



Gisma University
of Applied Sciences

Assessment Submission Form

Student Number (If this is group work, please include the student numbers of all group participants)	GH1032076
Assessment Title	Order Management System
Module Code	M605
Module Title	Advanced Databases
Module Tutor	Mr. Alireza Mahmoud
Date Submitted	03-July-2024

Declaration of Authorship

I declare that all material in this assessment is my own work except where there is clear acknowledgement and appropriate reference to the work of others.

I fully understand that the unacknowledged inclusion of another person's writings or ideas or works in this work may be considered plagiarism and that, should a formal investigation process confirm the allegation, I would be subject to the penalties associated with plagiarism, as per GISMA Business School, University of Applied Sciences' regulations for academic misconduct.

Signed...AKANKSHA MAHAJAN

Date ...-03-JULY-2024

Order Management System

Abstract:

This presents the comprehensive design and implementation of database schema for an e-commerce platform which is operating as an online shop and providing their services across Europe. Their aim is to enhance the efficiency of various aspects with the help of product, customer, order, supplier, inventory management and many other factors like these.

Introduction:

In the dynamic business sector, e-commerce plays a key role which helps many companies across the globe to establish their business through online platforms. As E-Commerce breaks the barriers of geographical factors allowing business to reach many parts of the world. Online shopping also provides the stability that physical stores cannot handle with affecting their infrastructure costs. Moreover, it provides benefits in terms of convenience, customer management, cost effecting, various varieties.

Problem Statement:

E-commerce might be getting high praise but there are certain factors which can be overlooked such as the need for a secure system to store the personal information of customers and the payment methods they use at that instance. Apart from that, maintaining inventory to ensure product availability, tracking and delivering of products to customers can be delayed due to unforeseen circumstances.

Solution:

To enhance the operational businesslike nature of shopping platforms and meet the needs of customers the solution is to streamline and optimize the order product management. This can be done by structuring tables for customers, products, suppliers, order items and many others. We can also use triggers along with this which can be useful for inventory updates or customer login. Eventually, the implementation of this can boost the company goals of stability, operational tasks and maintaining competitiveness in the e-commerce sector.

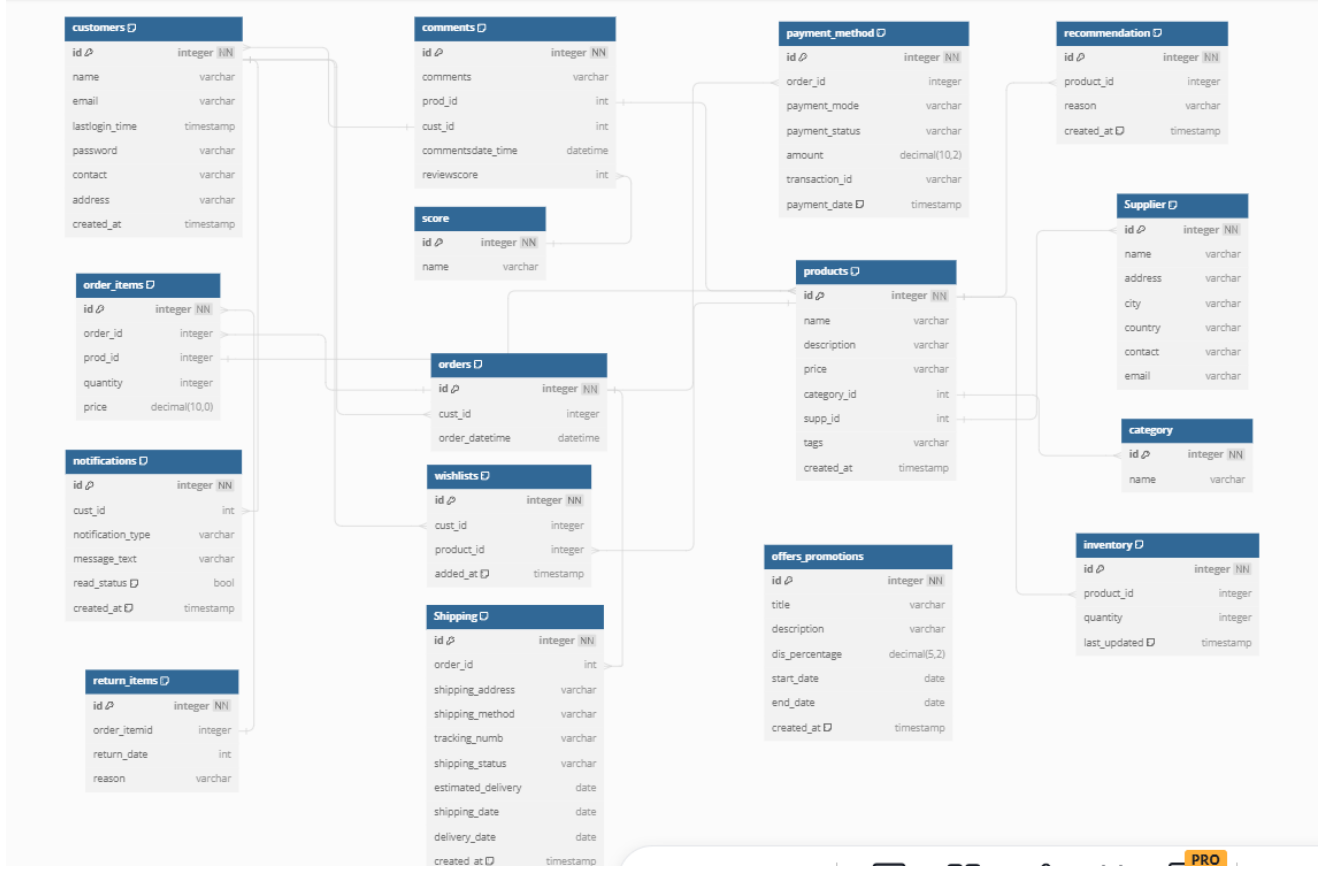
Code Explanation:

Database Schema Structure

- Customers – This was created to store customer information including first, last name, telephone number, login details.
- Products – Product catalog was created to store detailed information about name, price, supplier id, description.
- Supplier – This helps in managing various relationships with suppliers and the products they are purchasing.
- Orders – Orders were implemented to enhance the customers' orders and manage their return items efficiently.

- Order items – This includes the data regarding the product which is in everyone ordered item.
- Shipping- In this it includes tracking numbers, shipping status & address which helps the customer with delivery and manages the logistics of delivering it to customers.
- Return items – This helps in managing product return and improves customer service.
- Wishlist – Wishlist allows customers to save the items for their future purchases by reminding them to buy it later.
- Category- This organizes products into different categories which is easier for user to locate them.
- Comments- This table stores customers' reviews regarding the quality of product whether the customer is satisfied with it or not.
- Inventory- This is a pivotal point which helps to tracks the quantity of products to avoid its shortage or out of stock.
- Notifications- This manages alerts and messages sends to customers regarding their order confirmation or shipping status.
- Offers& Promotions- This table stores information about great deals and offers which can be provided to customers as it helps in managing marketing.
- Payment Method – This table stores data about the transaction id and the mode of the payment such as master card, PayPal.
- Recommendation- This table helps to recommend products to customers based on their recent purchase which improves their shopping experience as well.

Implementation:



Report:

- Detail information about suppliers and the number of products that they provide

```
SELECT
    s.name AS supplier_name,
    s.address,
    s.contact,
    COUNT(p.id) AS product_count
FROM
    supplier s
LEFT JOIN
    products p ON s.id = p.supp_id
GROUP BY
    s.id;
```

+ Options			
supplier_name	address	contact	product_count
Pan Kitchen	Ram Nagar 12	9876579277	5
kitchen essentials	Kitchlu Nagar 10	1234567890	5
Mom's Kitchen	Sangar Bazar 9	+98483583700	6
Ghar ka Sawad	78 Wellnes Road	+348877665544	7
home cooked	vivek bhawan 2	+324789497	0
chai wala	hotroom 67	+92774899474	0
Pan Degli	stugatter platz	+49873784994	0
Amrit	brandtor22	+363873897849	0
Paan	annad bhawan 36	9776648946	0
Malhi Cusinie	main road 25	+9186784648	0

- Best-selling products with the total amount and their supplier

```
select co.prod_id 'Product Id',p.name 'Product Name',s.name 'Supplier Name',sum(oi.price) 'Total Amount', sc.name from comments co join products p on co.prod_id=p.id join order_items oi on oi.prod_id= p.id join supplier s on s.id = p.supp_id join score sc on sc.id=co.reviewScore where sc.id = 5 group by oi.prod_id;
```

+ Options				
Product Id	Product Name	Supplier Name	Total Amount	name
7	Microwave Oven	kitchen essentials	300	best
11	Air Fryer	Mom's Kitchen	290	best
12	Induction Cooktop	Mom's Kitchen	110	best
17	Chai Maker	Ghar ka Sawad	41	best
22	Kadai	Ghar ka Sawad	400	best

- List of customers and their total purchases

```
SELECT
  c.id AS Customer_ID,
  c.name AS Customer_Name,
  c.email AS Customer_Email,
  c.contact AS Customer_Contact,
  c.address AS Customer_Address,
  SUM(oi.quantity * oi.price) AS Total_Purchases
FROM
  customers c
JOIN
  orders o ON c.id = o.cust_id
JOIN
  order_items oi ON o.id = oi.order_id
GROUP BY
  c.id, c.name, c.email, c.contact, c.address
ORDER BY
  Total_Purchases DESC;
```

+ Options

Customer_ID	Customer_Name	Customer_Email	Customer_Contact	Customer_Address	Total_Purchases
1	Emily Johnson	emily.johnson@example.com	9876543212	789 Oak Lane, Ogdenville	11200
2	Michael Brown	michael.brown@example.com	9876543213	101 Pine Road, North Haverbrook	4600
7	GURjinder	bhullar22@gmail.com	9876745356	sugar mill 22 paathankot	2320
10	Sabrina	piera44@gmail.com	889876589	siedelmeisterwg36	1795
4	kazim	kanjfk@gmail.com	987886542	karachi 23 pak	1320
5	Anchal	thakur2@gmail.com	883886478	kala manj mukerian	287

- List of returned items

```
SELECT p.name AS Product_Name, c.name AS Customer_Name, ri.reason AS Return_Reason
FROM return_items as ri JOIN order_items as oi
ON ri.`order_item_id` = oi.id JOIN orders as o
ON oi.order_id = o.id JOIN products as p
ON oi.prod_id = p.id JOIN customers as c
ON o.cust_id = c.id;
```

Product_Name	Customer_Name	Return_Reason
Deep Fryer	Emily Johnson	Wrong item shipped
Silicone Spatula	Michael Brown	Item not as described
Kadai	Michael Brown	Changed mind
Rotimatic	Emily Johnson	Item arrived late
Rotimatic	Emily Johnson	Better price available elsewhere
Microwave Oven	Emily Johnson	Product damaged in shipping
Deep Fryer	Emily Johnson	Item not needed anymore
Ceramic Baking Dish	Michael Brown	Ordered by mistake
Air Fryer	GURjinder	misising items
Induction Cooktop	kazim	arrived too late
Chai Maker	Anchal	changed my mind

- List of products in the “kitchen” category that were sold last month

```
SELECT
  p.name AS Product_Name,
  c.name AS Category_Name,
  SUM(oi.quantity) AS Quantity_Sold, o.order_datetime as 'Previous Month'
FROM products p
JOIN order_items oi ON p.id = oi.prod_id
JOIN orders o ON oi.order_id = o.id
JOIN category c ON p.category_id = c.id
WHERE c.name = 'kitchen' AND o.order_datetime BETWEEN DATE_SUB(CURDATE()),
INTERVAL DAYOFMONTH(CURDATE())-1 DAY) - INTERVAL 1 MONTH AND
LAST_DAY(DATE_SUB(CURDATE(), INTERVAL 1 MONTH))
```

+ Options

Product_Name	Category_Name	Quantity_Sold	Previous Month
Ceramic Baking Dish	Kitchen	3	2024-06-12 16:48:06

Triggers:

Triggers are used in a critical way in databases for real time monitoring, tracking and login information.

Trigger	Event	Table	Statement	Timing	Created	sql_mode	Definer	character_set_client	collatio
customer_trigger	UPDATE	customers	IF NEW.lastlogin_time <> OLD.lastlogin_time THEN ...	AFTER	2024-06-28 16:24:38.19	NO_ZERO_IN_DATE,NO_ZERO_DATE,NO_ENGINE_SUBSTITUTIO...	root@localhost	utf8mb4	utf8mb4
Inventory_update_trigger	INSERT	order_items	UPDATE inventory SET quantity = quantity - NE...	AFTER	2024-06-28 16:22:53.09	NO_ZERO_IN_DATE,NO_ZERO_DATE,NO_ENGINE_SUBSTITUTIO...	root@localhost	utf8mb4	utf8mb4
product_return	INSERT	return_items	INSERT INTO return_items (order_item_id, return da...	AFTER	2024-06-28 16:31:05.91	NO_ZERO_IN_DATE,NO_ZERO_DATE,NO_ENGINE_SUBSTITUTIO...	root@localhost	utf8mb4	utf8mb4

Views:

- categoryview:** CREATE VIEW `categoryview` AS SELECT `p`.`name` AS `Product_Name`,
`c`.`name` AS `Category_Name`, sum(`oi`.`quantity`) AS `Quantity_Sold` FROM (((`products` `p`
join `order_items` `oi` on(`p`.`id` = `oi`.`prod_id`)) join `orders` `o` on(`oi`.`order_id` = `o`.`id`))
join `category` `c` on(`p`.`category_id` = `c`.`id`)) GROUP BY `p`.`id`, `p`.`name`, `c`.`name`
ORDER BY sum(`oi`.`quantity`) DESC ;

+ Options

Product_Name	Category_Name	Quantity_Sold
Rotimatic	washing	15
Induction Cooktop	electronics	12
Microwave Oven	Kitchen	12
Air Fryer	electronics	8
Kadai	washing	8
Chai Maker	washing	7
Deep Fryer	electronics	6
Ceramic Baking Dish	Kitchen	3
Silicone Spatula	Kitchen	2

v	oms categoryview
Product_Name	: varchar(100)
Category_Name	: varchar(100)
Quantity_Sold	: decimal(32,0)

- customerordersdetails:** CREATE VIEW `customerordersdetails` AS SELECT `c`.`id` AS
`Customer_ID`, `c`.`name` AS `Customer_Name`, `c`.`email` AS `Customer_Email`, `c`.`contact`
AS `Customer_Contact`, `c`.`address` AS `Customer_Address`, sum(`oi`.`quantity` * `oi`.`price`)
AS `Total_Purchases` FROM ((`customers` `c` join `orders` `o` on(`c`.`id` = `o`.`cust_id`)) join
`order_items` `oi` on(`o`.`id` = `oi`.`order_id`)) GROUP BY `c`.`id`, `c`.`name`, `c`.`email`,
`c`.`contact`, `c`.`address` ORDER BY sum(`oi`.`quantity` * `oi`.`price`) DESC ;

+ Options

Customer_ID	Customer_Name	Customer_Email	Customer_Contact	Customer_Address	Total_Purchases
1	Emily Johnson	emily.johnson@example.com	9876543212	789 Oak Lane, Ogdenville	11200
2	Michael Brown	michael.brown@example.com	9876543213	101 Pine Road, North Haverbrook	4600
7	GURjinder	bhullar22@gmail.com	9876745356	sugar mill 22 paathankot	2320
10	Sabrina	piera44@gmail.com	889876589	siedelmeisterwg36	1795
4	kazim	kanjfk@gmail.com	987886542	karachi 23 pak	1320
5	Anchal	thakur2@gmail.com	883886478	kala manj mukerian	287

oms customerordersdetails
Customer_ID : int(11)
Customer_Name : varchar(100)
Customer_Email : varchar(100)
Customer_Contact : varchar(100)
Customer_Address : varchar(100)
Total_Purchases : decimal(42,0)

- order_details:** CREATE VIEW `order_details` AS SELECT `o`.`id` AS `order_id`,
`o`.`order_datetime` AS `order_datetime`, `c`.`name` AS `customer_name`, `p`.`name` AS
`product_name`, `oi`.`quantity` AS `quantity`, `oi`.`price` AS `price` FROM (((`orders` `o` join
`customers` `c` on(`o`.`cust_id` = `c`.`id`)) join `order_items` `oi` on(`oi`.`order_id` = `o`.`id`))
join `products` `p` on(`oi`.`prod_id` = `p`.`id`));

		order_id	order_datetime	customer_name	product_name	quantity	price
<input type="checkbox"/>	Edit Copy Delete	2	2024-06-12 16:48:06	Michael Brown	Ceramic Baking Dish	3	300
<input type="checkbox"/>	Edit Copy Delete	1	2024-05-15 16:47:36	Emily Johnson	Deep Fryer	1	100
<input type="checkbox"/>	Edit Copy Delete	3	2024-05-24 16:48:06	Michael Brown	Silicone Spatula	2	250
<input type="checkbox"/>	Edit Copy Delete	3	2024-05-24 16:48:06	Michael Brown	Kadai	8	400
<input type="checkbox"/>	Edit Copy Delete	4	2024-06-12 16:48:06	Emily Johnson	Rotimatic	15	500
<input type="checkbox"/>	Edit Copy Delete	1	2024-05-15 16:47:36	Emily Johnson	Microwave Oven	12	300
<input type="checkbox"/>	Edit Copy Delete	8	2024-06-25 16:22:30	Anchal	Chai Maker	7	41
<input type="checkbox"/>	Edit Copy Delete	10	2024-06-25 16:22:30	Sabrina	Deep Fryer	5	359
<input type="checkbox"/>	Edit Copy Delete	9	2024-06-25 16:22:30	GURjinder	Air Fryer	8	290
<input type="checkbox"/>	Edit Copy Delete	5	2024-06-25 16:22:30	kazim	Induction Cooktop	12	110

oms order_details
order_id : int(10)
order_datetime : datetime
customer_name : varchar(100)
product_name : varchar(100)
quantity : int(10)
price : decimal(10,0)

Conclusion:

In this the importance of a well-designed order management system can be served as a crucial role in business world. By continuing to refine the system we can maintain a competitive edge for e-commerce platforms. As it can also serve as a blueprint for other organizations to optimize their business ideas as these strategies and methodologies can help them out for their future sales.

GIT Repository Link

<https://github.com/akanksham007/M605AdvanceDatabase/>