

Data Entities

Carol Smith, a business analyst at Evergreen, has discussed with company's CTO Tim Beck about the details of information required for the new website. As a result, she has gathered the following information:

1. Customer Information

1. Customer Table

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	Customer ID	Number			Yes	Yes
2	E-mail	Text	10	64	Yes	Yes
3	Full name	Text	8	30	Yes	
4	Address	Text	10	128	Yes	
5	City	Text	3	32	Yes	
6	Country	Text	3	64	Yes	
7	Phone Number	Text	10	15	Yes	
8	Zip Code	Text	3	24	Yes	
9	Password	Text	8	16	Yes	
10	Register date	Date and time			Yes	

Visitors need to register as a customer to be able to post reviews and place order. A customer must provide the following information:

- Full name: text, 8-30 characters
- E-mail address: text, 10 to 64 characters
- Password: text, 8 - 16 characters
- Phone Number: text, 10-15 characters
- Address: text, 10-128 characters
- City: text, 3-32 characters
- Zip Code: text, 3-24 characters
- Country: text, 3-64 characters

A customer uses his email and password to login to the site. In addition, the system automatically assigns a unique customer ID and sets the register date for a new customer.

2. Category Information

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	Category ID	Number			Yes	Yes
2	Category Name	Text	5	30	Yes	Yes

A category is used to group books in a specific domain. An admin supplies category name, and the system automatically assigns a unique ID for a new category.

- Category name: text, 5-30 characters

3. Book Information

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	Book ID	Number			Yes	Yes
2	Title	Text	10	128	Yes	Yes
3	Author	Text	3	64	Yes	
4	Description	Text	200	2000	Yes	
5	ISBN	Text	10	15	Yes	
6	Image	Image			Yes	
7	Price	Float number			Yes	
8	Publish Date	Date			Yes	
9	Last Update Time	Date time			Yes	
10	<i>Category ID</i>	Number	<i>Foreign key to Category table</i>			

When an admin puts a new book onto the website, he must enter the following information:

- Category
- Title: text, 10-128 characters
- Author: text, 5-64 characters
- Description: text, 200-2000 characters

- ISBN number: text, 10-15 characters
- Thumbnail image: image data
- Price: float number, e.g. 32.99
- Publish date: date

In addition, the system automatically creates a unique ID and sets the last update time for a new book.

4. Customer's Review Information

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	Review ID	Number			Yes	Yes
2	<i>Book ID</i>	Number	<i>Foreign key to Book table</i>			
3	<i>Customer ID</i>	Number	<i>Foreign key to Customer table</i>			
4	Rating	Number				
5	Headline	Text	20	128	Yes	
6	Comment	Text	100	500	Yes	
7	Review Time	Date time				

A customer must provide the following information when writing a review for a particular book:

- Rating: number, ranging from 1 to 5
- Headline: text, 20-128 characters
- Comment: 100-300 characters

In addition, the system automatically associates the book and the customer with the review, and assigns a unique ID.

5. Order's Information

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	Order ID	Number			Yes	Yes
2	<i>Customer ID</i>	Number	<i>Foreign key to Customer table</i>			
3	Order Date	Date time			Yes	
4	Shipping Address	Text	20	256	Yes	
5	Recipient Name	Text	8	30	Yes	
6	Recipient Phone	Text	10	15	Yes	
7	Payment Method	Text	5	20	Yes	
8	Order Total	Float number				
9	Order Status	Text	5	20		

When a customer places an order, he or she can update the shipping information as below:

- Recipient name: same as customer's full name
- Recipient phone: same as customer's phone
- Street address: same as customer's address
- City: same as customer's city
- Zip Code: same as customer's zip code
- Country: same as customer's country

By default, the website fills the shipping information with the information provided by the customer at registration. And of course the customer can change it, e.g. in case of he or she wants to ship the books to different address.

Shipping address = Street address + City + Zip Code + Country

Order Detail Table (detail)

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	Order ID	Number	Foreign key to Book Order table			
2	Book ID	Number	Foreign key to Book table			
3	Quantity	Number			Yes	
4	Sub Total	Float number			Yes	

For each book added to the order, the customer must specify quantity (number of copies), and the website automatically calculates the subtotal for each book and the total for the whole order.

- quantity: integer number
- subtotal: float number
- total: float number

The system sets "Processing" status for every new order. The admin then can update this status to one of the following values: Shipping, Delivered, Completed, and Cancelled. The system also records the date and time when the order is placed.

- order status: text, 5-20 characters
- payment method: 5-20 characters

6. Admin's Information

No	Field Name	Data Type	Minimum length	Maximum length	Required	Unique
1	User ID	Number			Yes	Yes
2	E-mail	Text	10	64	Yes	Yes
3	Full Name	Text	8	30	Yes	
4	Password	Text	8	16	Yes	

An admin can create another admin user by providing the following information for a new user:

- E-mail address: text, 10 to 64 characters
- Full name: text, 8-30 characters
- Password: text, 8 - 16 characters

The system automatically assigns a unique ID for every new user.

entity relationship diagram :

