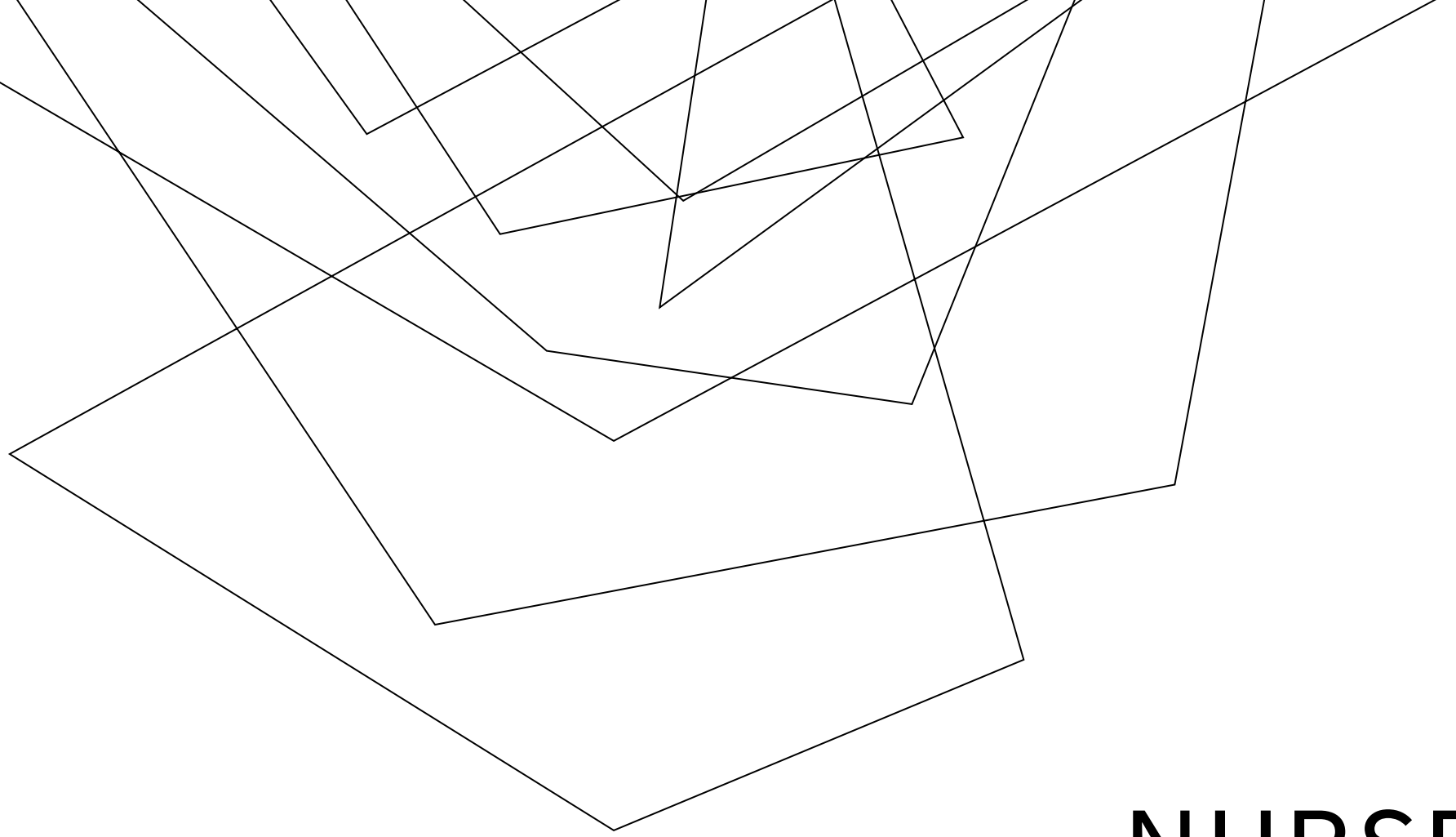


NURSE2MED

ABSTRACT

Nurses do not have the proper qualifications to make official diagnoses for patients. Instead, they need to describe the patient's symptoms using a standardized set of codes, called the Clinical Care Classification System (CCC). Nurse practitioners *do* have the qualifications to make official diagnoses, and use a different set of codes, the International Classification of Diseases (ICD-10). When nursing students are in school to become nurse practitioners, it can be a hurdle to learn an entirely new set of classifications. Nurse2Med is a central location for learning the differences and relationships between the two classification systems. Users enter a CCC or ICD-10 code and receive the most closely correlating code from the opposite classification system. We utilize the GPT-4 API to determine and retrieve the most relevant codes from the classification code database. Nurse2Med will be considered a success if at least half of trial users consider the app helpful in transitioning between classification systems. This will be determined by a survey given to users, asking them to rate their confidence with both systems before and after using Nurse2med.

Nurse2Med

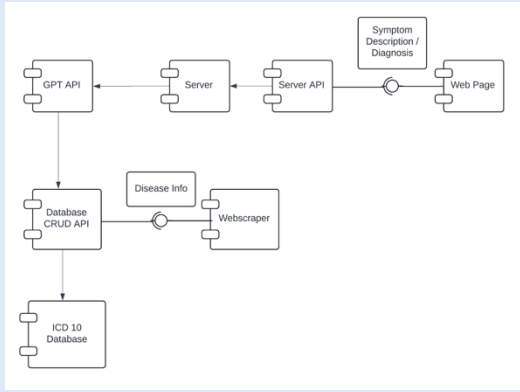
Rhy Fernands (Computer Science)
Andrew Butler (Computer Science)
Jon Doherty (Computer Science)
Justin Fournier (Information Technology)
Olivia Morel (Information Technology)
Sean Connors (CS: Cybersecurity)

Introduction

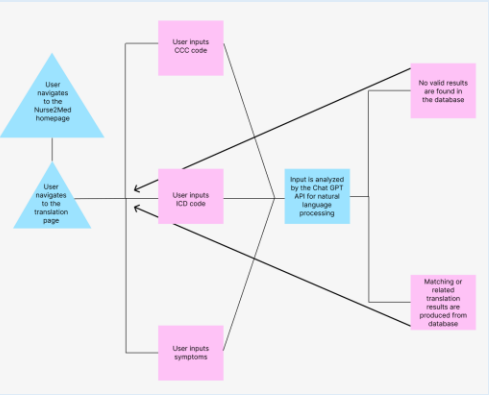
Nurses and Nurse Practitioners use different sets of standardized diagnosis codes, which can make it difficult for nursing students to make the transition during the nurse practitioner program. Nurse2Med is a web application which aims to make this process easier by providing a centralized learning location. The key features of this tool are the ability to 'translate' between the nursing and nurse practitioner set of codes: CCC (Clinical Care Classification) and ICD-10, with the additional ability to find codes by searching for key features such as symptoms.

Product Design

Our interface has a simple structure that allows users to easily access the benefits of our tool. Users can navigate to the translation page, select the code they would like to request further information regarding, and our natural language processing model retrieves the relevant information from our database compiled of web scraped data to provide the user with applicable translation information.



Component Diagram



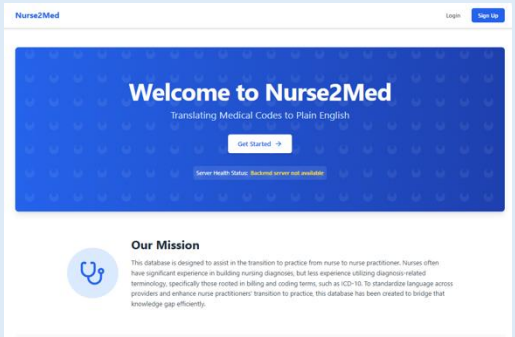
Activity Diagram

Requirements

Our product requires the translation of nursing terms into ICD-10 codes and diagnoses through the integration of natural language processing model. It also requires database storage and retrieval abilities with data acquired from a web scraping module. Non-functional requirements include Scalability for concurrent users, data security and authentication, and a user-friendly interface.

Implementation & Testing

Nurse2med has 3 modules: a server, client, and webscraper. The server is deployed on the UNH network, meaning it is currently only available within the UNH network. The server is responsible for making the queries to the GPT-4 API, which is the backbone of our NLP-translation function. We also pass this query through our diagnosis code database, which is populated by our webscraper, and contains all the diagnosis codes and relevant information for both sets of diagnosis codes.



Testing has not been completed as much as we would have liked. Translation functionality has been verified as much as possible with our limited collective knowledge of nursing.

Evaluations + Conclusions

Unfortunately, our tool has not had the chance to be evaluated as we originally planned. The plan was to send out a satisfaction/quality of learning survey through our sponsor in the UNH nursing program, but this was not approved.

This survey would have included a pre- and post- use section. The pre-use section would ask the user to rate their ability/comfort with both code systems. Then, we would ask them to use our site for a specified amount of time, and rate their comfort again. In this way, we intend to see if our app is helpful to our users.

Sponsors: Clarissa Michalak, Kundai Andrew Midzi | Advisor: David Benedetto (Computer Science Department) | IT/CS 792, 2024-25