Ollscoil Teicneolaíochta an Oirdheiscirt

South East Technological University

Elderly Care Management System(ECMS) – Yr 4 Project

By Qadeer Hussain

Supervisor: Paul Barry

The ECMS Project

- The emphasis of this project is to create a secure application which confines to the HL7 storage and encryption standard
- The creation of this application will help alleviate and modernize patient data management replacing documentation with a digital system

Who is it for

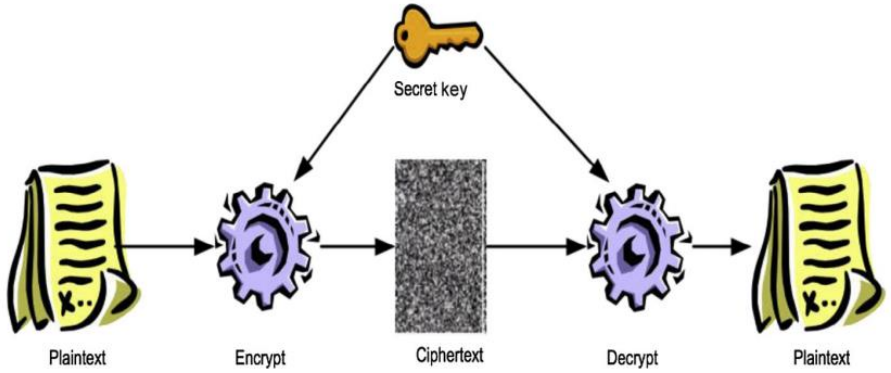
- Care Home
- Care Office Staff (Admin)
- Carer’s

User Features

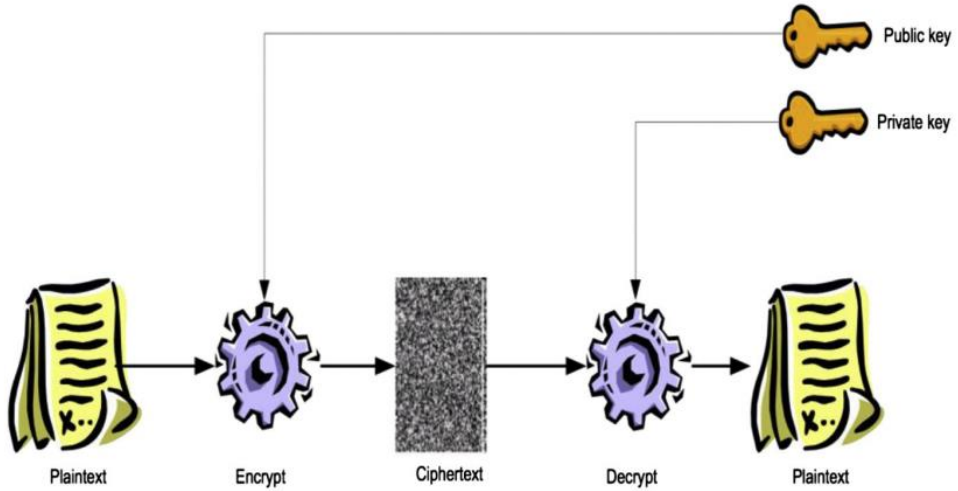
- Login
- Register
- Patient Profile
- Care Plan
- Medical Dashboard
- Roster
- Incident Reporting
- Alert

Backend Features

- Health Level 7
- Security (Cryptography)
  - Shared Key encryption
  - Public Key encryption

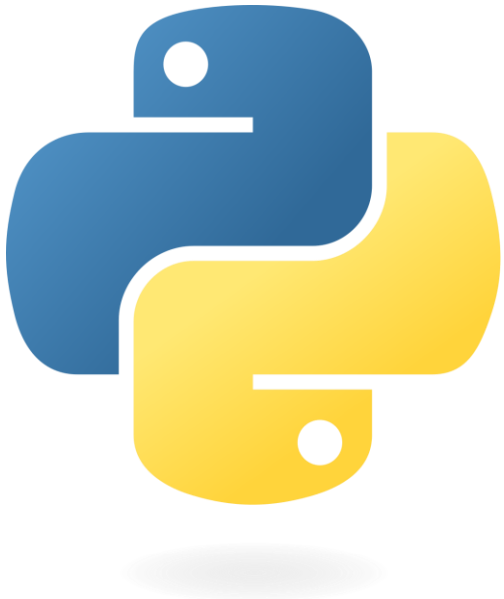


Shared (symmetric) key encryption



Public/private (asymmetric) key encryption

Technologies



django

MariaDB

Existing Systems

Potential Issues/Challenges

- This will be a learning curve for me as I will get an opportunity to gain more knowledge about cryptography.
- Adhering to the Health Level 7 Standards.
- Time management to adhere to deadlines.

Thank you
any Questions?

References

Pass by Everylife, 2024. *Pass.* [Online]
Available at: https://www.everylifetechnologies.com/
[Accessed October 2024].

Nourish, 2024. *Nourish.* [Online]
Available at: https://nourishcare.com/
[Accessed October 2024].

Log my Care, 2024. *Log my Care.* [Online]
Available at: https://www.logmycare.co.uk/
[Accessed October 2024].

Health Level Seven International, 2024. *Introduction to HL7 Standards.* [Online]
Available at: https://www.hl7.org/implement/standards/index.cfm?ref=nav
[Accessed October 2024].

(2024a) *Freepik | create great designs, faster*.
Available at: https://www.freepik.com/
(Accessed: October 2024).

https://www.python.org/
https://www.djangoproject.com/
https://mariadb.org/
https://pypi.org/project/cryptography/

Elderly Care Management System – Yr 4 Project

-By Qadeer Hussain Date: 25/10/2024

SETU
Ollscoil Teicneolaíochta an Oirdheisceart
South East Technological University

Figure [1]

What is the project?

- It is a secure web application to safeguard and manage patient data in care centres.
- Digital documentation to streamline workflow.
- Application designed to cater Admin and Carer.

What is Health Level 7 (HL7)?

- Framework for the exchange, integration, sharing and retrieval of health information.
- Most used standard globally.
- HL7 specifies several standards, guidelines and methodologies for health-related systems.

Existing Systems

- **Pass App**
- **Log my Care**
- **Nourish**

What are the Core features?

This is a list of features that will be included in this project:

- Implementing Security
- Patient Profile
- Care Planner
- Medical Dashboard
- Roster

Technologies

Here are some possible technologies that could be used for example:

- Python: https://www.python.org/
- Django: https://www.djangoproject.com/
- MariaDB: https://mariadb.org/
- Cryptography lib: https://pypi.org/project/cryptography/

What is Shared Key and Public Key?

- Shared key is a form of cryptography.
- Also known as Symmetric encryption.
- Method of encrypting data and decrypting data using one key.
- Public key is a form of cryptography.
- Also known a Asymmetric encryption.
- Method of encrypting and decrypting data using two keys.

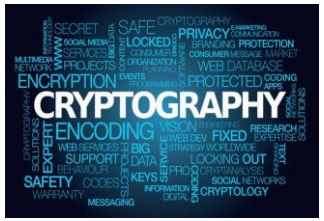


Figure [5]

Figure [6]

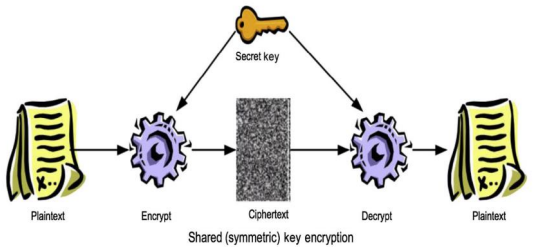


Figure [3]

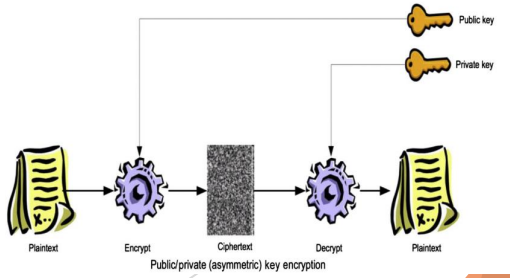


Figure [3]

References

1. 2024) *Elderly care vectors & illustrations for free download | Freepik*. Available at: https://www.freepik.com/vectors/elderly-care (Accessed: October 2024).
2. Health Level Seven International, 2024. Introduction to HL7 Standards. [Online]. Available at: https://www.hl7.org/implement/standards/index.cfm?ref=nav [Accessed October 2024].
3. ScienceDirect, 2017. Embedded security. [Online]. Available at: https://www.sciencedirect.com/topics/computer-science/shared-key-encryption [Accessed October 2024].
4. Augusto Vega, P. B. A. B., 2017. Rugged Embedded Systems. s.l.:Morgan Kaufmann.
5. Cryptography images – browse 869,371 stock photos, vectors, and video (2024) Adobe Stock. Available at: https://stock.adobe.com/search?k=cryptography (Accessed: October 2024).
6. (2024a) *Healthcare System Images - free download on Freepik*. Available at: https://www.freepik.com/free-photos-vectors/healthcare-system (Accessed: October 2024).