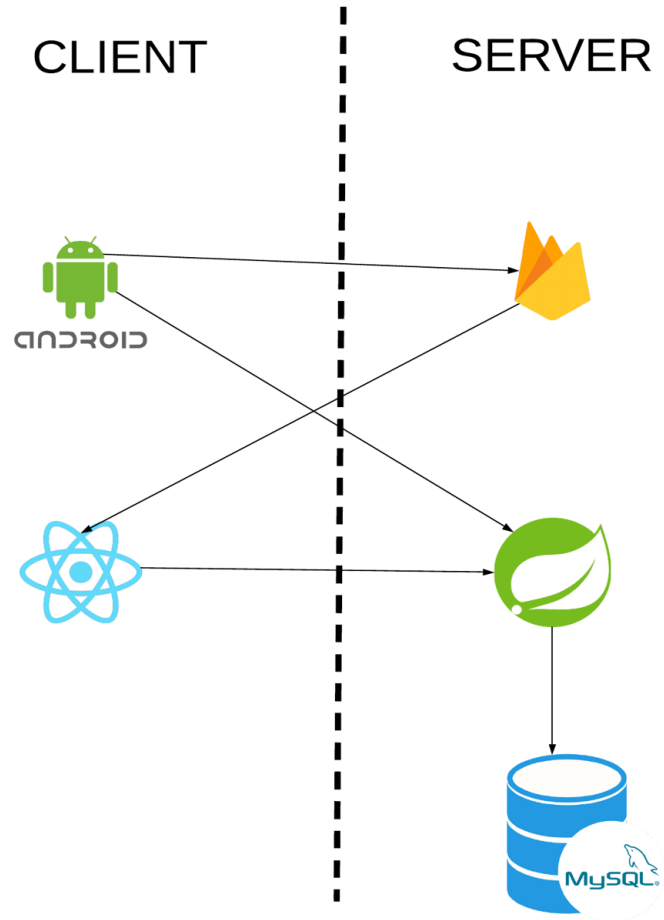
Administrator



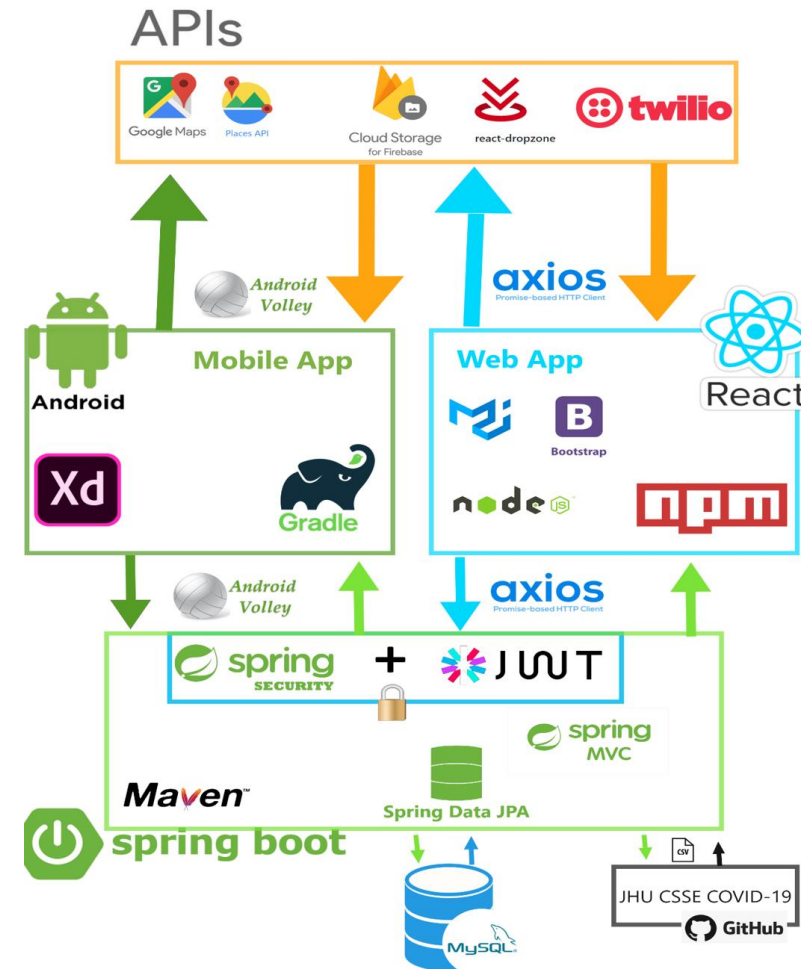
Technologies used



Abstract Summary



Detail

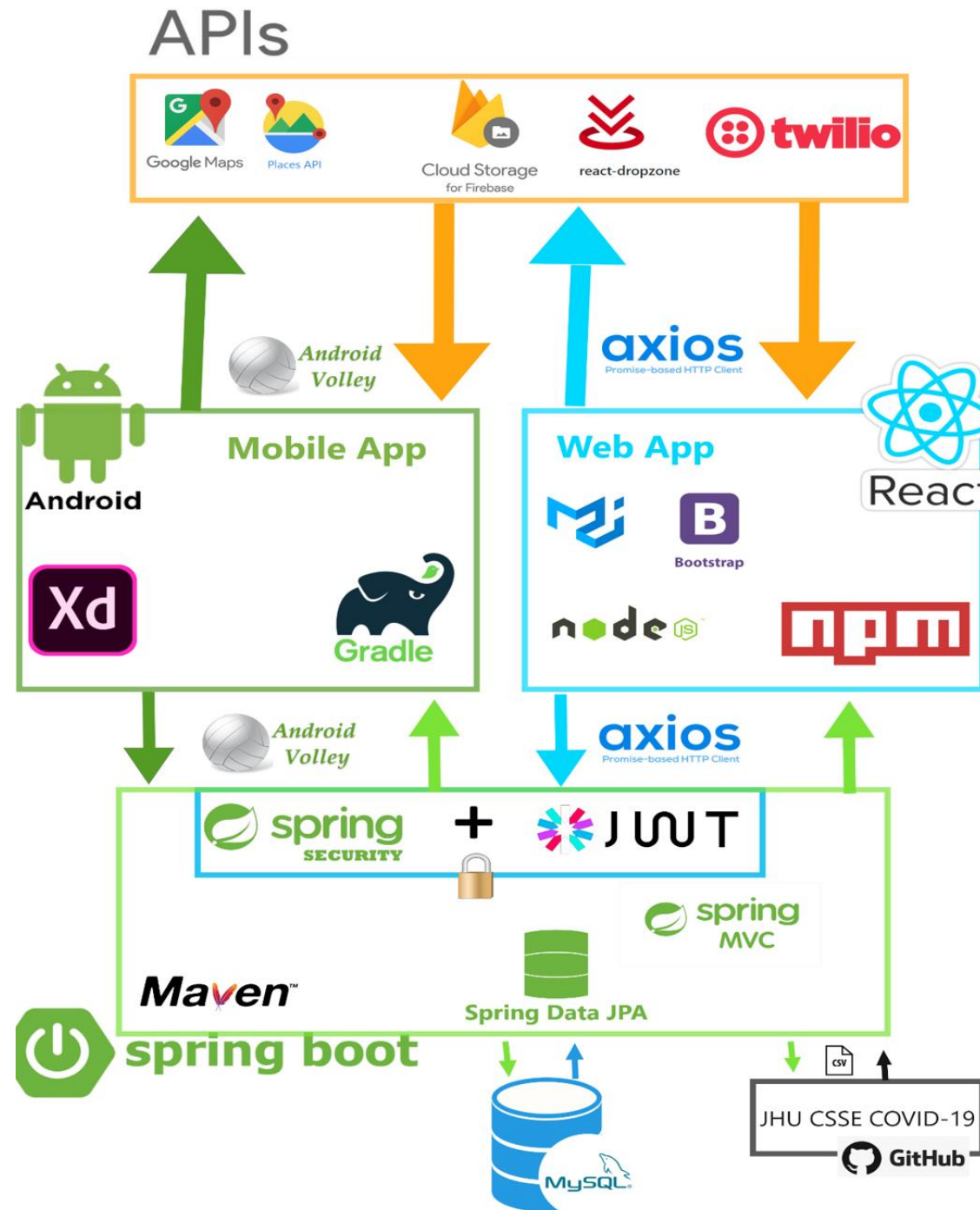


Technologies Detail

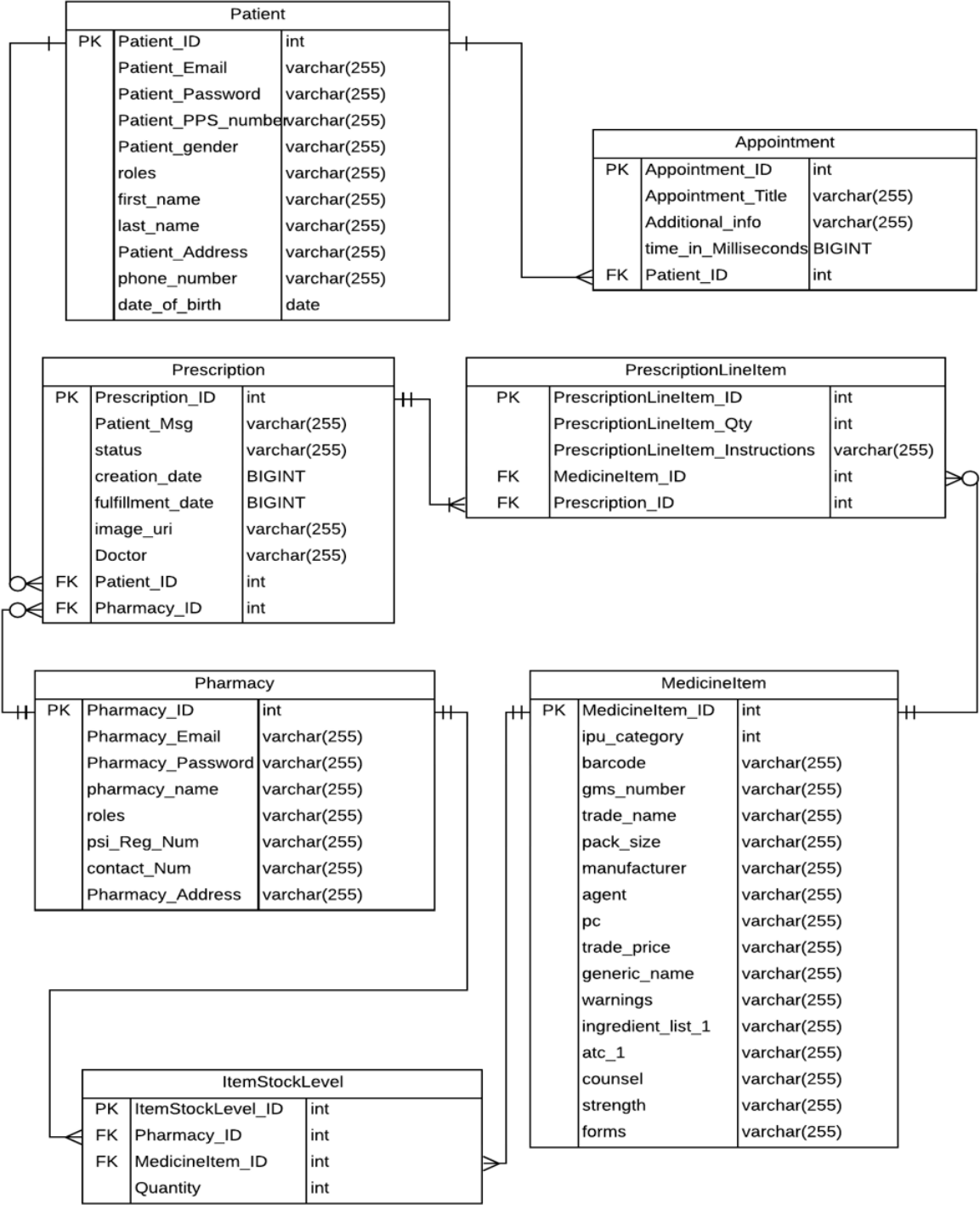
It was a
personal
objective,

but

**I may have
overdone
this!**



Entity Relationship Diagram



Medicine Data



Source: The Irish Pharmacy Union (IPU) maintains updated medicine data.
This is commercially available to pharmacies and software suppliers

The IPU kindly let me use a sample product file

MedicineItem		
PK	MedicineItem_ID	int
	ipu_category	int
	barcode	varchar(255)
	gms_number	varchar(255)
	trade_name	varchar(255)
	pack_size	varchar(255)
	manufacturer	varchar(255)
	agent	varchar(255)
	pc	varchar(255)
	trade_price	varchar(255)
	generic_name	varchar(255)
	warnings	varchar(255)
	ingredient_list_1	varchar(255)
	atc_1	varchar(255)
	counsel	varchar(255)
	strength	varchar(255)
	forms	varchar(255)

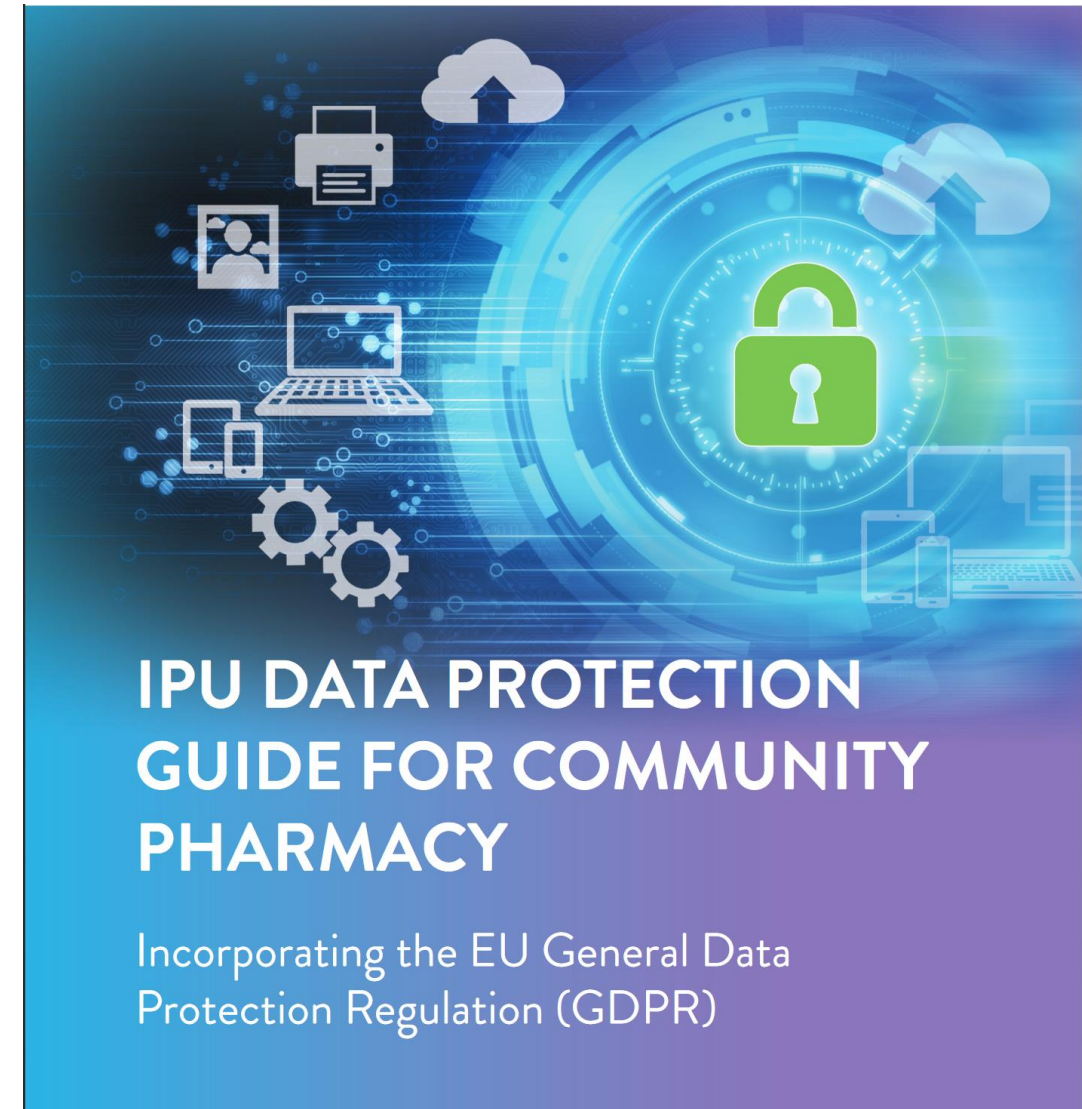
Full File Format			
FLD	NAME	N	WIDTH
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002	ANANUM	C	015
003	BARCODE	C	015
004	GMSNO	C	005
005	TRADENAME	C	040
006	PS	C	006
007	PSNO	N	007
008	PSUNITS	C	008
009	MANU	C	010
010	AGENT	C	010
011	RP	N	006
012	MRP	N	005
013	VAT	C	001
014	UP	C	001
015	COSCHANGE	C	002
016	PC	C	004
017	PA	C	010
018	TRADE PRICE	C	005
019	GENNAME	C	025
020	DATE	C	004
021	WARNINGS	C	055
22	INGRED1	C	068
23	INGRED2	C	068
24	ATC1	C	007
25	ATC2	C	007
26	DENTIST	N	001
27	COUNSEL	C	010
28	STRENGTH	C	015
29	FORMS	C	015
30	I_01 to	C	050
39	I_10		
40	A_01 to	C	007
49	A_10		
50	Barcode_1	C	015
51	Barcode_2	C	015
52	Barcode_3	C	015
53	Barcode_4	C	015
54	Barcode_5	C	015
55	Barcode_6	C	015
56	GMS1	C	002
57	EPOS_CAT	C	005
58	EPOS_DEPT	C	005
59	Pharmacovig_Ind	N	001

IPU CATEGORY e.g. Ethicals=1,
 OTC=2, VET=3, DRESS=4,
 PHOTO=5, HOS=6, OSTOMY=7,
 HORT=8,
 GENERAL COSMETICS=9
 IPU EAN Code
 Manufacturers' Bar-code
 GMS Number
 Tradename
 Pack Size
 Pack Size Number
 Pack Size Units
 Manufacturer
 Agent
 HSE PCRS Reimbursement Price €
 Manuf recommended retail price
 VAT 0=0%, VAT 1 = 23%, VAT
 3=13.5%
 V=VAT Change,
 D=Deletion,A=Addition,U=Increase,
 L=Decrease
 Changes other than those in the UP
 field e.g.
 TR =Tradename change
 Poison Classification e.g. S1A, S1B
 etc.
 PA number or NOTNEC indicates
 whether or not the product needs a
 Product Authorisation
 Euro Price
 Generic name of Drug
 DATE (Blank)
 Warning codes for labels
 Ingredients of drugs
 Ingredients continued..
 ATC classification of drug
 A few drugs require 2 ATC codes
 Drugs allowable on the GMS Dentist
 List
 Counselling Codes
 Strength of the Drug
 Form of the Drug
 Ingredients separated into individual
 fields
 ATC classifications for each ingredient
 Extra barcodes
 ""
 ""
 ""
 ""
 ""
 Indicates dressings with a 21% mark-
 up
 Epos Categories
 Epos Departments
 Pharmacovigilance (Black Triangle)
 Indicator. 1=Display Black Triangle,
 0= Don't display Black Triangle



Data Protection / GDPR

Item	Status
Login / Authentication	Implemented
Individual (patient) give specific consent for their personal data to be used including their patient medical record (PMR)	Implemented
The only people and organisations with access to personal data and PMR are those to whom the patient has given consent	Implemented
Data encrypted	Not implemented yet



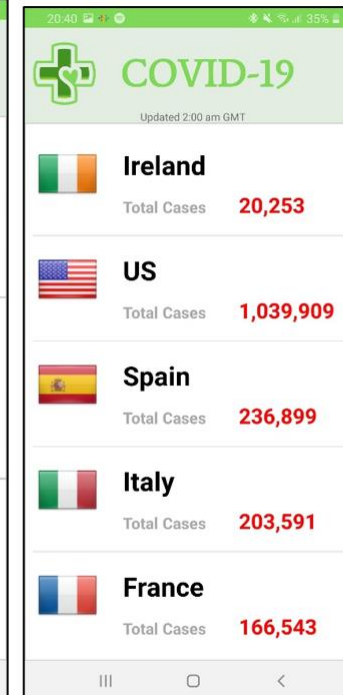
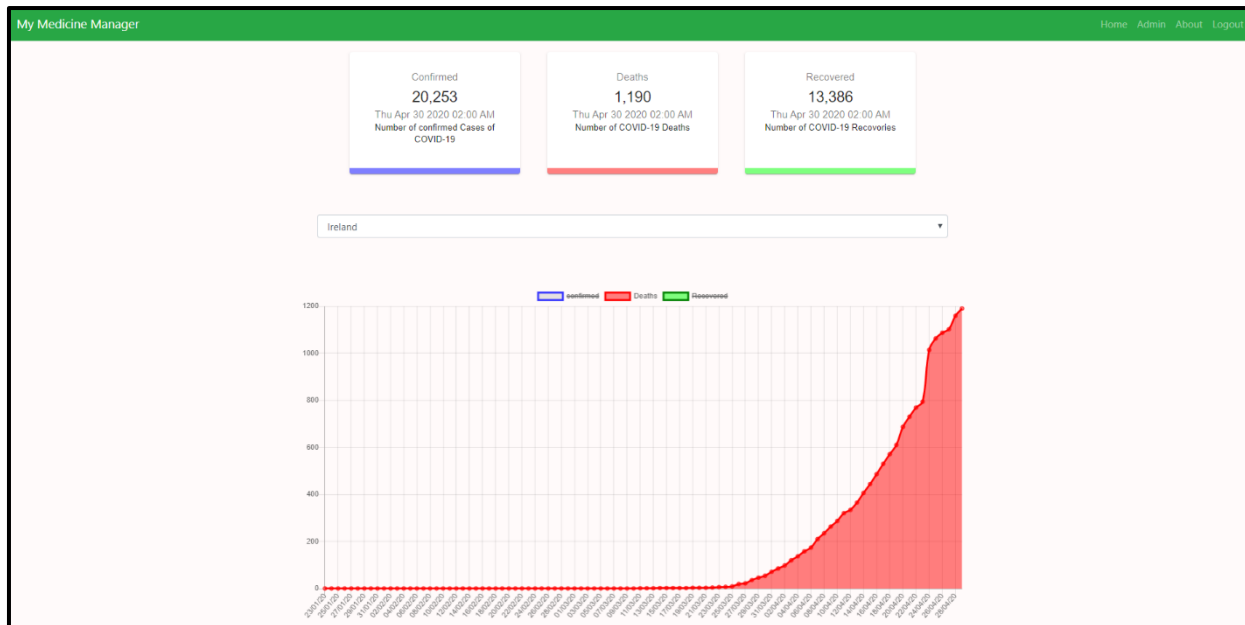


Covid -19

- Pulls daily Covid-19 data from <https://github.com/CSSEGISandData/COVID-19>
- Display's on web app and phone

React-chart-js used for graph

React Countup used for numbers





Conclusion

- I believe the objectives of the project were achieved
- The system:
 - gives patients
 - a better experience with, reduced waiting times, notifying patients when prescriptions are ready and giving patients more control
 - Helps pharmacies:
 - work load; stock (and hence cash); advising patients; comply with data protection law; and give a better patient experience
 - In the current climate it would help with social distancing
- My personal objective:
 - I gained a lot of knowledge about different and useful technologies
 - With the benefit of hindsight I may have gone too wide for the time available and I should have perhaps focussed on adding and improving features.
- Quote from a practising pharmacist:
 - “I wish we had this application now”