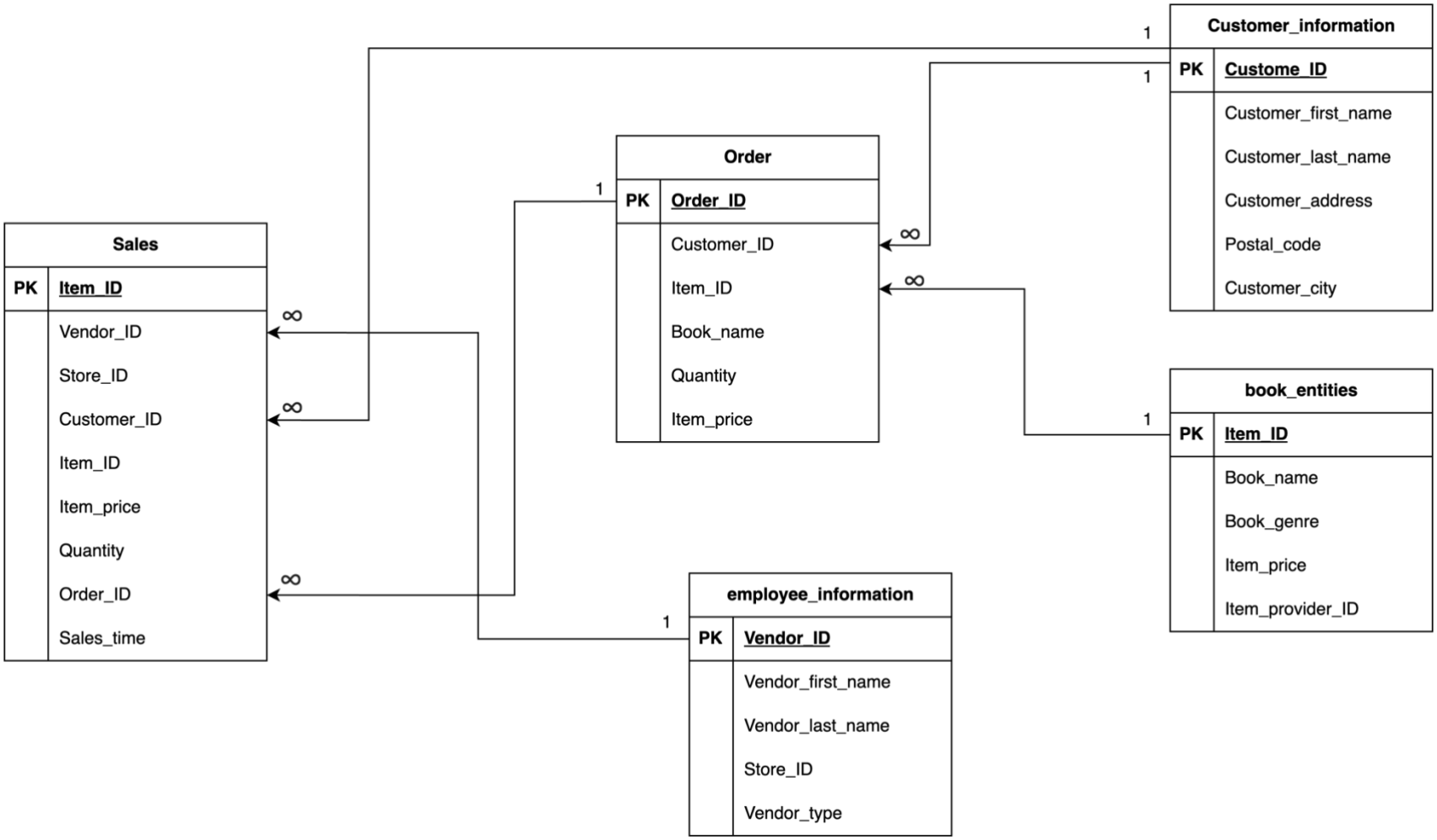
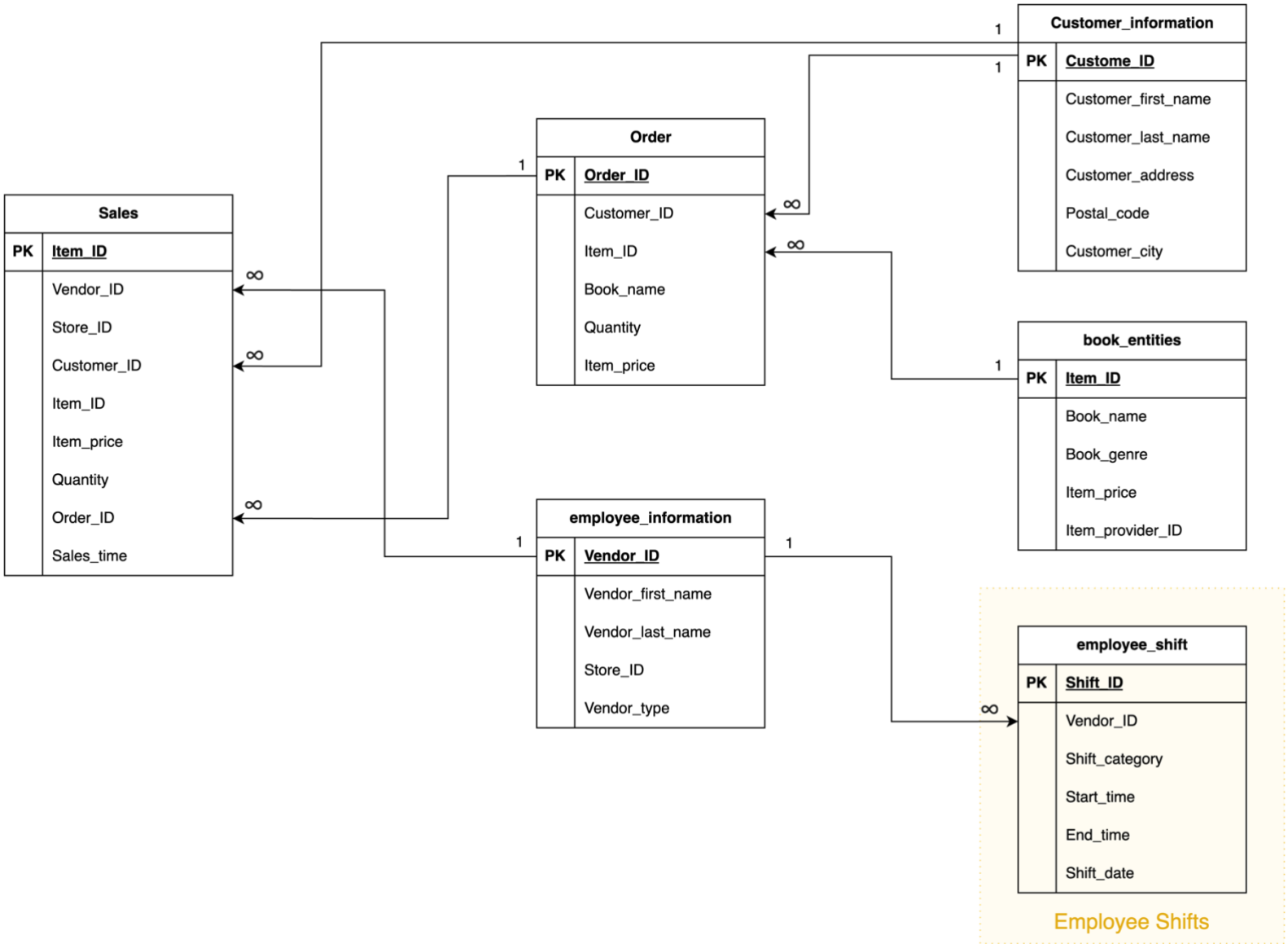
Assignment 1: Design a Logical Model

Question 1



Question 2


Customer_information
PK
Custome_ID
Customer_first_name
Customer_last_name
Customer_address
Postal_code
Customer_city
Order
PK
Order_ID
Customer_ID
Item_ID
Book_name
Quantity
Item_price
Sales
PK
Item_ID
Vendor_ID
Store_ID
Customer_ID
Item_ID
Item_price
Quantity
Order_ID
Sales_time
book_entities
PK
Item_ID
Book_name
Book_genre
Item_price
Item_provider_ID
employee_information
PK
Vendor_ID
Vendor_first_name
Vendor_last_name
Store_ID
Vendor_type
employee_shift
PK
Shift_ID
Vendor_ID
Shift_category
Start_time
End_time
Shift_date
Employee Shifts

Question 3

The store wants to keep customer addresses. Propose two architectures for the CUSTOMER_ADDRESS table, one that will retain changes and another that will overwrite. Which is type 1, which is type 2?

Customer_address
Type 1 SCD

Customer_address	
PK	Customer_ID
	Customer_address
	Customer city
	Postal_code
	Province
	Last_updated

Customer_address
Type 2 SCD

Customer_address	
PK	Customer_ID
	Customer_address
	Customer city
	Postal_code
	Province
	Address_start_date
	Address_end_date

Bonus: Privacy Implications

- **Type 1**: In this case, these privacy concerns are minimized since only the current address is stored, meaning less sensitive data is retained. However, securing this data properly and complying with retention policies is still crucial to avoid keeping unnecessary information.

- **Type 2:** this architecture can raise more significant privacy issues because it retains a history of past addresses, which could be seen as sensitive personal information. Regulations usually emphasize data minimization, so holding on to outdated addresses without a valid reason could be problematic. Additionally, customers might request that old data be deleted, which would require careful management.

Overall, the privacy policy must clearly state how long address data is kept, and strong security measures should be in place to safeguard personal information.

Question 4

Review the AdventureWorks Schema here. Highlight at least two differences between it and your ERD.

- The AdventureWorks OLTP Schema includes tables representing various areas of the company, which can be applied to larger databases and scaled to bigger production companies. This schema enables the distribution of data to achieve diverse objectives, such as cost control, inventory management, and ensuring compliance with human resources privacy policies.
- The AdventureWorks schema also includes information about the storage of payment methods, which represents a significant responsibility for the company. Ensuring secure handling of this sensitive information will require extra precautions, including robust encryption, compliance with data protection regulations, and regular audits.

Would you change anything in yours?

Something I would have liked to add to my ERD is a clear division by functional areas. This would make the diagram more intuitive for users or viewers, allowing them to easily identify different sections of the database, such as sales, inventory, and customer data. Such an approach would also reduce guesswork and improve efficiency when working with the database by making relationships and data flows more apparent.