Software Requirements Specification (SRS)

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Introduction

1.1 Purpose

The purpose of this Requirement Specification Document is to define the requirements for a healthcare knowledge platform that provides stakeholders(doctors and patients) with access to their layered healthcare data and with features to manage time, patients, appointments and feature of finding new trends and relations from the well structured statistics and graphs.

1.2 Scope

The scope of this project includes the requirements for the platform's functionality, good design that meets requirements, well structured code performance, user interface, and final working of all the components present.

1.3 Background

The healthcare knowledge platform is intended to provide doctor with access to patient’s healthcare data, including basic data, medical observations, blood reports, sugar levels, doctor’s visits etc.

1.4 Glossary of Terms

A list of terms used in this SRS, along with their definitions:

Basic Patient Data: Demographic information, medical history, and contact information for a patient.

Medical Observations: Vital signs, physical examination findings, and diagnostic imaging results.

Blood Reports: Complete blood counts, blood chemistries, and other blood test results.
Genome Sequence Data: Whole genome sequences, exome sequences, and targeted gene panels.

Healthcare Providers: Doctors, nurses, and other healthcare professionals who provide care to patients.

Authorized Individuals: Individuals who have been authorized by the patient to access their healthcare data.

Functional Requirements

2.1 Patient Data Management

The platform must be able to store and manage basic patient data, including demographic information, medical history, and contact information. We are not adding a way for a patient to input their data; assuming we have patient data, we will display all the data for a better understanding and to find any connection between conditions of different patients.

2.2 Medical Observations

The platform must be able to manage medical observations, including test reports, physical examination findings, and diagnostic test results, along with certain disease mapping.

2.3 Blood Reports

The platform must be able to store and manage blood reports, including complete blood counts, blood chemistries, and other blood test results.

2.4 Data Access,Filter and Downloading

Stakeholders must be able to access, filter and download the healthcare data to share with authorized healthcare providers and other authorized individuals.

2.5 Appointment scheduling

Stakeholders must be able to view their schedule and must need a feature to add appointment to schedule.

2.6 Analysis and Comparison

Information present must be critically analysed varying with different metrics tounderstand the trend and to ind similarity or differences with some other data.

2.7 Correlating Information

Stakeholder must view all the information at once as graph to find the correlation between data and particular field for which most of the people are affected in order to ind a relation or trend.

Non-Functional Requirements

3.1 Performance

The platform must be able to support a large number of concurrent users and must have a response time of fewer than 2 seconds.

3.2 Security

The platform must have strong security measures in place to protect the confidentiality and privacy of patient data.

3.3 Usability

The platform must have a user-friendly interface that is easy for patients to use.

3.4 Interoperability

The platform must be able to interface with other healthcare systems and data sources to ensure that patient data is up-to-date and accurate.

3.5 Representation

The platform be good and interactive with good representation of data so that the stakeholder is interested in viewing the information.

User Interface Requirements

4.1 Screen Layout

The platform must have a clean and intuitive screen layout, with a navigation menu and clear information hierarchy.

4.2 Color Scheme

The platform must use a color scheme that is easy on the eyes and consistent throughout the platform.

4.3 Fonts

The platform must use clear and legible fonts that are consistent throughout the platform.

Design Document

High-level approach

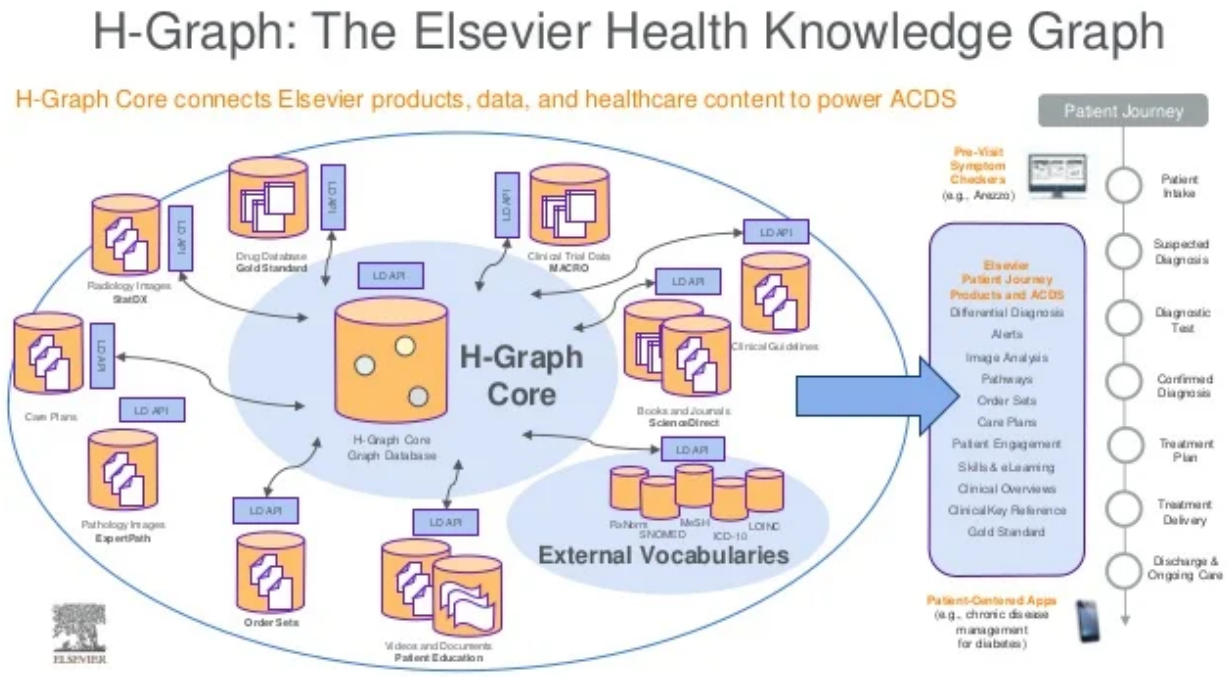
Overview: The knowledge graphs, along with other data of diseases and healthcare, will allow patients to know about their condition, symptoms, and possible diseases on further propagation and diagnosis on same. This has very good practical usage.

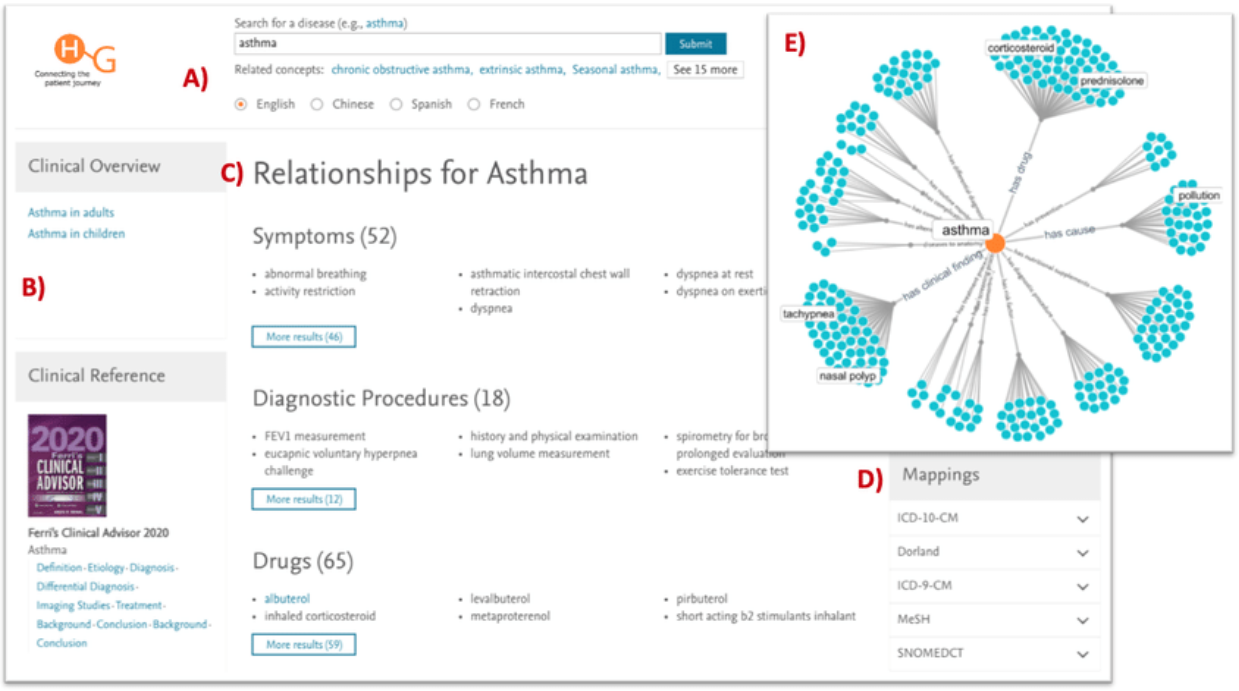
Key Features: The knowledge graph will allow patients to view their healthcare data in a layered manner, allowing for deeper insights and analysis

UX Design

Overview: The user experience of the knowledge graph will be designed to be intuitive and user-friendly, with a focus on accessibility and ease of use.

Key Features: The knowledge graph will include features like search, filtering, and visualization tools to help patients understand their healthcare data.





High-level API

Overview: The knowledge graph will be accessible via a REST API, allowing external applications to interact with the data.

Key Features: The API will support basic CRUD operations.

Libraries and models

Overview: The knowledge graph will be built using a combination of existing healthcare ontologies and custom-built models to represent patient data.

Key Features: The ontologies and models used will be chosen based on their compatibility with the semantic web approach and their ability to accurately represent healthcare data.

Libraries: The major APIs that can be used are Wikipedia API, pandas, concurrent, tqdm, spacy, requests, neptune, networkx, matplotlib etc.

Conclusion

Overview: This SRS document outlines the high-level requirements for the development of a healthcare knowledge graph for patients.

Next Steps: The next steps will be to gather more detailed requirements and begin the development of the knowledge graph.