Group 3

Personal Health Management

Database Specification: Purpose, Business Problems Addressed & Business Rules

Database Purpose:

The purpose of this application is to organize the data to assist people in tracking health information. The application lets two types of users – Patients and Health supporters to track observations regarding the patient's health indicators and generate alerts when something is not usual. This system is to facilitate the health supporters of the patients to retrieve, update, and report the patient information efficiently, in turn helping the doctors make timely, effective diagnoses. At the same time, the users can utilize this system to monitor their medical and financial management. With this system, there is a proper coordination, assimilation and representation of data.

Several functionalities are provided for registered patients and health supporters such as adding new diseases for patients, adding new health supporters, adding health indicators to be tracked for each disease, manually over riding the range of health indicators, generating alerts when the observations are found to be in violation etc. Maintaining all this information manually is a tedious task and difficult to track for patients and health supporters.

Hence this application is useful to automatically notify patients and health supporters of the current health indicators of the patient and take action appropriately. While patients have access only to their information and can modify anything that is related to them, health supporters can view multiple patient information related to them and can only modify some of the patient's details.

Business Problems Addressed:

- Significant advances in automation and standardization of business and clinical processes can be attributed to this health care management system. Data can therefore become more standardized and accurate.
- With healthcare databases, data can also be stored externally and backed up in a secure place to prevent data loss
- Allow health supporters also to review descriptive reports of patient in order to keep a track of their condition and take precautions.
- Offer recommendation for users according to their medical history
- Provide various health tips and tracking daily activity of patient which is mandatory to estimate the health condition.

- Enforcing data integrity
- Lastly, because the data is electronic, it can allow for quicker processing of typical transactions such as lab results, payment claims, etc.
- One of the biggest benefits of all this database is the amount of data healthcare organizations have been able to capture. They now have huge data stores that can be used to inform better, more cost-effective care.
- Collect and analyze customers feedback to improve the quality and efficiency of customer service.

Business Rules:

- A user may have one or more health supporters. **
- Access to patient's data could be for one or more (patient, health supporter and super user)
- A user may have one or more doctors to select from.
- A user may have zero or more insurance plans to select from.
- A user may/may not be associated with one or more disease IDs.
- Data can be accessed /modified by one/more users
- A health supporter can add zero or more health supporters
- Health supporters can manually override the range of health indicators generating alerts when the observations are found to be in violation etc

Design Decisions:

SR NO	ENTITY NAME	ENTITY DESCRIPTION
1	**USER_INFO**	Users have a unique id and password, using which they login into the Health system. Users are classified into Patients, Health Providers and Health Supporters. Although most of their common details are stored in Users, Patients Health Providers and Health Supporters have different privileges and hence are divided into different relations for Users
2	**DISEASE**	Diseases are uniquely identified by a disease id. This entity is related to Users and health indicators and can be used to get the disease name to show patients or health supporters.
3	**HEALTH INDICATORS**	Health indicators are uniquely identified by id. Health indicators are common attributes for all patients including well patients. But they are also specific to the type of disease a patient has. Some health indicators have range values while others have enumeration values
4	**HEALTH INDICATORS-RANGE**	Health indicators which have range values. These are uniquely identified by health indicator id. They have minimum and maximum recommended values.
5	**HEALTH INDICATORS-ENUMERATION**	Health indicators which have enumeration values. These are uniquely identified by health indicator id.
6	**HEALTH INDICATOR RANGE PATIENT OVERIRDE**	If a patient overrides a health indicator with range values the corresponding changes are done in this table. Otherwise this table contains default recommended values.
7	**HEALTHINDICATOR ENUMERATIONPATIENT OVERIDE**	If a patient overrides a health indicator with enumeration values the corresponding changes are done in this table. Otherwise this table contains default recommended values.
8	**OBSERVATIONS**	Patients are required or recommended to take checkup and note down the observation values depending on the disease they have. For a well patient, the observation values are general recommendations. Each observation is uniquely identified by an id and references person id and health indicator id for which the observation is done.

9	**ALERTS**	This table is used for generating alerts. Alerts are generated if the observations are not done by the recommend frequency. Each alert has an alert id by which it is identified and the patient id for which the alert is generated. Alerts can be cleared by patients by taking the observations or by health supporters after viewing them.
10	**HEALTH TIP**	This table is used to provide health tips to patients and health supporters. It provides tips according to the health alerts set by the health providers.
11	**INSURANCE DETAILS**	This table provides insurance company's details offered by the health supports. Patients can have a look at the list of insurance company before booking an appointment.
12	**ACTIVITY_TRACKER**	Activity Tracker Table is used to monitor the activity of the users (it can be seen by patient and his supporter).
13	**HEALTH_PROVIDER**	This table is used for saving doctors details like Specialization,Shifts
14	**BOOKING_APPOINTMENT**	This table is used for booking an appointment with doctor. In case of any emergency health supporter can book an appointment for his dependent with any doctor or health provider.
15	**USER_ACCESS**	Users are classified into patient, health supporter and health provider. Different users have different access rights.
16	**LAB_REPORTS**	This table is used for saving patients reports. It can be seen by health supporters and health providers

Entity-Relationship diagram (ERD):