

Introduction to Database Systems

EDU STORE

ER DIAGRAM Report

Team Number: 3

Team Members:

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2) Project Description:

Our project is handling the problems of the engineering and architecture students and some other school students in the matter of buying educational tools and the process of printing and the other activities done in the previous fields mentioned. When meeting some Architecture students , they complained from the long waiting hours during their projects to be printed or modeled and also suffered from the availability of some professional tools in the normal stationeries and libraries. They needed some method to help them manage their projects and activities and its reservation also their tools and equipment purchase in a professional and very organized way.

Fortunately , we are planning to make a windows application that may help these students and anyone who might be interested in that field . Our project simply is a windows application that connects the customers(students and others) with the libraries and stationeries to manage the material purchase and checking , as well as connecting them with the printing places and the studios that handle their projects and activities. In addition , we connect those admins with some delivery companies to allow a feature for helping some students save more time and effort. The type of users and the functionalities that they can do and the entities that we are we going to involve in our project will be discussed more in the following report.

3) a-USERS:

- 1)Students (Customers)
- 2)Admins
- 3) Stores
- 4)Employees

b-FUNCTIONALITIES:

A) Students (Customers):

- 1) login
- 2) sign up
- 3) view products
- 4) view books
- 5) buy products
- 6) buy books
- 7) check for availability
- 8) check for discounts
- 9) view stores
- 10) choose way to obtain products and payment
- 11) printing reservations
- 12) change password
- 13) update information

B) stores:

- 1) Declare sales
- 2) View orders
- 3) Set price
- 4) Check for nearest supplies
- 5) Update store information
- 6) Login
- 7) Collect payments
- 8) Assign order to employees
- 9) Add/delete employees
- 10) Add products

c)Admin:

- 1)add store
- 2)remove store
- 3)add admin
- 4)remove admin
- 5)assign printing orders
- 6)update password
- 7)login

d)Employees:

- 1)deliver orders
- 2)Add payments
- 3)view orders assigned to him
- 4)change his password
- 5)login

Entities Description:

1) Client :

The client is the most important entity in the whole application and the target of it. The client can add or remove products, make printing orders and rent book. The orders are delivered, and the customer should pay for them.

2) Store :

The store is the second main entity in the application. They are the suppliers for the products sold within the app. Some stores offer the printing service for clients, and there are stores that offer renting books. The store updates its products state as some products can be newly added while others can be sold out.

3) Employee :

The employee works in the stores. The employee can be the manager, the delivery man or the order preparation employees.

4) Product :

It is the item supplied by stores and bought by clients.

5) Department :

The products are categorized inside the application under several departments to which they belong. Example is Electronics for ICs and chips while architecture category for drawing tools.

Moreover, there is a public category under which pens, pencils, rulers and other stuff are inserted.

6) Book :

The user has the option to rent books offered by certain stores. Rented books must be returned on certain date specified on each renting order.

7) Printing :

The client can also make a printing order where he can specify all his needs like the number of copies, the color style, size of papers so he can control the printing process from A to Z to meet the standards he needs.

8) Shopping Cart:

Every customer has a temporary virtual shopping cart where he can remove or add desired items to it. The items can be rented books, store products or the printing orders.

(Weak Entity)

9) Order :

After the customer finishes adding and removing items in the shopping cart and is ready to confirm the purchase, all the contents in the shopping cart are removed from it and added to an order to proceed with the purchase. The stores checks orders to prepare and ship them.

(Weak Entity)

10) Sales :

The application adds an additional functionality for the stores as they enable store owners to add promotions and discounts on their products in the form of X0% of the original price.

11) Payment :

The customer cannot receive his order unless he pays for it. The store offers 3 methods of payment

- 1) By credit card
- 2) On doors
- 3) By virtual points system

Every product in the store has a price by points by which the customer can buy this product besides the physical price and reward points that are given to the customer who buys this product. The points accumulate in the customer's wallet so that he can use them to make any future purchases.

Relations Description:

- 1) Employee –Manages-> Store(1:1)
Every store is managed by an employee called manager.
- 2) Employee –Works for-> Store(N:1)
Every Store has employees working for it.
- 3) Employee –Deliver-> Order (1:N)
Orders are delivered by employees working for the stores
- 4) Store –Owns-> Products(1:N)
Every product belongs to a store.
- 5) Product –Removed/Added to-> Shopping Cart (N:M)
Required products are added or removed from shopping cart waiting for confirmation.
- 6) Printing Order –Removed/Added to-> Shopping Cart(N:1)
Required printing requests are added or removed from shopping cart waiting for confirmation.
- 7) Book –Removed/Added to-> Shopping Cart(N:1)
Required rented books are added or removed from shopping cart waiting for confirmation.
- 8) Client –Views-> Products(N:M)
Clients have the possibility to navigate and preview products
- 9) Client –Request-> Printing order(N:M)
Client chooses the specifications he need for the printing and add his request
- 10) Client –Orders-> Product(N:M)
Client chooses the product he need and orders it to be added to shopping cart
- 11) Client –Rents-> Books(N:M)
Client chooses books he needs to rent
- 12) Product –Belong To-> Department(N:1)
Each department contains products related to it
- 13) Client –Pays -> Payment(1:N)
Client pays for the order he ordered to receive it.
- 14) Promotion –Offered on-> Department(N:M)
Managers of stores offer promotions on certain departments they want
- 15) Employee –Collects -> Payment(N:M)
Delivery guy collects payments of orders to confirm receiving of it.
- 16) Client –Confirm-> Shopping Cart -> Order(1:1:N)
When client confirms his shopping cart all its contents are emptied in the Order.