[180 min] DO: Assignment 1 / Build a Conceptual Data Modeling

Due Feb 28 by 11:59pm **Points** 100 **Submitting** a file upload **File Types** pdf
Available until Mar 7 at 11:59pm

This assignment was locked Mar 7 at 11:59pm.

Case Background

NextLevel Consulting LLC has been busy building data models for a number of new clients and Monica is excited to start a new modeling effort for a local non-profit that provides medical services in underserved countries. She is keen on applying her UML modeling skills that she acquired while taking a corporate training class taught by Ars Doceo. She knows that the first step in building a conceptual data model is to conduct requirements analysis. So, she sets up an interview with Dr. Varun Patel, a physician from Provo, UT who frequently travels to rural areas in South America. To make sure she remembers what is being said, she decides to record the interview. The following is a transcription of part of that recording:

"... Let me give you a scenario. So, last month we were in a rural area in Paraguay. I saw a patient: let's called him Jack Smith. Jack Smith presents with sore throat, nasal congestion, and headaches -- Jack thinks he has the flu. We think he has a simple cold so we take a nasopharyngeal swab and do a rapid test for influenza and COVID-19. Both come back negative and so the diagnosis is a cold. We give him a nasal decongestant. But since there are no pharmacies and no places to get medications, we keep a donated supply. But we do need to track what we gave him along with the instructions we provided to him (verbally and written). So, we need some way to track information about the patient, the physician or nurse who prescribed the drug, the drug (e.g., Azithromycin), when to take it, the form of the medication (liquid, pill, suppository, etc.), how often to take it, the dosage (250 mg), and expiration date. Since recalls are not unheard of, we also need to track the manufacturer of the drug, the batch from which the drug came, and the date of manufacture."

Monica thinks she has enough to develop an initial data model but is reassigned to a new project where her skills in agile business analysis are needed. So, you are being asked to jump in and build an initial data model. You task is to develop a conceptual data model for the entities and relationships within the context of pharmacy, along with a full definition of all entities, especially prescription. Be sure to list all your assumptions used in the construction of the data models. Express the data model in a UML Class Diagram.

Here are some specific use cases that the data model needs to support -- you may omit any other considerations as this is clearly is very large project. The likely implementation will be a small database or simple tracking tool.

1. list all medications prescribed or given to a patient and when those were given
2. find all patients who were given a specific medication or a medication from a specific batch
3. find all medications from a particular manufacturer
4. list (in order to create instructions) all information about how to take a medication, e.g., how often and for how long and at what dose

If there are unresolved questions from the notes, post your question on Teams and incorporate the new findings into your model. You may discuss the problem and share insights but you need to build your own model. Keep your model to about 10-20 classes/entities. Time box your work to the allotted time of about 3 hours. If you spend substantially more than 3 hours then you are overthinking the problem.

Submission Details

Submit a single PDF document that contains your UML Class Diagrams plus all notes and assumptions. You may use any tool to create the UML Class Diagram. If you do not have access to a tool (*e.g.*, **LucidChart (https://www.lucidchart.com/pages/)**), you may use pencil and paper. In that case, scan or take an picture of the diagram and include it in your PDF. Do not submit multiple files.

Notes

Example of a "Label" on a "Medication" in the US:


VETERAN NAME (LAST, FIRST)
TAKE 1 TABLET BY MOUTH TWICE A DAY
METOPROLOL TAB 25MG TAB
Rx# 6543210
Refills Left: 1 (of 3)
DR. KATHLEEN LANCASTER
Qty: 60 TAB
VAMC FACILITY NAME
000XX (10297/10001)
Ph: (800) 000-0000
CAUTION: FEDERAL LAW PROHIBITS TRANSFER OF THIS DRUG TO ANY PERSON OTHER THAN PATIENT FOR WHOM PRESCRIBED.
Avoid alcoholic beverages.
May cause dizziness.
Do not take other medicines without checking with your doctor or pharmacist.
Filled 01/15/2012
Order refills by: 06/15/2012
Discard after: 01/15/2013
54 733
Round White 54 733


FREDDY vs. JASON
Rx: 08-152003
Dr. Freddy Krueger
Doe, Jane
Take 1 tablet(s) one times daily or as needed to ensure no dream retention.
HYPNOCIL 500MG

A1 Rubric

Criteria	Ratings					Pts
Correctness of UML: proper use of multiplicity, aggregration, association, and generalization as required for problem	**30 pts Full Marks**	**25 pts Almost correct**	**15 pts Mostly Correct**	**8 pts Acceptable**	**0 pts No Marks**	30 pts
Classes properly represent problem and support the use cases.	**70 pts Full Marks**	**60 pts Mostly Correct**	**50 pts Good attempt but not quite ready for prime time**	**40 pts Acceptable**	**20 pts Significant flaws but some good aspects**	**0 pts No Marks**	70 pts
						Total Points: 100