# **Programming Assignment Unit 2**

Computer Science, University of the People

CS 2203-01 Databases 1 - AY2024-T3

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February 13, 2024

## Relations and Constraints for the Hospital Software System

For this assignment, we are tasked with designing taking the design we made in our first programming assignment and drawing an E-R (Entity Relationship) diagram showing the entities and the relationships between them. This helps us learn and practice good practices when it comes to designing our databases and data structures. An important note of addition to our previous assignment is the unary relationship also known as a recursive relationship as it is a relation between two fields in the same entity.

The following is the E-R diagram I built using DIA, which is available at <http://dia-installer.de/download/index.html.en>.

A diagram of a patient

Description automatically generated

As we can wee the diagram above contains all of the entities and the fields. It also uses Barker’s notation as a way of marking the types of fields and relationships. For example, we can see a 1:1 (one-to-one) relationship between Doctor and Patient notated by the small single line on the Doctor's side and a crow's foot or trident symbol on the Patient's side. It is also important to note that the Doctor entity has a unary relationship noted by a line connecting the entity to itself that is dotted, the dotted line indicates that this relationship is optional.

## References

* Programming Assignment Unit 1
* Learning Guide Unit 1  
  <https://my.uopeople.edu/mod/book/view.php?id=402421>
* Learning Guide Unit 2  
  <https://my.uopeople.edu/mod/book/view.php?id=402430>
* Sharma, N., Perniu, L., Chong, R. F., Iyer, A., Nandan, C., Mitea, A. C., Nonvinkere, M. & Danubianu, M. (2010). Database fundamentals. IBM Canada.  
  <https://my.uopeople.edu/pluginfile.php/1827130/mod_book/chapter/484065/Database_Fundamentals.pdf>
* Watt, A., & Eng, N. (2014). Database design,  2nd ed. BCcampus, BC Open Textbook Project.   
  <https://opentextbc.ca/dbdesign01/>  
  <https://my.uopeople.edu/pluginfile.php/1827130/mod_book/chapter/484065/Database-Design-2nd-Edition-1560272109.pdf>
* Unit 1 Lecture: Information Models

<https://my.uopeople.edu/mod/kalvidres/view.php?id=402427>

* Unit 1 Lecture: Relations  
  <https://my.uopeople.edu/mod/kalvidres/view.php?id=402428>
* Unit 1 Lecture: Constraints  
  <https://my.uopeople.edu/mod/kalvidres/view.php?id=402429>
* Unit 2 Lecture: Creating ER Diagrams  
  <https://my.uopeople.edu/mod/kalvidres/view.php?id=402437>
* Unit 2 Lecture: Data Modeling Concepts  
  <https://my.uopeople.edu/mod/kalvidres/view.php?id=402438>
* Unit 2 Lecture: Entity Relationship Diagrams  
  <https://my.uopeople.edu/mod/kalvidres/view.php?id=402439>