NoSQL Databases - Weekly 4 Final Project Update 2

INFO 579 Week 4 Final Project Update 2
Course: INFO 579: SQL/NoSQL Databases for Data and Information Sciences
Module/Week: 4 - Week of July 28, 2025
Topic: Week 4 Final Project Update 2

NOTE: The assignment document must provide the following information. Up to 5 points may be deducted due to the lack of information below.

Student's Full Name: Matthew Qi Lan Thompson
Course Title: INFO 579: SQL/NoSQL Databases for Data and Information Sciences
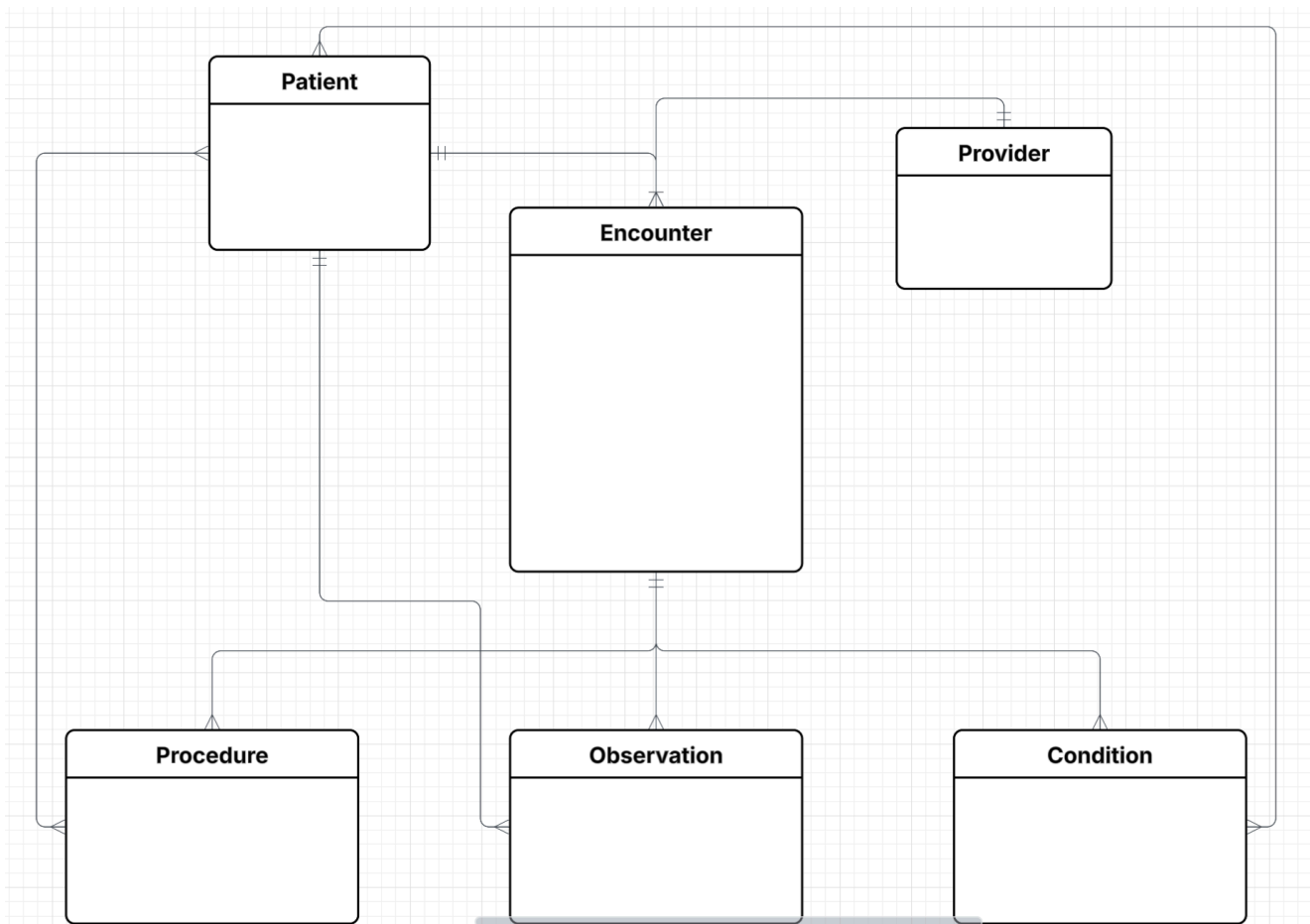Term name and year: Summer 2025
Submission Week: Week 4 Assignment
Instructor's Name: Dr. Nayem Rahman
Date of Submission: Aug 2, 2025

Week 4 Final Project Update 2: **Total Points - 25**

3. Develop a Conceptual Model. Consider 4 or 5 entities. Make sure you have at least one many-to-many relationship. Explain with data why it's a many-to-many relationship.

Two entities has many-to-many relationship: Patient and Procedures & Patient and Condition.

```
 7    #Patient ≠ Condition      block comment should start with '# '
 8    #how many unique conditions each patient has    block comment should start with '
 9    unique_conditions_per_patient = conditions.groupby("PATIENT")["CODE"].nunique()
10
11    #how many patients are linked to each condition    block comment should start wit
12    patients_per_condition = conditions.groupby("CODE")["PATIENT"].nunique()
13
14    #Patient ≠ Procedure    block comment should start with '# '
15    # unique procedures for each patient
16    unique_procedures_per_patient = procedures.groupby("PATIENT")["CODE"].nunique()
17
18    #how many patients are linked to each procedure    block comment should start wit
19    patients_per_procedure = procedures.groupby("CODE")["PATIENT"].nunique()
20
```

PROBLEMS 14   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   SPELL CHECKER 1

```
~/Doc/Academics/DS Masters Academics/SQL:NoSQL Databases/Assignments/Week

⊗ ❯
● ❯ /Users/matthewthompson/.pyenv/versions/3.12.4/bin/python "/Users/matthewthompson/Documen
L Databases/Assignments/Weekly 4/relationship_verify.py"
Patient ≠ Condition
Total unique patients: 1152
Patients with >1 condition: 1115
Total unique condition codes: 129
Conditions assigned to >1 patient: 120

Patient ≠ Procedure
Total unique patients: 1165
Patients with >1 procedure: 994
Total unique procedure codes: 137
Procedures assigned to >1 patient: 130
```
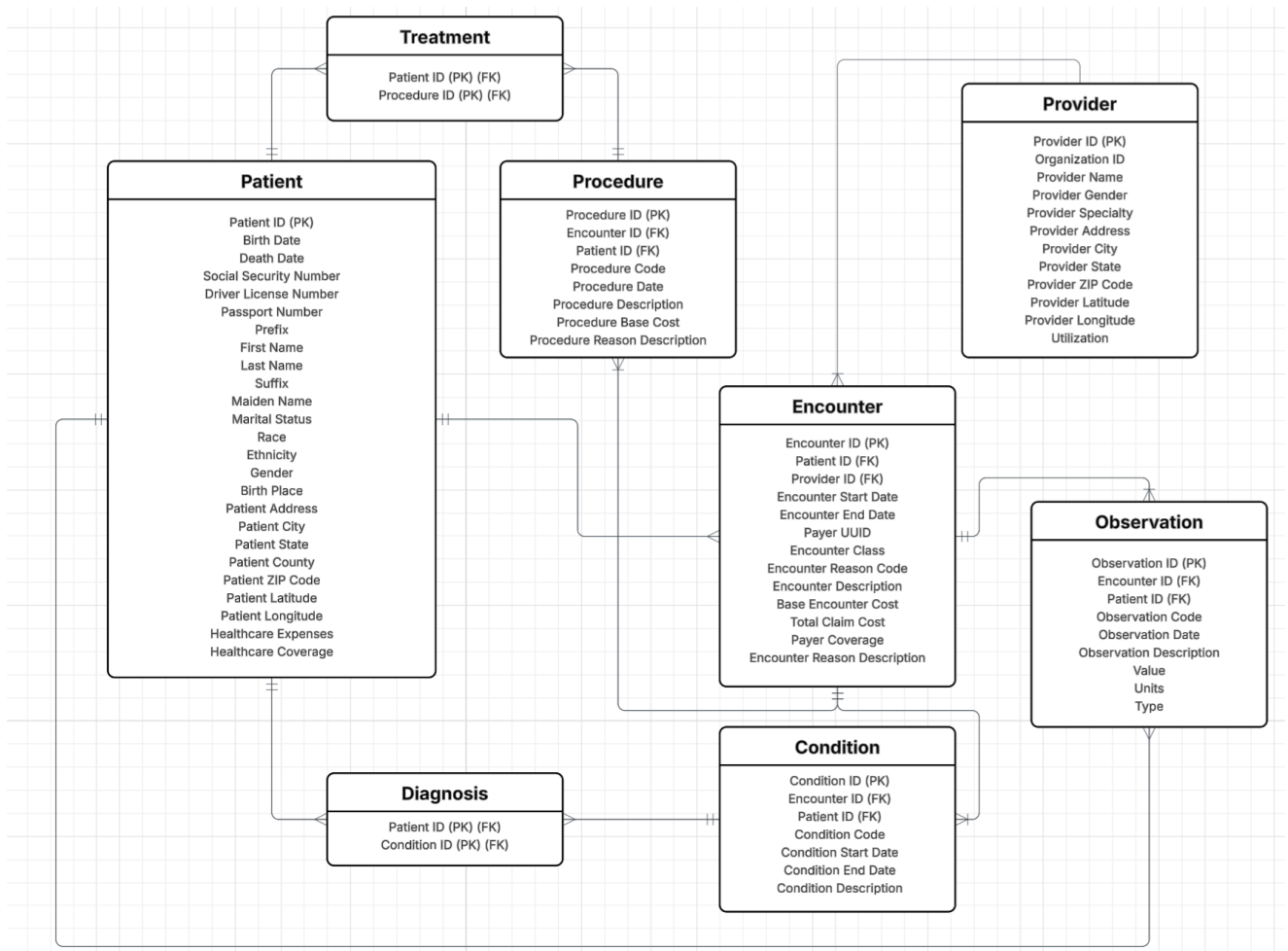
According to the result:

I checked for unique patients and conditions first to justify many-to-many relationships. Because, it shows that conditions are assigned to more than 1 patients, while each patient also has more than one condition. Same is said for the patient & procedures.

4. Develop a Logical Model using the Conceptual Model. Make sure you come up with a junction entity to resolve the many-to-many relationship.

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The End