Client/Customer Name: OPTUM / OTHER INSURANCE COMPANIES.

Software Requirements Specifications/Documents

Version: 0.5

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Application/Project Name: Health Insurance Optimizer

**Summary**

A web application for building, managing, and manipulating a database of patient information, as well as predictive algorithms that estimate key health and business outcomes. The client/customer is able to view the patients and their characteristics / attributes, predict meaningful outcomes per patient or per population (e.g. risk of heart disease leading to surgical intervention) and optimize/recommend insurance coverage for the patient/population.

**Functional Requirements (TODO)**

1. Users (Clients and Admins) Access Management
   1. Admins may sign in and manage data in the database as well as modify algorithms and prediction outcomes.
   2. Clients may sign up and/or login to run the database according to specifications they give to the admins. For example, the clients would supply data and desired outcomes for prediction and the admins would be responsible for tailoring the app for the client’s behalf.
2. Patient Details and Data Management
   1. Maintain a database of all patient details (i.e., name, relevant health metrics, health outcomes, insurance coverage) with security and access dependent on the sensitivity of the data (HIPPA data should be more secure, and anonymity is important for patient data in general)
      1. Add/update/modify database as new data is generated or acquired
3. Uploading data
   1. Admin should be able to upload data (e.g. in CSV-format) to populate the backend
4. Prediction of Health Outcomes
   1. Create customizable algorithms with selectable inputs and outputs (inputs: health metrics. Outputs: key outcomes such as visits to the ER, utilization of expensive health services, severe disease states that drastically reduce quality of life)
      1. Modify to meet the needs of each individual client
5. Optimization of Insurance Services
   1. Compares the likelihood of requiring certain services to the existing insurance coverage of the patient/population and creates recommendations to increase, decrease, or maintain current level of coverage
      1. Modifiable based on insurance coverage types, cost of relevant services
6. Account Info Management
   1. Store and manage the details of the users (clients and admins)
7. Frontend UI/UX Design and Management
   1. Design and manage frontend UI/UX (e.g., home page, account page, prediction model pages, and result pages, etc.)

**Functional Requirements (To-do in future)**

1. Machine Learning for Algorithm
   1. Implement automated machine learning kit to create a more real-world algorithm (instead of one supplied ad-hoc by the developer for the MVP or proof-of-concept)
2. History of previous algorithms
   1. Maintain a history of prior algorithms used

**Non-Functional Requirements**

* Performance, Scalability, Capacity, Availability, Reliability, Recoverability, Maintainability, Serviceability, Security and Data Integrity, Usability

Construction Equipment Rental ER Diagram

