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Module:	B8IT150 Advanced Programming
Submission:	CA One Idea Submission
Idea:	MyPharma

Brief

Assessment Task
You have to do either of the two tasks.
Task 1: Create an Information System for a selected domain of interest.

You may use any back-end, and any front-end, including CLI, GUI, web and API.
Describe the requirements of the information system, including users, data requirements, search, sorting, entry, update, validation, integrity, reporting etc.

You must create a word/pdf file for the above description and submit it under CA_ONE IDEA SUBMISSION on Moodle by 21st July, 2022 before 11:59 PM. 20 Marks

Implement and test the Information System, and document your implementation thoroughly.
Implementation: 40 Marks
Testing: 20 Marks
Documentation: 20 Marks
You must use public git (e.g., GitHub) to manage your source and versioning, with regular frequent commits. Git may be used to verify engagement, and failure to engage with source control may result in a zero grade. B8IT150 2

You must attribute all code not written from scratch, #taken from ... failure to do so may result in a zero grade.
You may use any programming language; however, in class the examples will be presented in Python, with some front-end JS.

In light of issues I have identified regarding service providers not publishing account information via API (even to authenticated users), and doubts around being able to web-scrape such data (again, even after authentication), I have come to believe that my initial idea is too optimistic, particularly for a college module project to be delivered in weeks. Therefore, I am submitting a second idea that I believe to be more workable, realistic, and deliverable within the allocated time frame. It also seems like a useful improvement on a very day-to-day but archaic consumer system.

Initiation

Irish General Practitioner Physicians can allocate prescriptions in one of two ways:

- Hard copy paper slip
- Send prescription to your local/specified pharmacy

It seems to me that it would be relatively easy to design a centralised HSE Consumer/GP/Pharmacy portal that would allow any GP to upload any patient's prescription to allow them to walk into any given pharmacy and allow them to collect their medication.

The obvious layers to this application would seem to involve forms to allow consumers, GPs, and Pharmacies to register their records into the database.

If possible, I would like to build in a functionality for Identity Federation with Apple and Google to allow users of both iOS and Android to seamlessly just-in-time-provision (JITP) their accounts into MyPharma. I don't believe federation with social media identity providers to be necessary or appropriate for this use case.

Planning

The four initially obvious data entities I envisage are:

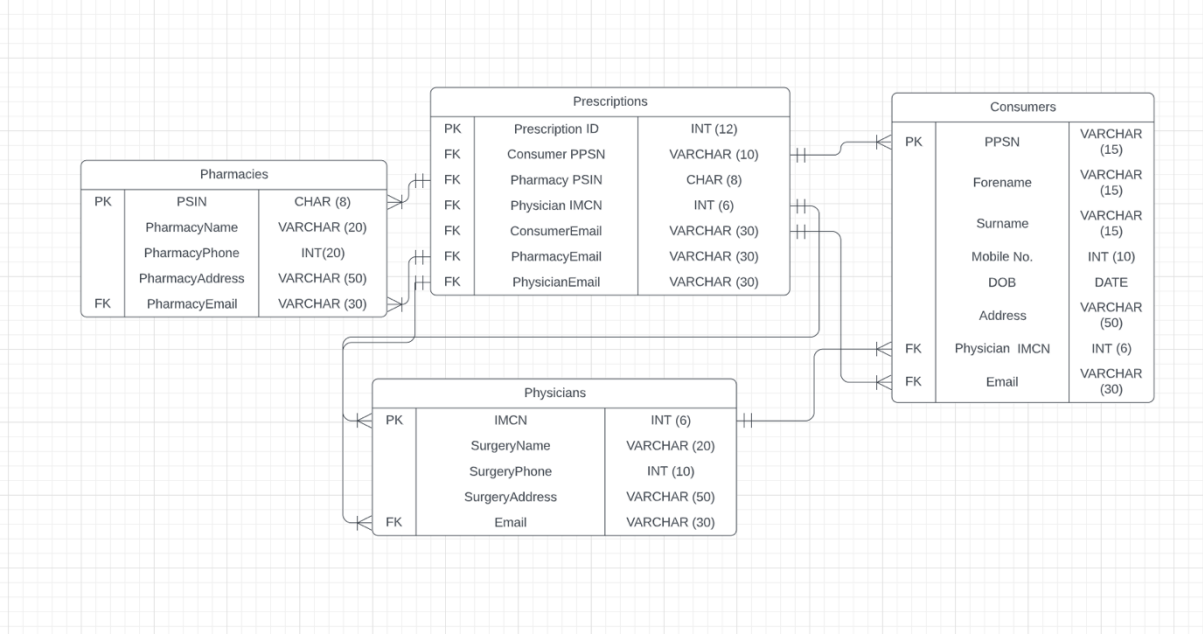
- Physicians
- Consumers
- Pharmacies
- Prescriptions

It is important to consider which data will function as primary keys in each case. It seems to make most sense to use (in respective order):

- Irish Medical Council Reg Number
- Personal Public Service Number
- Pharmaceutical Society of Ireland Registration Number
- A natively generated and Iterated Prescription ID Number

Fortunately, there are some publicly available resources for IMC Numbers and PSI Numbers.

Here is an initial draft of the ERD Schema:



I'm envisaging having to write a CRUD python file that allows data to be passed into, edited in, and deleted from these tables as required.

If possible, being able to browse, search, and sort by pharmacy or physician will be desirable.

A Google Maps integration for locating Pharmacies will also be explored.