D205: Data Acquisition Performance Assessment

A. Research Question

Hospitals are trying to prevent patients from being readmitted because “readmission rates are significantly influencing a hospital's quality scores and performance” (Fallon, 2023). Patient’s medical conditions have been provided to reflect whether certain conditions influence readmission more than other conditions. However, this raises a concern on if readmission is more likely in a specific age group rather than a medical condition. Therefore, I would like to focus on senior citizens and their survey responses to figure out if there is something the hospital could improve on to decrease readmission in this specific age group. My research question is the following: ‘Is there a factor from the survey responses that is more important than the other factors that could decrease senior citizens patients from readmission?’

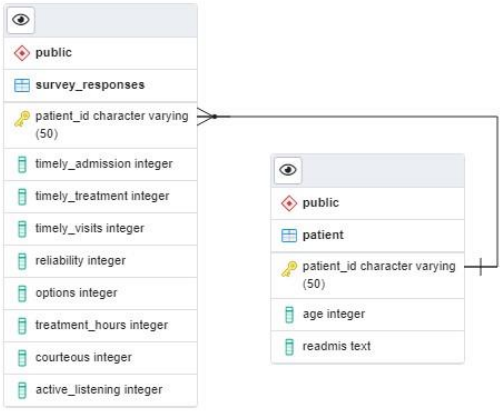
A1. Identifying Data

The research question chosen is in regard to the correlation between a specific age group, being senior citizens, patient readmission, and their responses to the survey they received. On that note, the data needed to answer the research question is the following:

- Table Name: patient
- Column Names: patient_id character varying (50), age integer , readmis text
- Primary Key: patient_id character varying (50)
- CSV: survey_responses
- Table Name: survey_responses
- Column Names: patient_id text, timely_admission integer, timely_treatment integer, timely_visits integer, reliability integer, options integer, treatment_hours integer, courteous integer, active_listening integer
- Primary Key: patient_id character varying (50)
- Foreign Key: patient_id character varying (50)

B. Entity Relationship Diagram (ERD)

There is a 1:multiple relationship between patients and survey responses since there are multiple questions each patient had to answer.



B1. Code for the ERD

```
CREATE TABLE public.survey_responses
(
   patient_id character varying(50) NOT NULL,
   timely_admission integer,
timely_treatment integer,
timely_visits integer,
reliability integer,     options
integer,     treatment_hours
integer,     courteous integer,
   active_listening integer,
   PRIMARY KEY (patient_id)
);
ALTER TABLE public.survey_responses
ADD FOREIGN KEY (patient_id)
REFERENCES public.patient (patient_id);
```

B2. Loading CSV Data

After creating a table for the survey responses from the patients, the data loaded from the survey responses add-on file was the following:

```
"\\copy public.survey_responses (patient_id, timely_admission, timely_treatment,
timely_visits, reliability, options, treatment_hours, courteous, active_listening) FROM
'C:/LabFiles/Medical/msurvey.csv' DELIMITER ',' CSV HEADER QUOTE '\"' ESCAPE
"";""
```

C. SQL Query

The following code was queried in pgadmin to join the survey_responses.csv file and the patient information:

```
SELECT p.patient_id, p.age, p.readmis
      FROM patient AS p
      LEFT JOIN public.“survey_responses” AS s
      ON p.patient_id = s.patient_id;
```

The following code was queried to answer my research question, “Is there a factor from the survey responses more important than the other factors that could decrease senior citizen patients from readmission?” The constraints are patients 65 years old and older as well as if the patient has been readmitted. I found the sum of each survey response factor to compare

the results. The lowest sum will be the most important survey response factor since 1 is the most important and 8 is least important.

```
SELECT SUM(timely_admission) AS timely_admission,
    SUM(timely_treatment) AS timely_treatment,
    SUM(timely_visits) AS timely_visits,
    SUM(reliability) AS reliability,
    SUM(options) AS options,
    SUM(treatment_hours) AS treatment_hours,
    SUM(courteous) AS courteous,
    SUM(active_listening) AS active_listening
    FROM patient AS p
    LEFT JOIN public."survey_responses" AS s
    ON p.patient_id = s.patient_id
    WHERE age >= 65 AND readmis = 'Yes';
```

C1. CSV Files

I have attached the csv file with the results for my research question to the submission.

D. Add-On File

The medical hospital chain should be updating and refreshing the add-on file daily. This includes any time new data from the external sources is modified, whether that be changed to different information or additional information.

D1. Explanation of Time Period

When the data is updated/modified, it has to be refreshed daily. That way, there will be enough data accumulated from the patients that day which could possibly change the results of the research question. This could in turn figure out which factor the hospital could improve on to reduce their readmission problem.

E. Panopto Video of Code

```
"\\copy public.survey_responses (patient_id, timely_admission, timely_treatment,
timely_visits, reliability, options, treatment_hours, courteous, active_listening) FROM
'C:/LabFiles/Medical/msurvey.csv' DELIMITER ',' CSV HEADER QUOTE '\"' ESCAPE
"";""
```

E1. Panopto Video of Programs

F. Web Sources

Youtube. (2019, May 27). *Intro to postgresql databases with pgadmin for beginners – full course.* Youtube. https://www.youtube.com/watch?v=Dd2ej-QKrWY

G. Sources

Fallon, C. (2023, June 27). 4 reasons why a hospital readmission rate matters. Blog. https://blog.cureatr.com/4-reasons-why-a-hospital-readmission-ratematters#:~:text=There%20is%20a%20correlation%20between,for%20hospitals%20and% 20their%20leadership.

H. Professional Communication

Demonstrate professional communication in the content and presentation of your submission.