Lab 5 (2nd and 3rd Normal Forms) (pts. 3)

**Submission requirements:**

Note: Work submitted must belong to you, if it matches with someone else, your work will be graded as 0 and will be reported to Associate Dean.

* Use any software to draw ERD.
* Take screen capture of the data model and embed it under the question.
* Complete rest of the questions in the same document.
* Resave the document with your name\_lab#\_db. (E.g Amrit\_lab#\_db)
* SUBMIT ONLY WORD DOCUMENT, PDF or COPY PASTE YOUR ANSWER IN THE TEXT AREA PROVIDED.
* Submit the document in link provided in assignment section.
* OR complete the lab manually and submit the hardcopy.

**What is the rule of 2NF in the normalization process?**

* 1. **Entity must be in 1NF**
  2. **Must not have partial dependency.**

**What is the rule of 3NF in the normalization process?**

1. **Entity must be in 2NF**
2. **Must not have transitive dependency.**

Note: if there is many to many relationship exists between entities, it must be resolved.

One of your colleagues at the HUMBER SYSTEMS INC. has just left the firm for another position, leaving the incomplete database design for a small new invoicing system on which they had been working. In this system, every product will be available from only one specific vendor. You have been asked to fully normalize the draft database (shown below) found in your colleague’s working files. **Complete the normalization process to third normal form, adding any tables or deleting any fields or tables, as required. Do not add any new field!** Primary keys are identified by the “PK” abbreviation. Though you may find it useful to work through the normalization steps one at a time, you are only required to show your results at the end of 3NF, so only your 3NF design will be marked. **Include foreign keys, and identify them by the “FK” abbreviation as well as the Entity Relationship Diagram of the tables in your 3NF**. Use the rest of this page and the following page for any intermediate work and for your final answer**. CLEARLY STATE ANY ASSUMPTIONS THAT YOU MAKE WHICH AFFECT YOUR FINAL 3NF DESIGN.**

Graphical user interface, text, application

Description automatically generated

**Rubric:**

1. Identify partial dependencies and label them. (.5)

**A: Prouduct\_Unit-Price and Product\_Description are partially dependent on Product\_Number (PK) in entity INVOICED PRODUCT**

1. Identify transitive dependencies and label them. (.5)

**A: Vendor\_Postal\_Code, Vendor\_City, Vendor\_Address, and Vendor\_Name are dependent on Vendor\_Number in the PRODUCT entity**

1. Draw ERD of the entities in 3NF:
   1. Label all unique identifiers as PK (.5)
   2. Correct relationships and labeling all foreign keys (FK). (.5)
   3. Placement of all attributes at their most logical place by following the database design and normalization rules. (1)

