

# Unit 07 Problem Set Submission Form

## Overview

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## Instructions

Put your name and SU email at the top. Answer these questions all from the lab. When asked to include screenshots, please follow the screen shot guidelines from the first lab.

Remember as you complete the problem sets it is not only about getting it right / correct. We will discuss the answers in class so it's important to articulate anything you would like to contribute to the discussion in your answer:

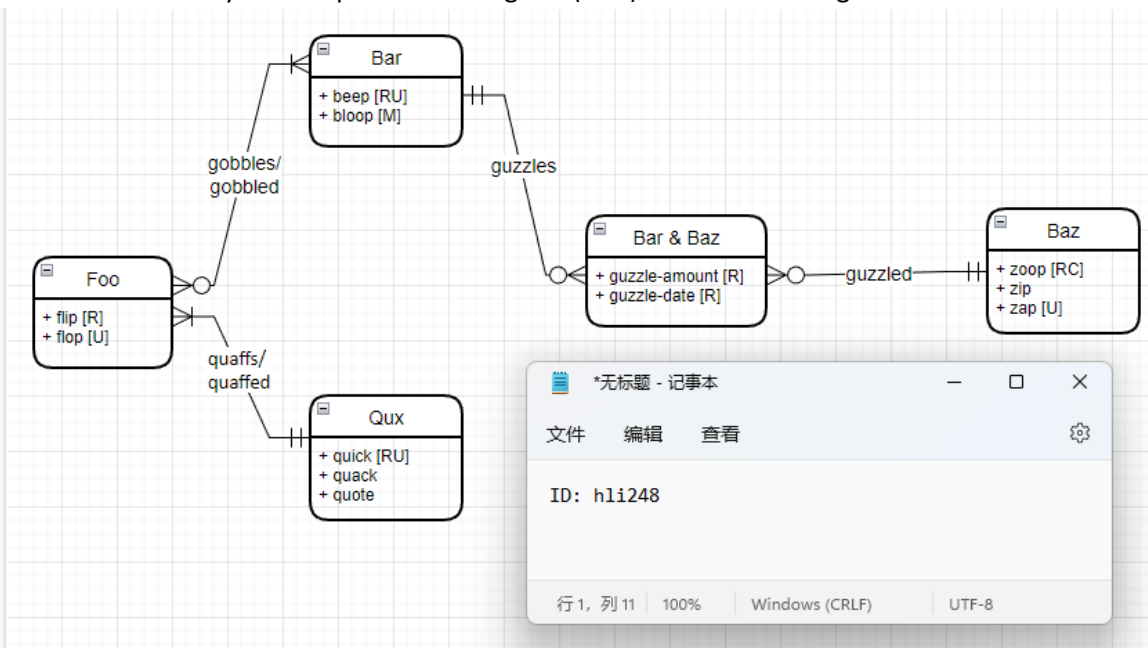
- If you feel the question is vague, include any assumptions you've made.
- If you feel the answer requires interpretation or justification provide it.
- If you do not know the answer to the question, articulate what you tried and how you are stuck.

This how you receive credit for answering questions which might not be correct.

## Questions

Answer these questions using the problem set submission template. You will need to provide a screen shot for each answer. Please follow the guidelines for submitting a screenshot.

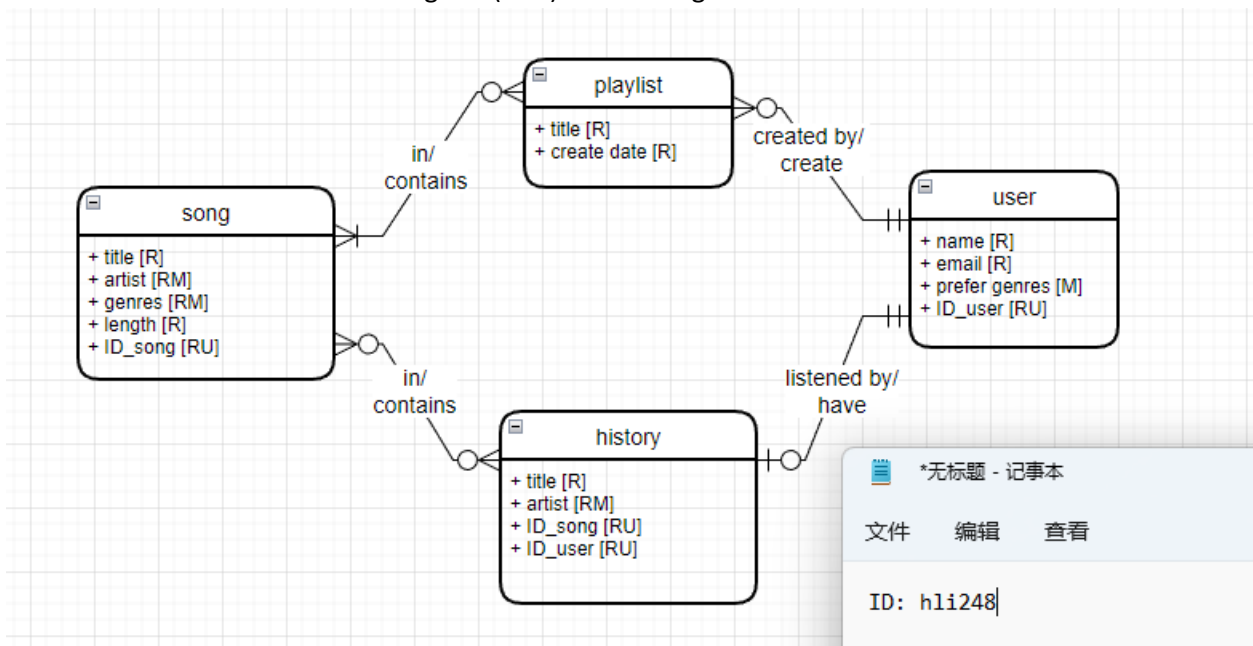
1. Provide a screenshot of your completed E-R Diagram (ERD) from Walkthrough Part 3.



2. Provide a screenshot of your E-R data requirements from Walkthrough Part 4.

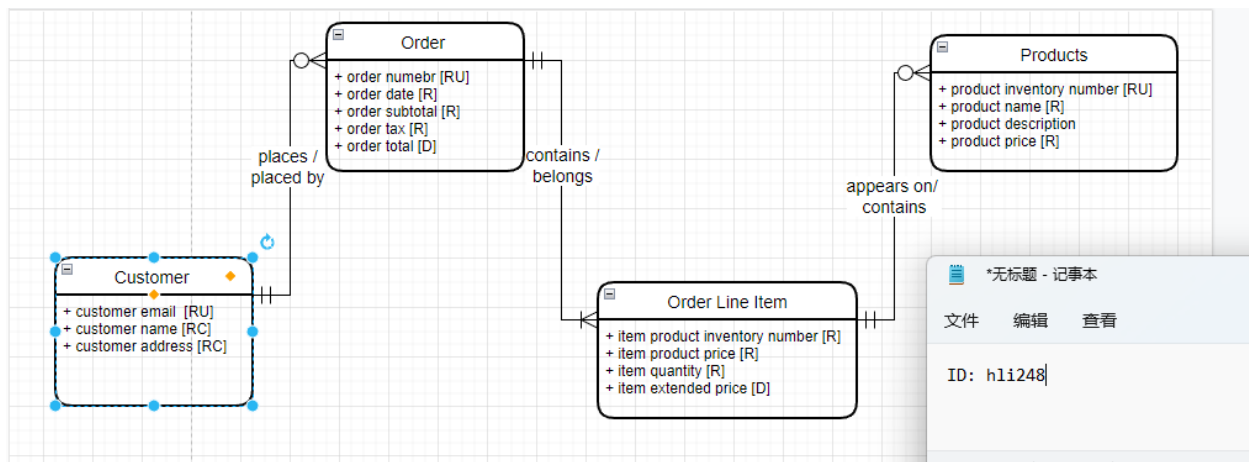
Entities and Attributes				Relationships					
Entity	Attribute	Props	Description	Relationship	Entity	Rule	Min	Max	Entity
user	name	R	user's name	user - playlist	<u>user</u>	create	0	Max	<u>playlist</u>
	email	R	user's email address		<u>playlist</u>	created by	1	1	
	prefer genres	M	user's prefer genres of the song	song - history	<u>song</u>	in	0	M	<u>history</u>
	ID_user	RU	user's unique ID (guess may need it)		<u>history</u>	contains	0	M	
playlist	title	R	name of the song	song - playlist	<u>song</u>	in	0	M	<u>playlist</u>
	create date	R	the date when list created		<u>playlist</u>	contains	1	M	
song	title	R	song's name	user - history	<u>user</u>	have	0	1	<u>history</u>
	artist	RM	artist of the song (may more than on people)		<u>history</u>	listened by	1	1	
	genres	RM	the genres that song belongs to						
	length	R	the time length of the song						
history	ID_song	RU	song's unique id (guess may need it)						
	title	R	name of the song						
	artist	RM	artist of the song (may more than on people)						
	ID_user	RU	user's unique ID (guess may need it)						

3. Provide a screenshot of the E-R Diagram (ERD) Walkthrough Part 4.



4. Draft an ERD from the following requirements. Try not to let your interpretation of the facts get into the way until **after you've drawn the diagram**. Once you have a diagram together, feel free to criticize and comment.
- Entities: customer, order, products, order line item
  - Attributes:
    - Customer: customer email – unique, required, customer name – composite, required, customer address – composite, required.
    - Order: order number – unique, required, order date – required, order subtotal – required, order tax – required, order total – derived

- iii. Products: product inventory number – required, unique, product name – required, product description, product price – required.
  - iv. Order Line Item: item product inventory number – required, item product price – required, item quantity – required, item extended price – derived.
- c. Relationships:
- i. A customer places 0 or more orders. An order is placed by 1 and only 1 customer.
  - ii. An order contains 1 or more line items. A line item belongs to 1 and only 1 order.
  - iii. A line item contains 1 and only 1 product, a product appears on 0 or more line items
- d. Other facts:
- i. You cannot have a line item without a product and an order.



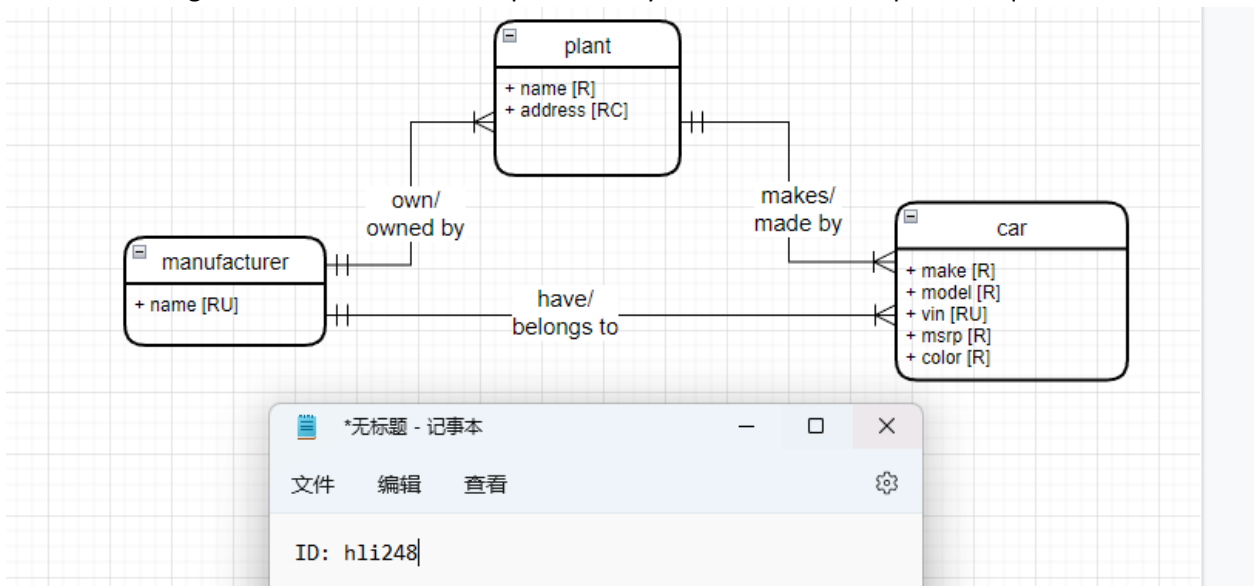
5. In this next example, I give you a list of data requirements, but they are not organized into entities, relationships, and attributes. You may have to make some assumptions to complete E-R Model.
- a. A car is made by only one manufacturer, but a manufacturer makes a lot of cars.
  - b. A car has a make, model, vehicle identification number (vin), msrp, and color.
  - c. A manufacturer has a name (which is unique and not always the same as the make).
  - d. A manufacturer has several plants where the cars are made. A plant is owned by just one manufacturer.
  - e. A car is produced at just one single plant. And a plant produces several cars.
  - f. A Plant has a name and address.
  - g. Only cars of a certain make are produced at certain plants. For example, plant "A" might produce makes "X", "Y", and "Z", while plant "B" might produce makes "W" and "Z" only.

Use a copy of the **Empty-ER-Data-Requirements** spreadsheet, provided with this lab, to enter your

data requirements. Provide a screenshot of your data requirements.

A	B	C	D	E	F	G	H	I	J	K	L
Entities and Attributes				Relationships							
Entity	Attribute	Props	Description		Relationship	Entity	Rule	Min	Max	Entity	
car	make	R			car - manufacturer	<u>car</u> <u>manufacturer</u>	belongs to	1	1	<u>manufacturer</u> <u>car</u>	
	model	R					have	1	Max		
	vin	RU									
	msrp	R									
	color	R			manufacturer - plant	<u>manufacturer</u> <u>plant</u>	own	1	M	<u>plant</u> <u>manufacturer</u>	
							owned by	1	1		
manufacturer	name	RU			plant - car	<u>car</u> <u>plant</u>	made by	1	1	<u>plant</u> <u>car</u>	
							makes	1	M		
plant	name	R									
	address	RC									

6. Draw an ER Diagram based on the data requirements you identified in the previous question.



7. In this last example, read the following paragraphs, identify the data requirements. Once more use a copy of the **Empty-ER-Data-Requirements** spreadsheet, provided with this lab, to enter your data requirements.

The XYZ consulting firm handles project management for its customers.

Customers have a name, address, phone, and one or more contacts (people who work for the company). Customers interact with XYZ through projects.

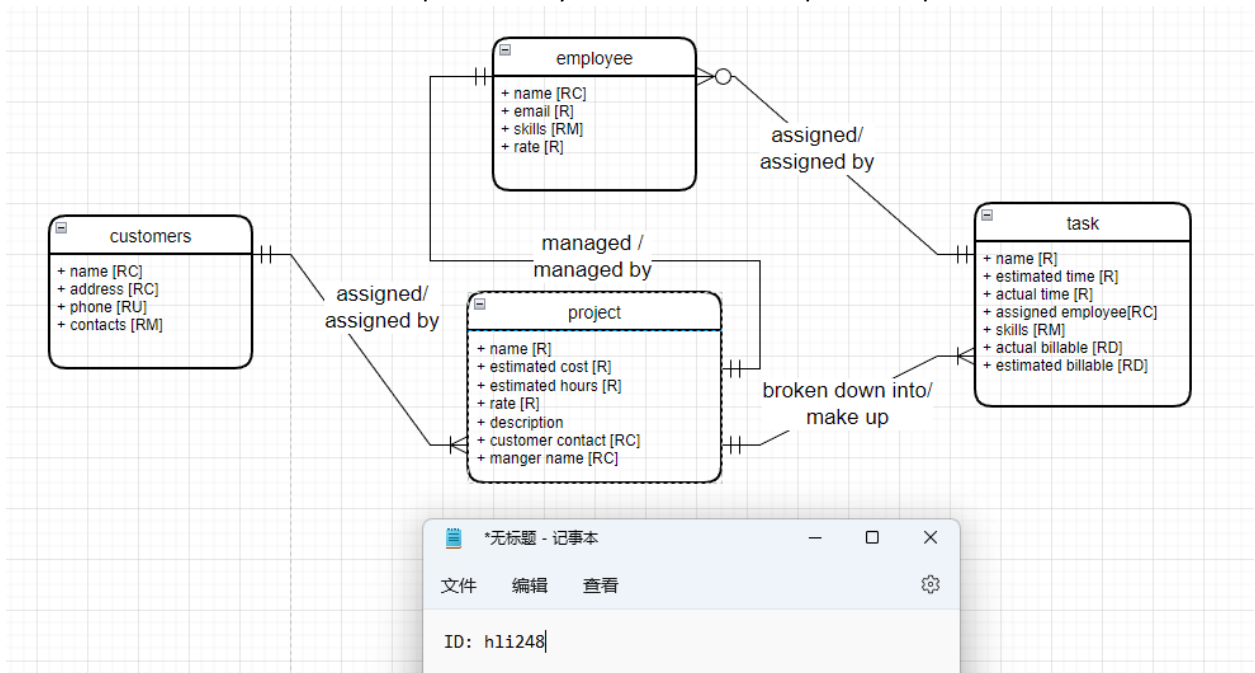
For any project there should be the name of the project the estimated cost, estimated hours, and an agreed-to billable hourly rate. There should also be an optional description for the project. There should be one customer contact assigned to the project.

Each project is broken down into tasks. Tasks have a name, estimated time to completion, actual time to completion, and assigned employee to the task. One employee is assigned to the project as the project manager. Tasks also contain a list of required skills to complete the tasks. An example of those skills might be database, systems admin, project management, web design, or programming to name a few.

XYZ employees have a name, email, set of skills (like the ones in tasks), and billable hourly rate. The estimated and actual billable amounts are derived from the employee's hourly rate and the task's estimated and actual time to completion these values should be stored with the task. Employees can work on more than one task and can be assigned to different tasks at the same time.

Entities and Attributes				Relationships				
Entity	Attribute	Props	Description	Relationship	Entity	Rule	Min	Max
customers	name	RC	customer's name	customers - project	customers	assigned	1	M
	address	RC	customer's address		project	assigned by	1	1
	phone	RU	customer's phone num					
	contacts	RM	customer's contacts (may more than one)					
project	name	R	project's name	project - task	project	broken down into	1	M
	estimated cost	R	project's estimated cost		task	make up	1	1
	estimated hours	R	project's estimated hours	project - employee	project	managed by	1	1
	rate	R	agreed-to billable hourly rate		employee	manages	1	1
	description		description for the project	task - employee	task	assigned by	0	M
	customer contact	RC	project's contactor (customer)		employee	assigned	1	1
	manger name	RC	project's manger name					
task	name	R	task's name					
	estimated time	R	task's estimated time					
	actual time	R	task's actual time					
	assigned employee	RC	employee assigned to task					
	skills	RM	task's required skills					
	actual billable	RD	actual billable pay rate based on employee's rate					
	estimated billable	RD	estimated billable pay rate based on employee's					
employee	name	RC	employee's name					
	email	R	employee's email					
	skills	RM	employee's skill					
	rate	R	employee's hour pay rate					

8. Draw an ERD based on the data requirements you identified in the previous question



## Reflection

Use this section to reflect on your learning. To achieve the highest grade on the assignment you must be as descriptive and personal as possible with your reflection.

1. What are the key things you learned through the process of completing this assignment?

2. What were the challenges or roadblocks (if any) you encountered on the way to completing it?

3. Were you prepared for this assignment? What can you do to be better prepared?

4. Now that you have completed the assignment rate your comfort level with this week's material. This should be an honest assessment: (choose one)

4 ==> I understand this material and can explain it to others.

3 ==> I understand this material.

2 ==> I somewhat understand the material but sometimes need guidance from others.

1 ==> I understand very little of this material and need extra help.