LW-01 Report: Creation ER Diagrams with Online CASE Tools.

|  |  |  |
| --- | --- | --- |
| **Student Name** | **Group ID** | **Date** |
| Example Variant | EV-00 | 31.01.2025. |

1. Lab Assignment.

**1. Insert your variant of Subject Area description (Task text).**

**2. Describe any assumptions and restrictions then you make on your variant of Enterprise information.**

**3. Create Basic Concept Model as ERD on Chen’s notation with draw.io site.**

3.1. Register on **Draw.io** site (<https://www.draw.io/>).

3.2. Create ERD **Chen’s notation**, show entity names, primary keys, attributes, relationships and cardinality.

3.3. Export ERD **to** **PNG** and insert picture to your Report (File/Export as/PNG…).

**4. Create Keys Concept Model as ERD on Crow’s Foot notation with LucidChart.com.**

4.1. Register on **LucidChart** site (<https://www.lucidchart.com/>).

4.2. Create ERD **Crow’s Foot** notation, show entity names, primary keys, foreign keys, attributes, relationships and cardinality.

4.3. Transform **many-to-many** relationship (n:m) to new Associative Entity.

4.4. If you think the **ERD is incomplete**, list other data the database should store & adjust your design to incorporate these additions.

4.5. Export ERD **to PNG** and insert picture to your Report (File/Export/PNG…).

**5. Make a Publish Link to ERD and insert link-code to your Report.**

5.1. Make a **Publish Link** to ERD for Draw.io (File/Publish/Link…).

5.2. Make a **Publish Link** to ERD for LucidChart.com (File/Share Document/Anyone with the link **can view**).

**6. Create Database Scheme on Text notation.**

6.1. **Show** entity names, attributes, primary keys, foreign keys, for each entity.

6.2. For attributes, determine its **domain** of values, whether Null is an acceptable value, and, if acceptable, what value indicates Null.

2. Select Variant Nr.

|  |  |
| --- | --- |
| Instruction:  The step by step formation of an individual variant of the assignment from the student name to the final number. | *Example:*  *a)* Yuriy Li there will be LIYU  *b*) 12 09 25 21 18 09  *c)* (12+09+25+21+18+09)mod23+1=94mod23+1=2+1=3.  d) variant Nr.=3 (CHANGE to 0) |

4. Solution.

4.1. Description of the Subject Area “Manufacture” (var.0)

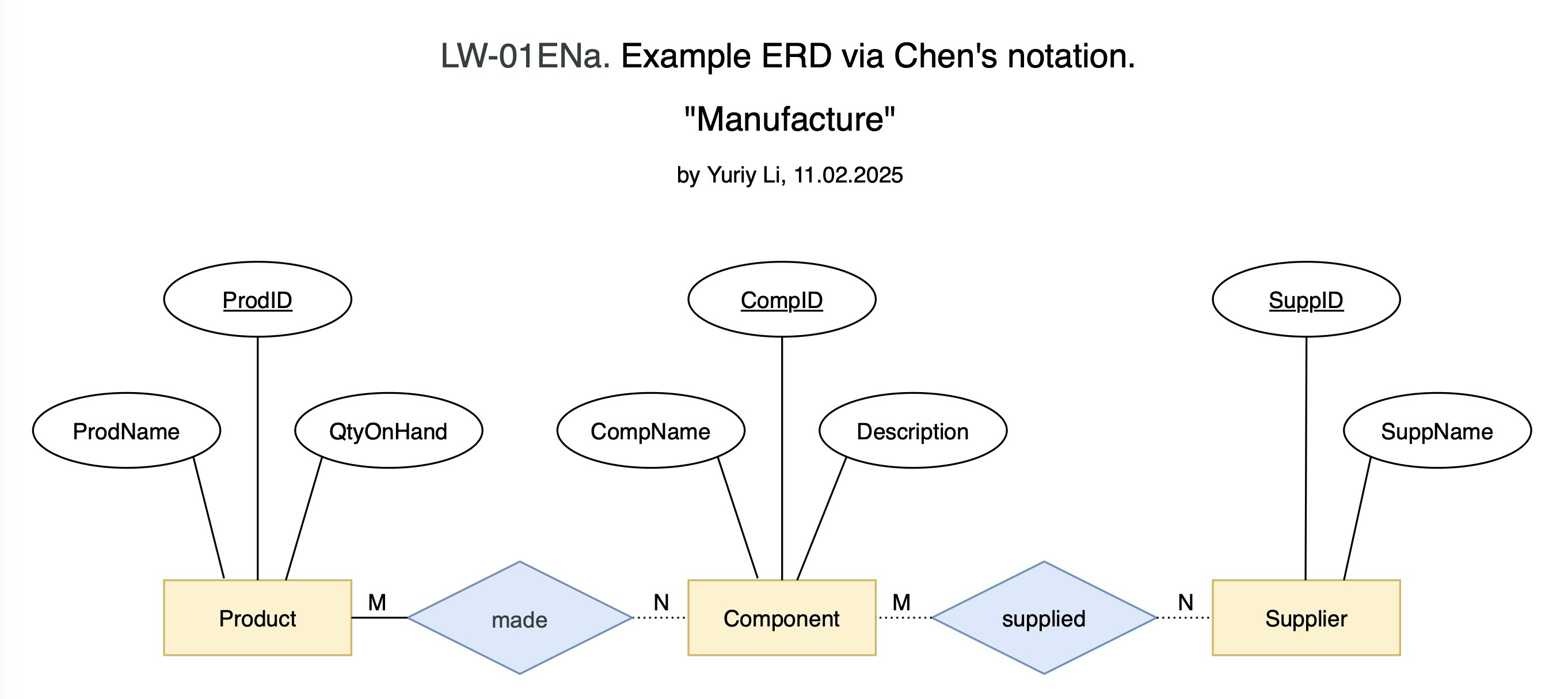
A manufacturing company produces products. The following product information is stored: product name, product ID and quantity on hand. These products are made up of many components. Each component can be supplied by one or more suppliers. The following component information is kept: component ID, name, description, suppliers who supply them, and products in which they are used.

4.2. Assumptions and restrictions

Manufacture Databases design base on the following business rules:

* A Supplier can exist without providing Components.
* A Component does not have to be associated with a Supplier.
* A Component does not have to be associated with a Product. Not all Components are used in Products.
* A Product cannot exist without Components.

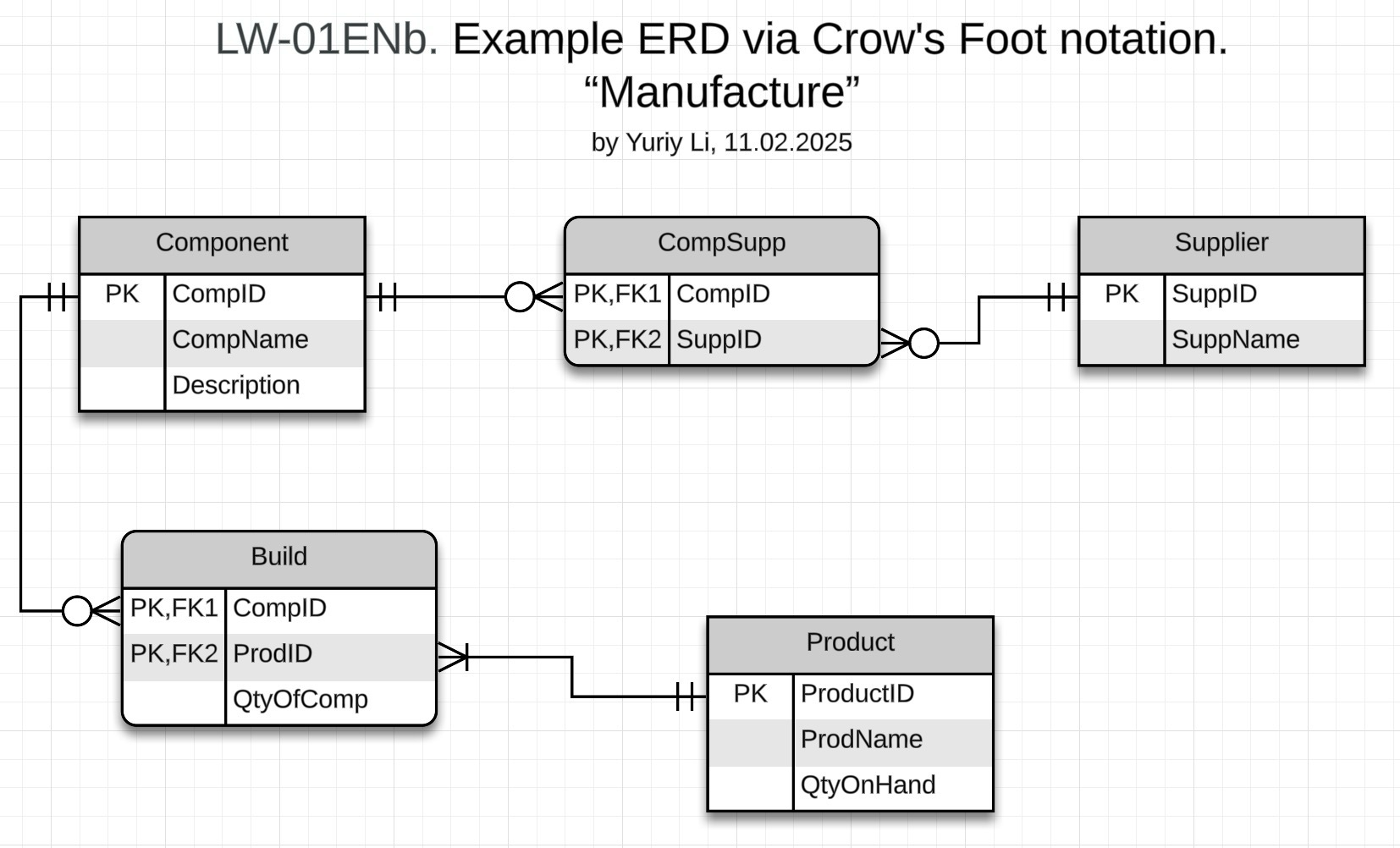
4.3. Basic Concept Model. ERD on Chen’s notation with Draw.io site



4.4. Keys Concept Model. ERD on Crow’s Foot notation with LucidChart.com site

a) After transforming the many-to-many relationship, a new associative entities, **CompSupp** and **Build**, was added.

b) After analysis, a new **QtyOfComp** attribute (Number of components in the product) was added to the **Build** associative entity.



4.5. Publish Links to ERD “Manufacture”

a) Link to ERD for Draw.io site

https://viewer.diagrams.net/?tags=%7B%7D&lightbox=1&highlight=0000ff&edit=\_blank&layers=1&nav=1&title=LW01ENa-ERD-Chen.drawio#R%3Cmxfile%3E%3Cdiagram%20id%3D%22Scd1gfAwiKTTqL-lTVkT%22%20name%3D%22Page-1%22%3E7Vxdm5o4FP41Prt7oQ9JSNDLUWfb2e3MTnfaTrt3EaLyDF8FrE5%2FfRMICoSpioo43Rslh%2BSQnK%2B8ORztoJG7ehPSYH7rW8zpQM1addC4A%2BFA1%2FinIDynBNBHg5QyC21L0jaEB%2Fs7k0Q5cLawLRYVOsa%2B78R2UCSavucxMy7QaBj6y2K3qe8UnxrQGVMIDyZ1VOqjbcXzlNqHxob%2BltmzefZkQOT6XJp1liuJ5tTylzkSuu6gUej7cXrlrkbMEcLL5PJ48%2FzovHsib%2F56H32lH4d%2Ff7j71E2Z%2FbnPkPUSQubFtVkT7dbQP95cOZ%2BMYGw9fjLYZ5qx%2FkadhZTXwyIIHJuFcs3xcybI5dyO2UNATdFecmPpoOE8dh3eAvySOvbM49cmnyMfjYZT23FGvuOHyXA0nU6haXJ6FIf%2BE8vdsciEYMLv7LjMbM4sjNkqp2S57DfMd1kcPvMu8i7RUTpE2jAcSOUvNwYBNKnlec4YMuOn0gZna9YbOfMLKeo9xA4Vsd%2BHvrXg5v96pN5vm9D1SqHfjBWZc148OvHGcG%2Fp%2B178IBnpzckWwHPLFiBFuFEaSCxFvDyOBuIynPvuZMFnMgxYaPN5CBFm1PsNaX8tFH3Aoqw%2FrfQBYvbZZHpCPemDkhP0KxQFKxRFTqYo1QtU%2B%2FesK7Hz8pbne6wo7dBfeBYTj9B4y6LRPGkA2binMVeCl1CgxkUzZCs7%2Fix7iOsvYmgPy9Z4JTkljees4fG1fs43cqNEczMsaWXj9tNj5C9Ck%2F1EWBIJxDScsfgn%2FaSymFWAIqpVhMyhsf2tiEyqVCyH3vs2X8famoq2RLBRZJAuR47JA4Eym1L00EmJUbpehVFib%2BvVHGCCWDHBO8UGQxbZ3%2BkkaWrV%2Fh6m7jIU7mhzwHcl6RM%2Fjn230hp%2B6hISgcqHbnDf7u4uNXqgmrug5Pz%2BdBqxk6hCUzQx8t2A%2B7z3mpAIIm2DIoOKIEwcYcxRQD1%2Bx6HeLLlBvi7E%2BWJ4fdf9%2BLBpFlSTEQX66E6pazt8oVcdYb%2BEukHSHSGBR2hoU0ehJj1HgiX1om7Ed96pICU3zFRPgls4m%2FyO8bozAZtL9Ed%2BamQmv51sVi9PN0oOjII9gMFK5eJSi2WcuKhTZsUHcHIqtSJZSnLrc11m2Qv35fkr7H9dOANB2%2BBMBnyPBGfWuAPshzsyjJNd74JxzoRV4FmwilETqwCyhdGJsQrsK%2FZ1e06sktl7W7AKbAyqQHXPFMf3O%2Boy1eNrH%2BBPFTlLgROcHYEgNfN3SOB83efATHtbgytoKLiW0gqo7lEQwy2MThxekZoIPetRMPOKtoTX9VFQ6qeLehhDAyBi9PuahjXA1sfp04dgRM4VM%2FbBVXUx3LliRlPJo6PFjBIkQ%2F2GY4YK%2Bc8KyTKvaEvMaA6SIRUcv4%2Bf%2F%2FHeUs%2B6BEyG2wbKdDUft1%2BA3eClHsGF8FfjAAu2h9lcWuMUMTQzsKMdanOaxRWKzWiH7tpGwa4MWDPS6uc9%2B%2BqHHhGqEP8ORpXaL4J5%2B%2B1qPQ1uzcI0YJLw2HmWZkyyFOp0rW4%2BpnxgAA3b5KGvL9eBbo0i97LKvYLqkU1Pv0jLA9oLL1%2F2N71%2B0fRQs6aHq2ulLrJ%2BpFwRdf4CEqxmAn4Zx8a7po2a8VgygD1c9NnymWJXn61gVXb%2FU3utWpgkvPZC0sZG6%2FLG%2BGgb8M5eemxvQ63yNkNHPU3TCdEGukYMSIrugvUe0CFAmEBkIG1QSvbt6ohlQ2rcDdWaH1FpcpGbZ7mcpAWbp5qYFdK9kCAHB60LcmqKccwiM7SD2Pa9CxCpjlonUjVXuOe%2BUROr1cGFx95xZPA72quAhk5u5Qr%2Bum8MACmd3MrZh1NvPlXldpeFWYz%2FLeicFkQOTswflAo1WpkKzVDHhRml8psMo%2BbhVteNHiZA1xDW%2BoYBBsWTbuM2WnUyS0tY56hgqlmlq8snZHtpFSzEPSMQi9NMl38Cowdw0k7sRptQ82mWvL5PuydA5wg1v31R8yufkdxbSoWLu54fukm58gtPOaRW%2Blh1zSnt3WNXA9d3tLeurfYmUZDrvFvp8vWKD%2BYThdr1v2OhSpvyz9Gceb9FiTxiKgBobztXofEX6pU5hIyLwalYSCyDV77qWJIU%2BFp%2Bde7aluW8hIOLxR%2BnQr7AwArS1bNtKB9NyimtOkh39XQ1vCFT9PXD8j%2FwJYiNUfS94jcV9byiwu4k5ZZ6iyk140VYdMFqm9iq%2Ft3VWq6qCEQsS%2BSHhx08FrwWsZ8uJGF9Ki2jLF28fp%2BlKB2gii3kZEpX3w1MxHS%2FLEJbfL%2Bz04ACAN%2B7eyLavlK96MVX30R1RqBX6AXtrxfe3Pz0Pt1DN39ggK5%2FAA%3D%3D%3C%2Fdiagram%3E%3C%2Fmxfile%3E

b) Link to ERD for LucidChart.com site

<https://lucid.app/lucidchart/638996de-da78-4f4b-b555-75c69acda994/view>

4.6. “Manufacture” Databases Scheme on text notation.

Product{ProdID(int), ProdName(char), QtyOnHand(int); PK[ProdID]}

Component{CompID(int), CompName(char), Description(text, NULL); PK[CompID]}

Supplier{SuppID(int), SuppName(char); PK[SuppID]}

CompSupp{CompID(int), SuppID(int); PK[CompID, SuppID]; FK1[CompID]; FK2[SuppID]}

Build{CompID(int), ProdID(int), QtyOfComp(int); PK[CompID, ProdID]; FK1[CompID]; FK2[ProdID]}

Only one Attribute Component.Description may be Null, because the description may be missing and this will not affect database integrity.