Homewok Assignment # 1

- Objective:

  – Practice in Normalization

- Requirements:

  – Read the case study to get familiar with the business

  – Study two business documents

  – Arrange all the data from these documents into a 3rd Normal Form schema design

Homework Assignment # 1

- Requirements:
  - Name each attribute; List each attribute
  - Create/Define primary keys
  - Arrange attributes so that each attribute is assigned to the appropriate entity
  - Ensure that each attribute is functionally dependent on the primary key for that entity

Homework Assignment # 1

- Grading:
  - This homework is worth 10 points (10%) toward your final grade.
  - It is due on Friday 6/14/2019, 11:59 pm.
  - Late policy applies (grace period of 3 days with 20% late penalty). After that time, no late work will be accepted.
  - Save your results in a *Spreadsheet* format as in the example that we looked at in class. Submit your assignment in PDF on Canvas.

Homework Assignment # 1

- Rubric:
  - All entities and attributes are defined with meaningful, clear names
  - Primary keys are effectively designed
  - Grader will not scrutinize your Unnormalized, First and Second Normal Form columns. They are the means to the end (3NF).
  - Student followed instructions

Homework Assignment # 1

- Instructions:
  - Read the case study to become familiar with the business
  - Use the documents depicted on Page 31 '*Customer Record*' and Page 33 '*Customer Invoice*' of your case study text (also **attached below** in page 9 and 10)
  - List all data elements (*attributes*) in the *unnormalized* column
  - Go through the list and put all data into First Normal Form.

Homework Assignment # 1

– Replace each document name with an entity name as needed.

– If an attribute appears on multiple documents (for example, CustomerName), only list it once in your First Normal Form column.

– Identify entity names by highlighting them in *yellow* color.

– Identify the Primary Keys by highlighting them in a different color other than yellow (as you see in grey color in the example below.)

Homework Assignment # 1

– If no reasonable candidate key exists, then create a surrogate key (an artificially generated key).

– Your final 3NF column should contain all the data in all the documents organized by entity, listing all attributes in each entity with primary keys defined.

– If an entity does not change from first to second normal form, then *simply copy and paste the data into the second normal form* column to show that the data is already in second normal form.

HINT: check if the entity has an atomic key, i.e., NOT concatenated / compound. Without a compound key, the data is already in 2NF.

Homework Assignment # 1

- Example from class:

	A	B	C	D	E	F	G	H
1		**UNNORMALIZED**		**FIRST NORMAL FORM**		**SECOND NORMAL FORM**		**THIRD NORMAL FORM**
2		Customer Order		Customer Order		Customer Order		Order
3		Order Number		Order Number		Order Number		Order Number
4		Order Date		Order Date		Order Date		Order Date
5		Delivery Date		Delivery Date		Delivery Date		Delivery Date
6		Customer Discount		Customer Discount		Customer Discount		discount amount
7		discount amount		discount amount		discount amount		invoiced amount
8		invoiced amount		invoiced amount		invoiced amount		customer number
9		customer number		customer number		customer number		order total
10		customer name		customer name		customer name		
11		bill to address		Contact		Contact		Customer
12		bill to city		ContactType		ContactType		customer number
13		bill to state		bill to address		bill to address		customer name
14		bill to zip		bill to city		bill to city		Contact
15		ship to address		bill to state		bill to state		ContactType
16		ship to city		bill to zip		bill to zip		bill to address
17		ship to state		ship to address		ship to address		bill to city
18		ship to zip		ship to city		ship to city		bill to state
19	---	Product Number		ship to state		ship to state		bill to zip
20	|	Description		ship to zip		ship to zip		ship to address
21	|	quantity ordered		order total		order total		ship to city
22	---	unit price		OrderProduct		OrderProduct		ship to state
23		order total		Order number		Order number		ship to zip
24				Product Number		Product Number		OrderProduct
25				Product Description		Quantity		Order number
26				Quantity		unit price		Product Number
27				unit price		total		Quantity
28						Product		unit price
29						Product Number		total
30						Product Description		Product
31								Product Number
32								Product Description

Eden Landscaping, Inc.
8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Customer Record

Name _____

Address 1 _____

Address 2 _____

City, State, ZIP _____

Phone 1 _____ Phone 2 _____

Referred By_____ Customer Since _____

Notes _____

_____

_____

_____

Mowing ☐
Landscaping ☐
Other ☐

DATE:

Eden Landscaping, Inc.
8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Member ASLA

Customer Invoice

Bill To Customer:

NAME:
ADDRESS:

CITY, ST, ZIP:
PHONE

Total Amount Now Due: $

Amount Remitted $

Please detach and return this portion with your payment.

Date	Services Rendered, Materials Delivered	Charges	Credits

TOTAL CUSTOMER CHARGES / CREDITS

Prior Balance $
Total New Charges $
Taxes $
Total Credits $
Total Amount Due $

Invoice is Due Upon Receipt