

CSE 3241 Project Checkpoint 01 – Entities and Relationships

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In a **NEATLY TYPED** document, provide the following:

1. Based on the requirements given in the project overview, list the entities to be modeled in this database. For each entity, provide a list of associated attributes.

Entities: CUSTOMER, BOOK, EMPLOYEE, AUTHOR, PUBLISHER, PRICE, CATEGORY, SUPPLIER, WAREHOUSE

Could category and price(purchase price, selling price and discount) be used as attributes?

Should we add Entity (transaction) to record the selling of books? which may include the selling price or discount information?

Attributes:

CUSTOMER: Membership_ID, Name, Gender, Age, Address, Phone, E-mail, Purchase_History

BOOK: ISBN#, Title, Edition, Series, Language, Product_Dimension, Pages, Weight, Quantity, year

EMPLOYEE: ID, Department, Position, Work_time, Name

AUTHOR: Name, Country_of_origin, Existing_books

PUBLISHER: Name, Country_of_origin, Publication_time, Founded, Founder, Publication_types, Official_website

PRICE: Currency, Selling_price, Discount, Buying_price

CATEGORY: Non-fiction, Biographies, Fiction, Reference, Others

2. Based on the requirements given in the project overview, what are the various relationships between entities? (For example, "CUSTOMER entities purchase BOOK entities").

CUSTOMER entities purchase BOOK entities

EMPLOYEE entities sell BOOK entities

AUTHOR entities write BOOK entities

PUBLISHER entities publish BOOK entities

BOOK entities have PRICE entities

BOOK entities have CATEGORY entities

EMPLOYEE entities control PRICE entities

CUSTOMER entities ask for PRICE entities

3. Propose at least two additional entities that it would be useful for this database to model beyond the scope of the project requirements. Provide a list of possible attributes for the additional entities and possible relationships they may have with each other and the rest of the entities in the database. Give a brief, one sentence rationale for why adding these entities would be interesting/useful to the stakeholders for this database project.

Entities: SUPPLIER, WAREHOUSE (Books need to be supplied to bookstores so that bookstores have books to sell to customers)

Maybe Branches or activities(like promotions or reading clubs)?

SUPPLIER: Name, Address, Phone

WAREHOUSE: Location, Books_stored

SUPPLIER entities have WAREHOUSE entities

WAREHOUSE entities store BOOK entities

EMPLOYEE entities contact SUPPLIER entities

4. Give at least four examples of some informal queries/reports that it might be useful for this database might be used to generate. Include one example for each of the additional entities you proposed in question 3 above. Retrieve the selling price of a database book.

List the names of the suppliers.

Search the publisher for a database book.

Retrieve a customer's book buying information.

Locate warehouse in which a particular book is stored

List of Biography books

List of books written by a particular author

Total salaries expense for all employees

Total revenue for books sold

5. Suppose we want to add a new publisher to the database. How would we do that given the entities and relationships you've outlined above? Given your above description, is it possible to add a new publisher to your database without knowing the title of any books they have published? If not, revise your model to allow for publishers to be added as separate entities.

Yes, since the publisher is a unique entity.

6. Determine at least three other informal update operations and describe what entities would need to have attributes altered and how they would need to be changed given your above descriptions. Include one example for each of the additional entities you proposed in question 3 above.

Change an employee's position.(Need to update EMPLOYEE entity)

Add another book.(Need to update BOOK entity and WAREHOUSE entity)

Enter a new customer's information. (Need to update CUSTOMER entity)

Edit a new discount on an existing book.(Need to update PRICE entity)

Remove a sold out book from the database.(Need to update BOOK entity and WAREHOUSE entity)

Switch to a new supplier.(Need to update SUPPLIER entity)

Update the storage of a warehouse.(Need to update WAREHOUSE and BOOK entity)

7. Provide an ER diagram for your database. Make sure you include all of the entities and relationships you determined in the questions above **INCLUDING the entities for question 3 above**, and remember that **EVERY** entity in your model needs to connect to another entity in the model via some kind of relationship.