California State University Long Beach
Department of Computer Engineering and Computer Science

Course # CECS 542

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Lab 8 – Goals

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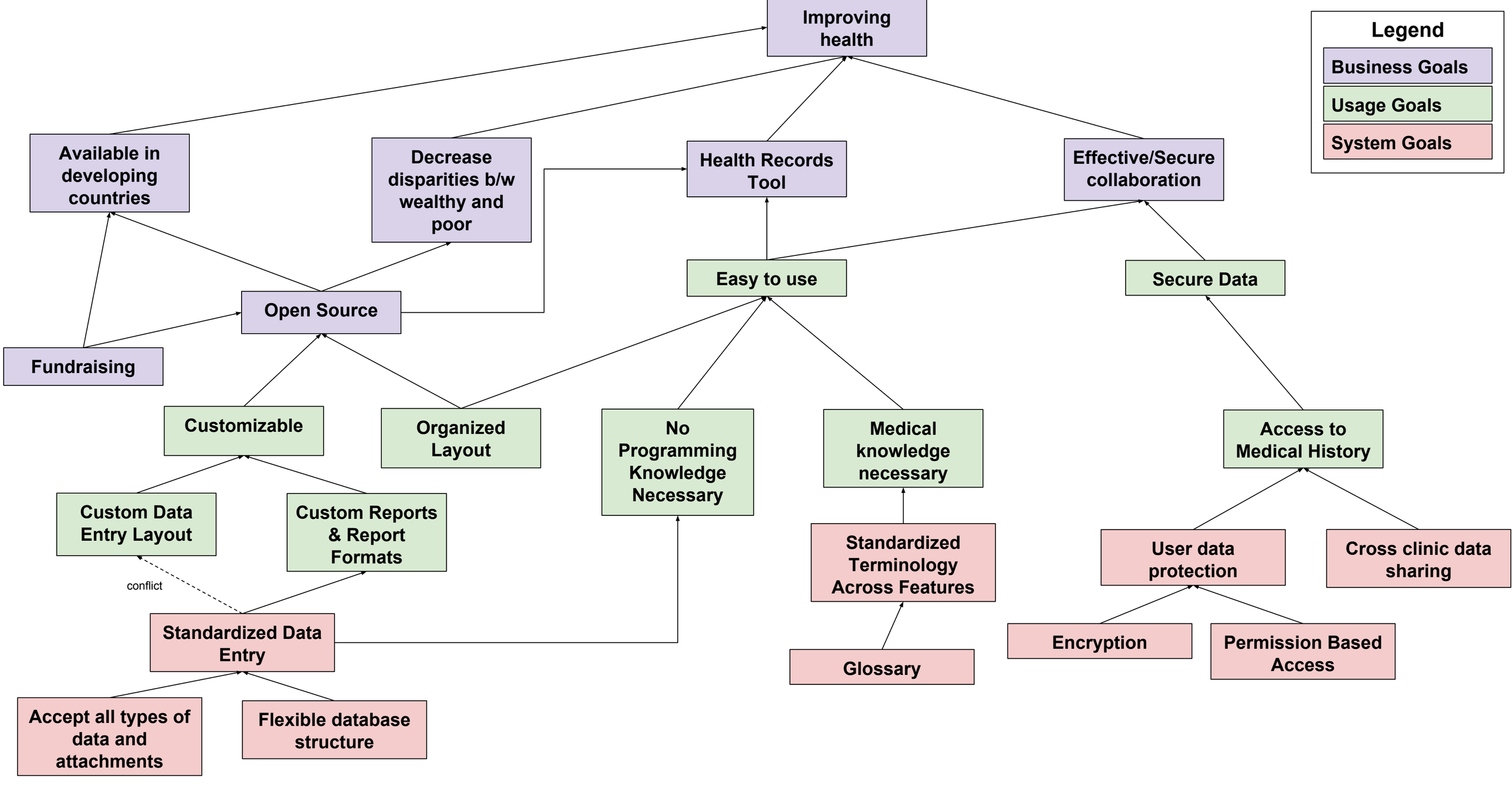
Improving health
Legend
Business Goals
Usage Goals
System Goals
Available in developing countries
Decrease disparities b/w wealthy and poor
Health Records Tool
Effective/Secure collaboration
Open Source
Easy to use
Secure Data
Fundraising
Customizable
Organized Layout
No Programming Knowledge Necessary
Medical knowledge necessary
Access to Medical History
Custom Data Entry Layout
Custom Reports & Report Formats
conflict
Standardized Terminology Across Features
User data protection
Cross clinic data sharing
Standardized Data Entry
Encryption
Permission Based Access
Glossary
Accept all types of data and attachments
Flexible database structure

Lab 8 Write Up

To ensure that our goal model remained legible (on a single sheet of paper) we assigned colors for the business, usage, and system goals and created a key value relationship for every box. Each box on the goal model corresponds to one of the bullet points in our descriptions below. We organized the descriptions below so that the business, usage, and system goals are on separate pages and correspond to the goal model's legend. To complete the stakeholder portion, we are using the categories and subcategories as identified in our Stakeholder Model.

We constructed our goal model by first identifying all of the goals for each classification that we could find. From there we identified a main "root" for the business goals and started grouping the remainder of the business goals together under logical sub groups. Once we plotted the root and sub levels for the business goals the usage goals were easier to organize. The visualization of the usage goals against the business goals was also a way for us to double check that our goals had a strong relation. Continuing down to the system goals, we used the same process. After, we created a placeholder for all system goals, then take one at a time and find their related usage goals.

Identifying the main root was probably the most difficult part of the process for us; we needed to find a goal that could be decomposed into all other goals. Furthermore, we were faced with making sure our goals were related to the actual software, rather than the development of the website. Additionally, finding a descriptive, condensed summary for each block proved challenging, as we needed the model to be self explanatory, yet concise. Lastly, the layout of the goal model proved to also be challenging. We needed to ensure the goal model was able to accurately portray all relationships without having crossing lines everywhere. Once the diagram was constructed it allowed us to identify a potential conflict between giving users the ability to customize their data entry forms while forcing them to use standardized entry codes.

Business Goals

1. **Improving health**: To provide healthcare providers and administrators with the tools to improve health outcomes all over the world

   Stakeholder: Business Team

   a. **Available in developing countries:** To create an open source medical record system platform for developing countries
      i. **Stakeholder**: Service Providers, Fundraising, Marketing, Legal, SW Distribution Team
   b. **Decrease disparities b/w wealthy and poor:** To implement health IT in a way that decreases costs, increases capacity, and lessens the disparities between wealthy and resource-poor environments.
      i. **Stakeholder**: Fundraising, Research and Evaluation
   c. **Effective/Secure collaboration:** To share information and reduce effort and enable healthcare professionals and patients to work together more effectively.
      i. **Stakeholder**: System Architecture Team, Data Security, Legal
   d. **Health Records Tool**: Customizable, free, records management tool that clinics can use to track patients history. Patients can also use it to access their own medical records
      i. **Stakeholder**: Business Analyst, Fundraising, Hospital Staff, Patients
   e. **Fundraising:** To raise enough funds to produce and release all features and modules necessary. To be able to buy and maintain the infrastructure needed for OpenMRS
      i. **Stakeholder**: Fundraising, Marketing, Legal, Accounting
   f. **Open source:** The system shall be open source and customizable. Each clinic can create a custom install with the desired features
      i. **Stakeholder**: Business Analyst, Research and Evaluation, Software Development Team, Fundraising

Usage Goals

1. **Easy to use:** the tool needs to be intuitive, and be able to used by medical professionals who do not have programming experience

   Stakeholder: Hospital Staff, Patients, User Testers, User Training Educators

   a. **Medical knowledge necessary:** The user shall be able to use the system easily based on having medical and systems analysis knowledge
      i. **Stakeholder**: Doctors, Nurses
   b. **No Programming Knowledge Necessary**: The user shall be able to implement and use the system without needing any programming knowledge
      i. **Stakeholder**: Hospital Staff, Patients
   c. **Organized Layout**: Organized Layout User Interface should be cohesive and logically organized

      Stakeholder: Hospital Staff, Patients, Terminology Team, Module Lead, Module Developers

      i. User should be able to get a general understanding of what a feature does based on the name/terminology used
         1. Terminology should be document
         2. Terminology should be consisted across UI
2. **Customizable:** The user shall be able to input data using electronic forms that are customizable

   Stakeholder: Hospital Staff

   a. **Customizable Data Entry Layout**: Create multiple types of short forms based rather than one huge form

      Stakeholder: Hospital Staff, Module Lead, Module Developers

      i. Data should not be hidden behind multiple screens
      ii. Forms should be concise to prevent monotonous scrolling
      iii. Forms should load rapidly with minimal waiting time
   b. **Customizable Reports & Report Format:** The user shall be able to create and export customizable reports

Stakeholder: Hospital Staff

i. Create template reports that can be reused

1. Report can differ based on end user of the report

3. **Secure Data:** the software should be implement measures to prevent hacking, unauthorized users, and allow data to be shared securely

Stakeholder: Hospital Staff, Patients, Data Security, System Architecture Team, Database Team

a. **Access to Medical History:** The user shall have access to a patient's medical history

Stakeholder: Patients, Doctors, Nurses

i. Patient shall have access to their own medical records

ii. Doctors shall have access to their patients' records

iii. Nurses shall have access to their patients' records

System Goals

1. **User data protection**: The system shall provide security measures that protect user data through roles and permissions

   Stakeholder: Hospital Staff, Patients, Data Security, System Architecture Team, Database Team

   a. **Encryption**: Data should be encrypted

      Stakeholder: Data Security, System Architecture Team, Database Team

      i. Required encryption level for medical records

   b. **Permission Based Access**: Roles and Permissions should be customizable

      Stakeholder: Database Team, Web Developer Team

      i. Users can have multiple roles or permissions

2. **Cross Site Data Sharing**: The system shall be able to share data with other clinics who use OpenMRS

   Stakeholder: Data Security, System Architecture Team

   a. Patients may get sick while traveling away from home, all clinics using OpenMRS should be able to access their medical records

      i. Patients give authorization (maybe a pin to authenticate the transfer of their data)

3. **Standardized Data Entry**: The system shall provide standard codes that are used for data entry rather than free responses. Standard set of codes that will be used to document patient's history. Allow for better searching, knowledge sharing, and analysis

   Stakeholder: Doctors, Nurses, User Testers, User Training Educators

   a. **Flexible database structure:** The system shall be based on a conceptual database structure which is not dependent on the actual types of medical information required to be collected or on particular data collection forms.

      i. **Stakeholder**: Database Team, Metadata team

   b. **Accept all type of data and attachments:** The system shall be able to store all types of data and files associated with a patient

      Stakeholder: Database Team, Web Developer Team, System Architecture Team

i. Store patient contact information
ii. Store x rays, MRI, and data files relating to the user

4. **Standardized Terminology Across Features**: Medical knowledge is necessary to use the tool, therefore the tool will contain features, definitions, descriptions that are written using standardized terminology.

   Stakeholder: Terminology Team

   a. **Glossary**: A built in glossary will be needed to ensure standardization across data entry, layout terminology, and feature terminology.

      Stakeholder: Terminology Team