**Unit 2 Assignment: Creating a Logical Model**

**Outcomes addressed in this activity:**

**Unit Outcomes:**

* Analyze the concepts of normalization.
* Create a logical data model from a conceptual model.
* Identify the attributes for your logical model.
* Identify the primary and foreign keys.

**Course Outcome:**

**IT163-1:**Synthesize database concepts needed to effectively design a database.

**PC 2.1:** Achieve goals through planning and prioritization.

**Purpose**

Normalization involves making the database design better through the use of a specific sequence of rules to reach each normal form. Our goal is to reach third normal form. Using the conceptual model as a guide, take the data provided previously, **IT163\_Data1**, and work to normalize your design to third normal form. You will be showing your normalization process and building your logical diagram.

**Assignment Instructions**

Refer to the file [IT163\_Example2](https://kapextmediassl-a.akamaihd.net/IST/IT163/IT163_2004A/IT163_Example2.docx) for a demonstration.

1. For this first step take the data provided previously, [IT163\_Data1](https://kapextmediassl-a.akamaihd.net/IST/IT163/IT163_2004A/IT163_Data1.pptx), and put it into a tabular format. See the example document for an idea of how you might organize the data into a table.

*Note: Organizing all of the data into a single table does not represent a database nor a normalized design. This data store helps to visualize the data in one place. This is just where you’ll begin the process.*

2. Put the data into first normal form. Use a simple table in Word or an Excel spreadsheet to show your attributes in first normal form with a partial data example.

**For extra help see Optional Resources for Assignment under the Academic Tools, Library link:**

**Reference**: *Relational Database Design and Implementation* (4th ed.).

Chapter 7: “Normalization / First Normal Form”

**Generic Design and Modeling Databases: First Normal Form**

https://libauth.purdueglobal.edu/sso/skillport?context=94562

3. Looking at your first normal form and the data examples, identify problems that need to be addressed to put this data into second normal form. Use a simple table in Word or an Excel spreadsheet to show this data in second normal form.

**For extra help see Optional Resources for Assignment under the Academic Tools, Library link:**

**Reference**: *Relational Database Design and Implementation* (4th ed.).

Chapter 7: “Normalization / Second Normal Form”

**Generic Design and Modeling Databases: Second Normal Form**

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4. Taking your second normal form of the data, analyze the issues that prevent it from being in third normal form. Use a simple table in Word or an Excel spreadsheet to show this data in third normal form.

**For extra help see Optional Resources for Assignment under the Academic Tools, Library link:**

**Reference**: *Relational Database Design and Implementation* (4th ed.).

Chapter 7: “Normalization / Third Normal Form”

**Generic Design and Modeling Databases: Third Normal Form**

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5. Now that you’ve worked through the normalization of the data, use Microsoft Visio to create your logical diagram to show the normalized design. The diagram should represent relationships using crow’s foot notation. The diagram should include the entity names, attributes and notation of primary and foreign keys for each entity.

[Create an ERD in MS Visio](https://www.youtube.com/watch?v=dwo48lxj1UM)

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**Assignment Requirements**

Your work will consist of two parts:

**Part 1:** the visualization of your normalization process (steps 1, 2 and 3) (use tables in Word or a spreadsheet). See example file provided ([IT163\_Example2](https://kapextmediassl-a.akamaihd.net/IST/IT163/IT163_2004A/IT163_Example2.docx)**).**

**Part 2:** the Visio diagram file (\*.vsd).