



Leveraging Tech for Healthcare
Maintaining Access to medical data
Enhance health and wellbeing

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Problem Statement



Health data is not portable.



It takes weeks for the data to be ported from one GP to another.



Cross border portability is nearly impossible.



Relying on individual carrying their medical records, mostly hard copies.



Can we have global healthcare data portability system?

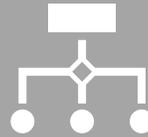


Would access to complete medical history aid in developing more fairer AI/DSS systems?

What we did...



We constructed stories of human agents and examined the need of such system.



Did a data mapping exercise to understand how different datapoints and agents interact with each other.



Discussed the socio-political, ethical and technical challenges around having such a system.

Meet Anna

It is not possible for AK to visit GP daily. But AK's health status will be She visits her GP once a month and hospital a year. AK's health status will deteriorate unless monitored well. AK got a suggestion to assess her health with remote monitoring. She worried!!



AK has to learn how to daily check her glucose, SpO2, wear necessary sensors and handle them so that data can be streamed properly to the CDSS.



She worried about her personal data security (EHR) and its privacy.

She worried about ethical aspect of collected data and AI Algo.

- (i) Who will be the owner of the data?
- (ii) Who will be owning the generated info - doctor/patient/research group?
- (iii) What will be access control rules?
- (iv) Will the research group will reuse/sell the data without any consent?
- (v) Developed AI algo. will work unbiased/accurately? Questions?

Attention!!!

I need help!

Health Condition: AK was recently diagnosed with Chronic Pulmonary Disease (COPD) and Obesity (BMI obstructive >25.5 - <30) and potential diabetes risk. AK has also sporadic episodes of mild depression. She started to have some random memory losses.

Risk: She needs daily monitoring and recommendations. Suggestion/feedback based on her behavioural activities.

What to do? Daily analysis of her physiological, behavioural (activity, diet, sleep) data and share for recommendation generation & goal evaluation.

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About You

Anna Kalerina (AK) is a 70 years old Lady who lives in a small Scandinavian Country. She widowed 2 years ago. She has a daughter who is living 600 km away. She is suffering from Chronic illness. She needs to take care of her health condition. Her GP is located far away. She is helpless and needs daily guidance on regular basis.



WAITING

"Importance of privacy protection when handling personal health related data".

"Aspects of ethics and social justice when doing e-coaching"

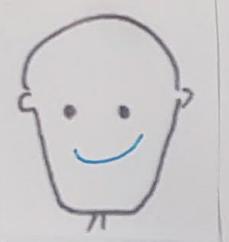
"Can an eCoach protect privacy more than a human coach?"

"Secure portability of EHR".

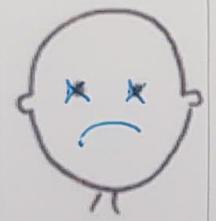
How? How? How?

Meet Ahmed...

Border control, not knowing that Ahmed's son. Patients handed him over to his without care and medication, Ahmed died 3 days later :c
 If only Ahmed's medical history was protected with him...



Ahmed in his home country, complete medical records, getting treatment



Ahmed in UK as a refugee, no medical history, died due to lack of treatment.

About You



Ahmed 30yrs old.

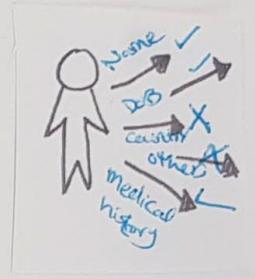
Fled country due to persecution. Arrived UK as his ^{only} son lived in the UK. Ahmed is a cancer stage 3 Patient. Lawyers in the UK told Ahmed's son that Ahmed should not tell about his health condition when he lands UK as it will affect his assylum case.

they knew his credentials. Furthermore, ~~the~~ the suppressive government in Ahmed's homeland may have blocked access to all his records.

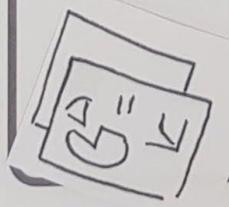
How could Ahmed had his medical records protected and ported with him?



he wanted to reveal, such as medical data?



4 Ahmed is one of several billion humans around the world who do not have the privilege to have medical data securely secured and ~~is~~ instantly available.
 Can Having such data ~~on~~ on a global audience/sample can help with better research and drug discovery.



5 Can we make the Patient the data owner so their data is not exploited?
 Can technology be leveraged to assist the Patients in redefining data ownership?
 How to make the Patients aware of need & outcome, is there a need to begin with?

Matina & Leyla...

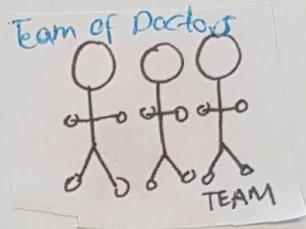
Conditions at risk

How much has the technology developed?

- well equipped doctors
- wifi-connection
- highly equipped hospitals with medical devices?

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Matina is searching for the closest GP.



3

Mum (her daughter) Matina and Leyla travel abroad, in Hawaii.



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About You



Matina has been a 40 years old ~~man~~ scientist. She has been living for the last 5 years in UK.

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Matina has registered herself and her little Leyla to the GP in the research institute that she has been working on



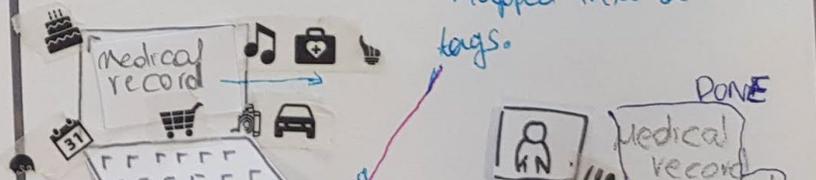
GP has given medical tests to Leyla in such way...

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Leyla has been found allergic to pollutants and vaccinations to be completed. Matina has planned to travel with Leyla to Hawaii. Vaccinations needed to be completed before both of them travel abroad.

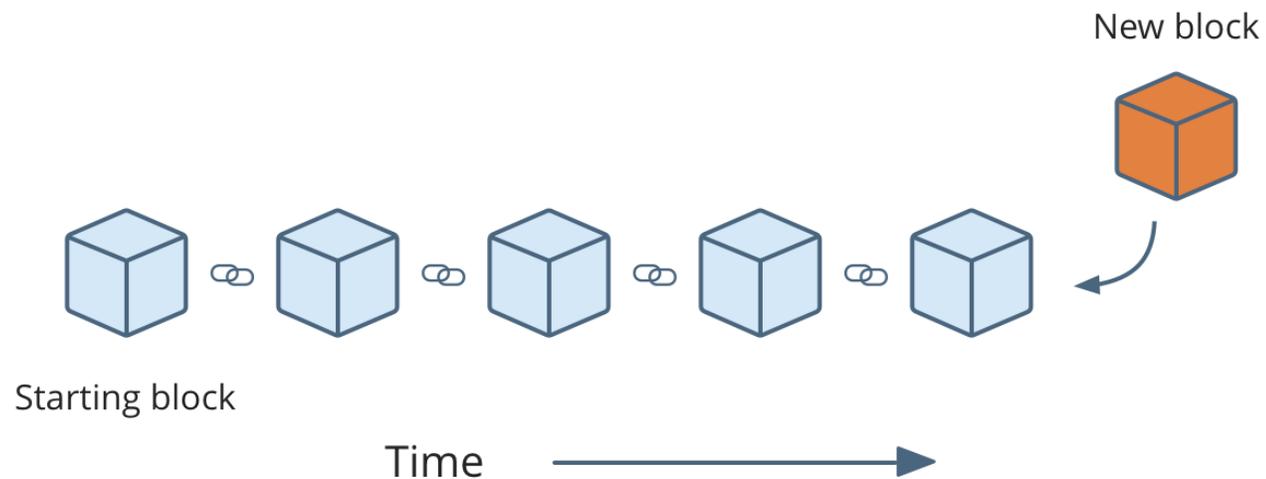
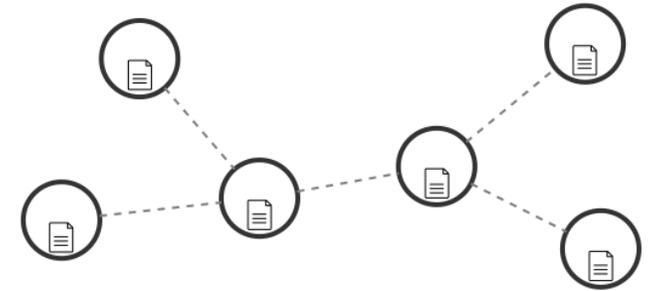
GP suggest them ~~save~~ banking their medical record health.

Medical record is saved electronically and being mapped into a network tags.



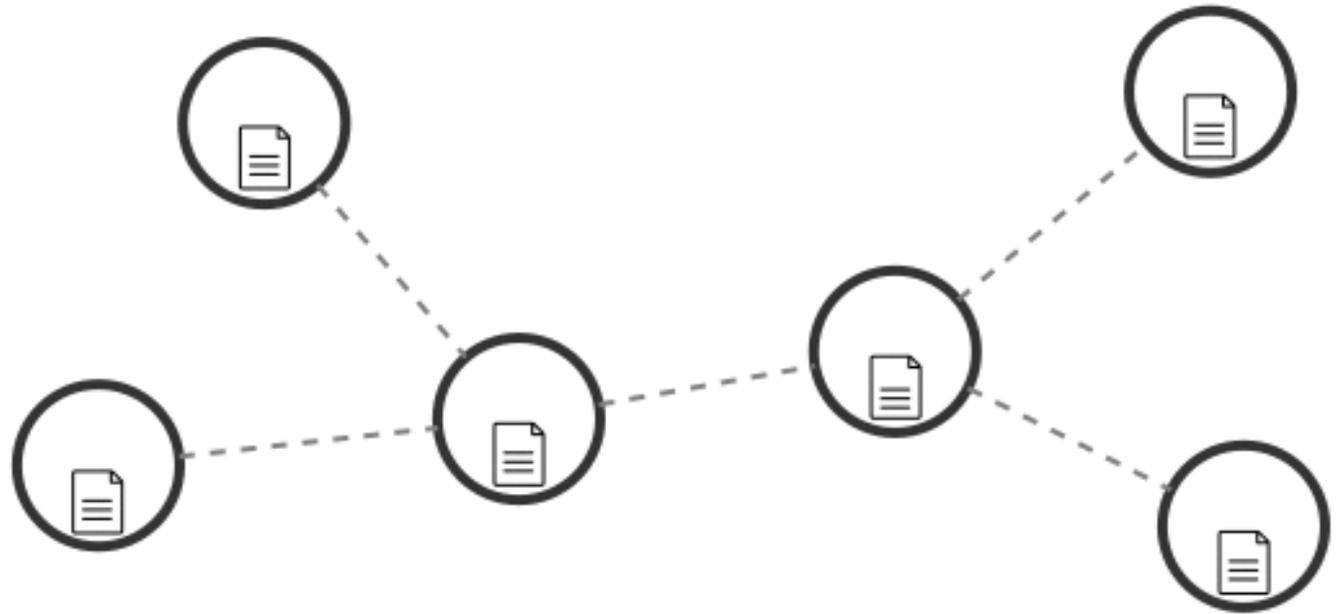
What is Block chain?

- Immutable way of storing Information.
- Highly resilient to breaches and hacks.
- Very temper evident.
- Distributed
- Smart contracts



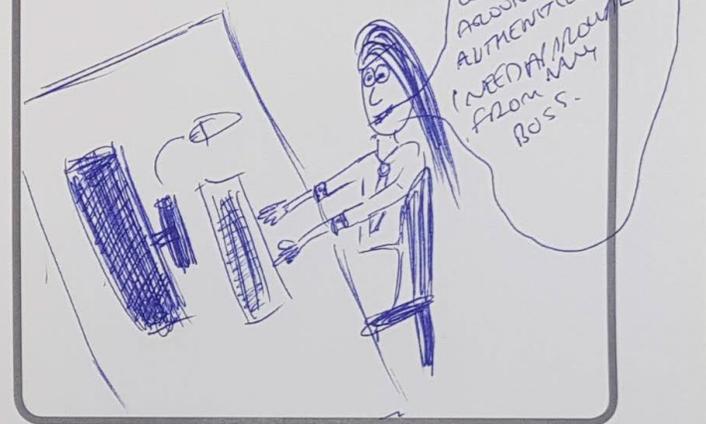
Distributed

- Replicated
- No single point of failure
- Very difficult to hack





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About You

 Ruth Jones.
AGE - 86
HEALTH - CHRONIC CONDITIONS WHICH INVOLVE BI-WEEKLY TRIPS TO THE GP. IS DISCOURAGED BY THE USQUITOUS INFLUX OF TECHNOLOGY AND JUST WANTS TO USE PEN + PAPER.

WAITING...

- Does THIS SYSTEM WORK FOR FREQUENT USERS AND OLDER ADULTS?
- DOES THIS SYSTEM SIMPLY REDUCE PORTABILITY AND ACCESSIBILITY.
- IS IT AGEIST AND TECHNOLOGIST?

Challenges

- Accessibility
- Control/ownership of data and results
- Who to trust?
- How to involve end users?

