

# **DBMS PROJECT**

## **INVENTORY MANAGEMENT SYSTEM**

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# PROBLEM STATEMENT

- Businesses struggle with manual inventory management, leading to Stockouts (lost sales, unhappy customers)
- Overstocks (increased storage costs)
- Inefficiencies (wasted time and resources)

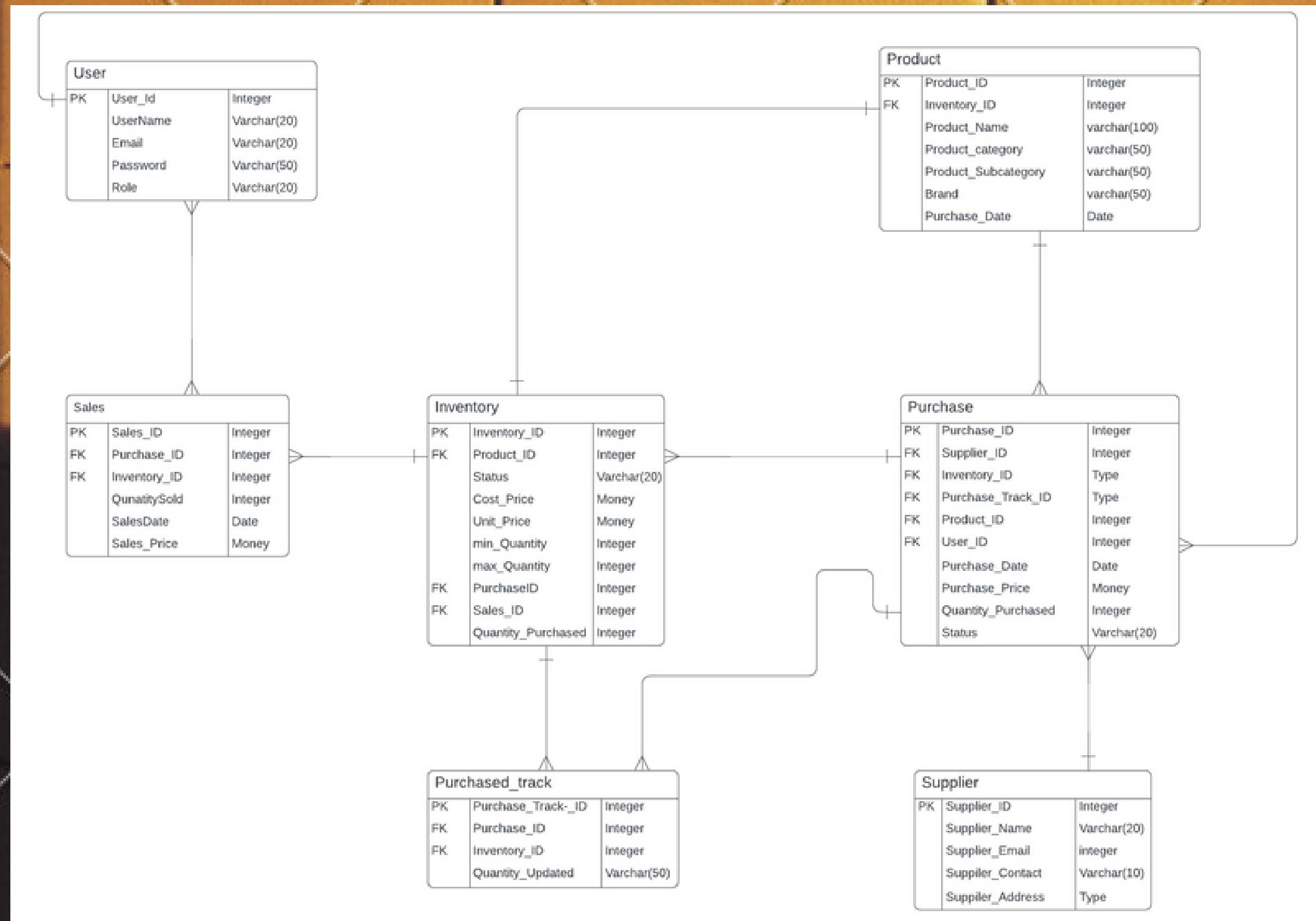


# PROBLEM SOLUTION

- Develop a comprehensive inventory management system to track the inventory.
- Improve accuracy
- Enhance decision-making



# ER DIAGRAM



# DATABASE TABLES



30 \* connect;

31

32 \* Show databases;

33

34

35 \* SHOW TABLES;

36

37

Tables\_in\_inventory\_management\_system

- inventory
- product
- purchase
- purchase\_track
- sales
- supplier
- user

product 13

SupplierTable\* ProductTable\* SalesTablr PurchaseTable InventoryTable PurchaseTrack select queries

18

19

20 \* select \* from product;-- where lower(brand) = 'acer';

21

22

23

24

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

	product_id	inventory_id	product_name	product_category	product_subcategory	brand	purchase_Date
▶	1	1001	GTR-XB90 Bluetooth Speaker	Wireless Speakers,Powered Speakers,Portable ...	Bluetooth Speakers	Sony	2022-02-23
	2	1002	Samsung Radiant360 R1 Wi-Fi/Bluetooth Speak...	Wireless Speakers,Powered Speakers,Portable ...	Bluetooth Speakers	Samsung	2023-10-15
	3	1003	Next-Generation ARRIS SURFboard SB8200 DO...	USB-to-VGA Adapters, Adapters,Computer Cabl...	Cable	Arris	2021-08-13
	4	1004	PDWM1904 Single-Channel Wireless System wit...	Microphones, Audio, Headphones & Accessories...	Microphones	Pyle Pro	2023-09-03
	5	1005	Zmodo Hd Wifi Home Security Camera Twoway ...	Wireless,Home Safety and Security	Safety & security	Zmodo	2022-04-19
	6	1006	HEOS 5 Wireless Speaker System (Series 2, Whi...	Wireless Speakers,Powered Speakers,Portable ...	Bluetooth Speakers	Denon	2023-05-11
	7	1007	Sony - High Power XB60 Portable Bluetooth Spe...	Wireless Speakers,Powered Speakers,Portable ...	Bluetooth Speakers	Sony	2021-04-05
	8	1008	Definitive Technology - W9 Dual 5-1/4 180W 2...	Wireless Speakers,Powered Speakers,Portable ...	Bluetooth Speakers	Definitive Technology	2021-08-06
	9	1009	Google Daydream View - VR Headset (Slate)	Microphones, Audio, Headphones & Accessories...	Headset	Google	2023-12-01
	10	1010	Turtle Beach Ear Force Recon 320 7.1 Surround...	Microphones, Audio, Headphones & Accessories...	Headset	Turtle Beach	2023-02-05
	11	1011	Onkyo - TX 7.2-Ch. Network-Ready A/V Home T...	LED & LCD TVs, Home Theater, OLED TV	Home theatre	Onkyo	2023-06-11
	12	1012	Hoya - EVO 77mm Antistatic UV Super Multicoat...	Digital Camera Accessories	Lens	HOYA	2022-05-08
	13	1013	Details About [genuine National] Sealed Gaming...	Microphones, Audio, Headphones & Accessories...	Headset	Steelseries	2022-05-02
	14	1014	Apple MD825AM/A Lightning to VGA Adapter for...	USB-to-VGA Adapters, Adapters,Computer Cabl...	Adapter	Apple	2022-11-17
	15	1015	Galaxy Note 8 SM-N950U 64GB Smartphone (Un...	Mobile Phones, Mobile Accessories, Charger	Mobile Phone	Samsung	2021-10-14

# DATABASE TABLES



SupplierTable\* x ProductTable SalesTablr PurchaseTable InventoryTable Purchaser

Limit to 1000 rows

```
18
19
20
21
22
23 • select * from user;
24
```

Result Grid | Filter Rows: [ ] | Edit: [ ] | Export/Import: [ ] | Wrap Cell Content: [ ]

	id	username	email	password	role
1	peterwells	peter.wells@example.com		user3password	inventory manager
2	marysmith	mary.smith@example.com		admin2password	admin
3	michaeljones	michael.jones@example.com		admin3password	admin
4	johndoe	john.doe@example.com		admin1password	admin
5	davidwilson	david.wilson@example.com		systemuser1password	system user
6	emilyjackson	emily.jackson@example.com		systemuser2password	system user
7	chrisbrown	chris.brown@example.com		systemuser3password	system user
8	lisamartin	lisa.martin@example.com		inventorymgr1password	inventory manager
9	briancarter	brian.carter@example.com		inventorymgr2password	inventory manager
10	sarahwhite	sarah.white@example.com		inventorymgr3password	inventory manager
11	jackward	jack.ward@example.com		user1password	admin
12	amyhall	amy.hall@example.com		user2password	system user
NUL	NUL	NUL		NUL	NUL

Limit to 1000 rows

```
16
17 • select * from supplier;
18
19
20
21
22
```

Result Grid | Filter Rows: [ ] | Edit: [ ] | Export/Import: [ ] | Wrap Cell Content: [ ]

Supplier_ID	Supplier_Name	Supplier_Email	Supplier_Contact	Supplier_Address
1	DealClock	dealdclock.com	(440) 355-8008	280 Opportunity Way, Lagrange, OH 44050
2	Steelseries	steelseries.com	(929) 890-4577	656 W Randolph Street Suite 2E, Chicago, Illinois...
3	Bestbuy	bestbuy.com	(888) 237-8289	531 5th Ave, New York, NY 10017
4	Zoneusa	zoneusa.com	(917) 283-2375	7531 Bergenline Ave, North Bergen, NJ 07047
5	Firewall LLC	firewallllc.com	(845)352-0958	1014 Stanley Ave Brooklyn, NY, 11208-5234
6	Electronic Express	homeinstallelectronicexpress.com	(615) 346-1415	418 Harding Industrial Dr, Nashville, TN 37211
7	Beach Camera	customerservicebeachcamera.com	(800) 572-3224	80 Carter Dr 2, Edison, NJ 08817
8	Bhphoto Video	bhphotovideo.com	(999) 456-7890	420 9th Ave, New York, NY 10001
9	Jpkovacic	jpkovacic.com	(678) 909-5678	135 Willow St, Brownsville, PA 15417
10	turtlebeach_inc	turtlebeach_inc.com	(898) 778-9009	12220 Scripps Summit Dr 100, San Diego, CA 92...
11	Walmart	servicewalmartcontacts.com.	(614) 534-1996	500 Bayonne Crossing Way, Bayonne, NJ 07002
12	shipfast2day	infogcaptain.com	(889) 909-4566	821 CAMBRIDGE CROSS PL LAS VEGAS, NV 891...
13	Antoline	antonline.com	(787) 466-8989	4662 Puttygut Rd, China Township, MI 48054
NUL	NUL	NUL	NUL	NUL

# DATABASE TABLES



SupplierTable\* ProductTable\* SalesTablr PurchaseTable InventoryTable PurchaseTrack

11     PRIMARY KEY (sales\_id),  
12     FOREIGN KEY (purchase\_id) REFERENCES Purchase(purchase\_id),  
13     FOREIGN KEY (inventory\_id) REFERENCES inventory(inventory\_id)  
14 );  
15  
16 • select \* from sales;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	sales_id	purchase_id	inventory_id	quantitysold	salesdate	sales_price
▶	1	1	1001	50	2023-05-09	4161.00
	2	2	1002	25	2023-06-13	2262.50
	3	3	1003	66	2023-05-20	1319.34
	4	4	1004	10	2023-06-11	305.50
	5	5	1005	20	2023-07-19	9400.00
	6	6	1006	75	2023-07-27	5249.25
	7	7	1007	88	2023-08-15	30712.00
	8	8	1008	34	2023-08-30	3059.66
	9	9	1009	18	2023-09-25	485.82
	10	10	1010	22	2023-09-11	659.78
	11	11	1011	12	2023-06-23	5963.88
	12	12	1012	15	2023-11-09	850.80
	13	13	1013	20	2023-11-30	2999.00
	14	14	1014	26	2023-12-01	1169.74
	15	15	1015	90	2023-12-09	33297.30

SupplierTable\* ProductTable\* SalesTablr PurchaseTable\* InventoryTable PurchaseTrack select queries

26  
27 • select \* from purchase;  
28  
29  
30  
31  
32

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	Purchase_ID	Supplier_ID	Product_ID	user_id	Inventory_ID	Purchase_Track_ID	Purchase_Date	Purchase_Price	Quantity_Purchased	Status
▶	1	1	1	10	1001	10011	2021-12-02	83.22	100	Over Stocked
	2	2	2	10	1002	10012	2023-03-04	90.55	110	Over Stocked
	3	3	3	8	1003	10013	2022-06-25	19.99	135	Over Stocked
	4	4	4	9	1004	10014	2023-12-12	30.55	50	In stock
	5	5	5	10	1005	10015	2021-05-10	59.99	50	In stock
	6	6	6	9	1006	10016	2022-04-11	470.00	95	Over Stocked
	7	7	7	10	1007	10017	2021-03-09	69.99	100	Over Stocked
	8	8	8	10	1008	10018	2023-06-22	349.00	92	Over Stocked
	9	9	9	9	1009	10019	2022-12-09	89.99	50	In stock
	10	10	10	10	1010	100110	2023-07-07	26.99	40	In stock
	11	11	11	1	1011	100111	2022-02-11	29.99	50	In stock
	12	12	12	10	1012	100112	2022-01-19	496.99	30	In stock
	13	13	13	10	1013	100113	2023-04-20	70.90	20	In stock
	14	1	14	8	1014	100114	2023-01-24	149.95	60	In stock
	15	2	15	8	1015	100115	2023-05-07	44.99	100	Over Stocked

# DATABASE TABLES



SupplierTable\* ProductTable\* SalesTablr PurchaseTable\* InventoryTable\*

```
8     PRIMARY KEY (Purchase_Track_ID),
9     FOREIGN KEY (purchase_id) REFERENCES Purchase(purchase_id)
10 );
11 • ALTER TABLE purchase_track ADD FOREIGN KEY (inventory_id)
12
13 • select * from purchase_track;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

Purchase_Track_ID	Purchase_ID	Inventory_ID	Quantity_Updated
10011	1	1001	100
10012	2	1002	100
10013	3	1003	250
10014	4	1004	50
10015	5	1005	50
10016	6	1006	100
10017	7	1007	100
10018	8	1008	100
10019	9	1009	50
100110	10	1010	40
100111	11	1011	50
100112	12	1012	30
100113	13	1013	20
100114	14	1014	60
100115	15	1015	100

purchase\_track 8 ×

SupplierTable\* ProductTable\* SalesTablr PurchaseTable\* InventoryTable\* × PurchaseTrack select queries

```
20
21 • select * from inventory;
22
23
24
25
26
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

Inventory_ID	product_id	Status	Cost_Price	Unit_Price	min_Quantity	max_Quantity	Quantity_Purchased	Purchase_ID	Sales_ID
1001	1	Over Stocked	8322.00	83.22	10	90	100	1	13
1002	2	Over Stocked	9960.50	90.55	10	90	110	2	8
1003	3	Over Stocked	2698.65	19.99	10	90	135	3	8
1004	4	In Stock	1527.50	30.55	10	90	50	4	15
1005	5	In Stock	2999.50	59.99	10	90	50	5	5
1006	6	Over Stocked	44650.00	470.00	10	90	95	6	8
1007	7	Over Stocked	6999.00	69.99	10	90	100	7	11
1008	8	Over Stocked	32108.00	349.00	10	90	92	8	15
1009	9	In Stock	4499.50	89.99	10	90	50	9	6
1010	10	In Stock	1079.60	26.99	10	90	40	10	14
1011	11	In Stock	1499.50	29.99	10	90	50	11	2
1012	12	In Stock	14909.70	496.99	10	90	30	12	4
1013	13	In Stock	1418.00	70.90	10	90	20	13	8
1014	14	In Stock	8997.00	149.95	10	90	60	14	14
1015	15	Over Stocked	4499.00	44.99	10	90	100	15	14

inventory 14 ×

# SQL OUTPUT



The screenshot shows the MySQL Workbench interface. On the left, a query editor window titled 'InventoryTable' contains the following SQL code:

```
SELECT
    Product.product_id, Product.product_name, Product.product_category, Product.product_subcategory, Product.brand, Product.purchase_D
    Inventory.Status, Inventory.Cost_Price, Inventory.Unit_Price, Inventory.min_Quantity, Inventory.max_Quantity,
    Inventory.Quantity_Purchased,
    Inventory.Purchase_ID,
    Inventory.Sales_ID
FROM Product JOIN Inventory ON Product.product_id = Inventory.product_id WHERE Product.product_id = 3;
```

Below the query editor is a results grid window titled 'InventoryTable' showing one row of data:

product_id	product_name	product_category	product_subcategory	brand	purchase_Date	Status	Cost_Price	Unit_P
3	Next-Generation ARRIS SURFboard SBW200 DO...	USB-to-VGA Adapters, Adapters, Computer Cabi...	Cable	Aries	2021-08-13	In Stock	4999.00	39.99

To Fetch details about the product from product and inventory table using join function

The screenshot shows the MySQL Workbench interface. On the left, a query editor window titled 'UserTable' contains the following SQL code:

```
27 * commit;
28 *
29 * SELECT DISTINCT username, email, role
30   FROM User;
31 *
32 * SELECT DISTINCT role AS Different_Users
33   FROM User;
```

Below the query editor is a results grid window titled 'UserTable' showing the results of the second query:

Different_Users
admin
system user
inventory manager

To display different users of the inventory system using DISTINCT function.

# SQL OUTPUT



```
17  
18 • SELECT  
19     YEAR(salesdate) AS sales_year,  
20     MONTH(salesdate) AS sales_month,  
21     SUM(sales_price) AS total_sales FROM Sales  
22 WHERE YEAR(salesdate) = 2023 AND MONTH(salesdate) = 08  
23 GROUP BY YEAR(salesdate), MONTH(salesdate);  
24 • commit;
```

sales_year	sales_month	total_sales
2023	8	33771.65

```
23 •     SELECT AVG(Unit_Price) AS avg_price  
24     FROM inventory;  
25  
26
```

avg_price
425.202800

Result 1 ×

Output

Action Output

#	Time	Action
44	19:18:40	SELECT p.product_id, s.Supplier_Name FROM purchase p INNER JOIN supplie
45	19:23:01	SELECT AVG(Unit_Price) AS avg_price FROM inventory LIMIT 0, 1000

To calculate the sum of sales for a month.

To calculate the Average price of products in inventory.

# SQL OUTPUT



```
26
27 • SELECT DISTINCT user_id, username, product.Product_ID AS Product_id
28   FROM purchase
29   INNER JOIN user ON purchase.user_id = user.id
30   INNER JOIN product ON purchase.Product_ID = product.Product_ID
31   WHERE user_id IS NOT NULL
32   ORDER BY product.Product_ID, username, user_id ASC;
```

Result Grid | Filter Rows: [ ] | Export: [ ] | Wrap Cell Content: [ ]

user_id	username	Product_id
10	jackward	1
10	jackward	2
8	briancarter	3
9	sarahwhite	4
10	jackward	5
9	sarahwhite	6
10	jackward	7
10	jackward	8
9	sarahwhite	9
10	jackward	10
1	johndoe	11
10	jackward	12
10	jackward	13

Result 24 ×

TO show which Inventory user has purchased which product.

```
34 • SELECT DISTINCT p.product_id, s.Supplier_Name, pd.product_name
35   FROM purchase p
36   INNER JOIN supplier s ON p.supplier_id = s.supplier_id
37   INNER JOIN inventory i ON P.Inventory_ID = i.Inventory_ID
38   INNER JOIN product pd ON pd.product_ID = i.product_ID
39   ORDER BY p.product_id ASC
40   LIMIT 10;
```

Result Grid | Filter Rows: [ ] | Export: [ ] | Wrap Cell Content: [ ] | Fetch rows: [ ]

product_id	Supplier_Name	product_name
1	DealClock	GTK-XB90 Bluetooth Speaker
2	Steelseries	Samsung Radiant360 R1 Wi-Fi/Bluetooth Speak...
3	Bestbuy	Next-Generation ARRIS SURFboard SB8200 DO...
4	Zoneusa	PDWM1904 Single-Channel Wireless System wit...
5	Firemall LLC	Zmodo Hd Wifi Home Security Camera Twoway ...
6	Electronic Express	HEOS 5 Wireless Speaker System (Series 2, Whi...
7	Beach Camera	Sony - High Power XB60 Portable Bluetooth Spe...
8	Bhphoto Video	Definitive Technology - W9 Dual 5.1/4 180W 2-...
9	Jpkovacic	Google Daydream View - VR Headset (Slate)
10	turtlebeach_inc	Turtle Beach Ear Force Recon 320 7.1 Surround...

TO fetch data for products on basis of supplier.

# SQL OUTPUT



# MySQL®

```
9      -- 4. to check in stock,out of stock, over stocked or understocked products
10 • select pd.product_id,pd.product_name, i.min_Quantity,
11      i.max_Quantity,i.Quantity_Purchased, p.Status
12      from purchase p join  inventory i on p.Purchase_ID = i.Purchase_ID
13      join product pd on i.product_id = pd.Product_ID
14      where  i.Quantity_Purchased between i.min_Quantity and i.max_Quantity;
15
```

product_id	product_name	min_Quantity	max_Quantity	Quantity_Purchased	Status
4	PDWM1904 Single-Channel Wireless System wit...	10	90	50	In stock
5	Zmodo Hd Wifi Home Security Camera Twoway ...	10	90	50	In stock
9	Google Daydream View - VR Headset (Slate)	10	90	50	In stock
10	Turtle Beach Ear Force Recon 320 7.1 Surround...	10	90	40	In stock
11	Onkyo - TX 7.2-Ch. Network-Ready A/V Home T...	10	90	50	In stock
12	Hoya - EVO 77mm Antistatic UV Super Multicoat...	10	90	30	In stock
13	Details About [genuine National] Sealed Gaming...	10	90	20	In stock
14	Apple MD825AM/A Lightning to VGA Adapter for...	10	90	60	In stock
18	Signature Series 43-Class UHD Outdoor LED TV ...	10	90	50	In stock
19	Samsung - 49 Class (48.5" Diag.) - LED - 1080p ...	10	90	50	In stock
20	Cerwin Vega - SL Series 2-Way Center-Channel ...	10	90	20	In stock
21	Sony - 1155W 7.2-Ch. Hi-Res Network-Ready 4...	10	90	50	In stock
22	Pioneer - 5.1-Ch. 4K Ultra HD HDR Compatible ...	10	90	20	In stock
24	Onkyo TX-8270 2 Channel Network Stereo Rece...	10	90	20	In stock
25	Sony - 55 Class - OLED - A1E Series - 2160p - S...	10	90	20	In stock

```
SupplierTable ProductTable SalesTablr PurchaseTable InventoryTable PurchaseTrack

15
16 • select pd.product_name,pd.product_id,i.Quantity_Purchased, p.Status
17   from purchase p join inventory i on p.Purchase_ID = i.Purchase_ID
18   join product pd on i.product_id = pd.Product_ID
19   where i.Quantity_Purchased > i.max_Quantity;
20
21 • select pd.product_name,pd.product_id,i.Quantity_Purchased, p.Status
```

product_name	product_id	Quantity_Purchased	Status
GTK-XB90 Bluetooth Speaker	1	100	Over Stocked
Samsung Radiant360 R1 Wi-Fi/Bluetooth Speak...	2	110	Over Stocked
Next-Generation ARRIS SURFboard SB8200 DO...	3	135	Over Stocked
HEOS 5 Wireless Speaker System (Series 2, Whi...	6	95	Over Stocked
Sony - High Power XB60 Portable Bluetooth Spe...	7	100	Over Stocked
Definitive Technology - W9 Dual 5-1/4 180W 2...	8	92	Over Stocked
Galaxy Note 8 SM-N950U 64GB Smartphone (Un...	15	100	Over Stocked
Samsung - Galaxy J3 4G LTE with 16GB Memory...	16	97	Over Stocked
Samsung - Galaxy J7 4G LTE with 16GB Memory...	17	100	Over Stocked

# To show the Instock and overstocked products

# SQL OUTPUT



SupplierTable ProductTable SalesTablr PurchaseTable InventoryTable PurchaseTrack select queries\* x

30  
31 -- to check how many items purchased in a month  
32 • select count(\*) as 'Product Purchased in a month'  
33 from purchase  
34 where year(purchase\_date) = 2021 and  
35 month(purchase\_date) = 03;  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
--

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	count(*)
▶	2

Result 45 x

To check how many items purchased in a month

SupplierTable ProductTable SalesTablr PurchaseTable InventoryTable PurchaseTrack select queries\* x

37  
38 -- to check what is the min and max price of the product available in the inventory  
39 • select min(i.Unit\_Price) as 'Min price of product in inventory',  
40 max(i.Unit\_Price) as 'Max price of product in inventory'  
41 from product p, inventory i  
42 where p.product\_id=i.product\_id;  
43  
44  
45  
46  
47  
--

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	Min price of product in inventory	Max price of product in inventory
▶	19.99	2749.00

Result 46 x

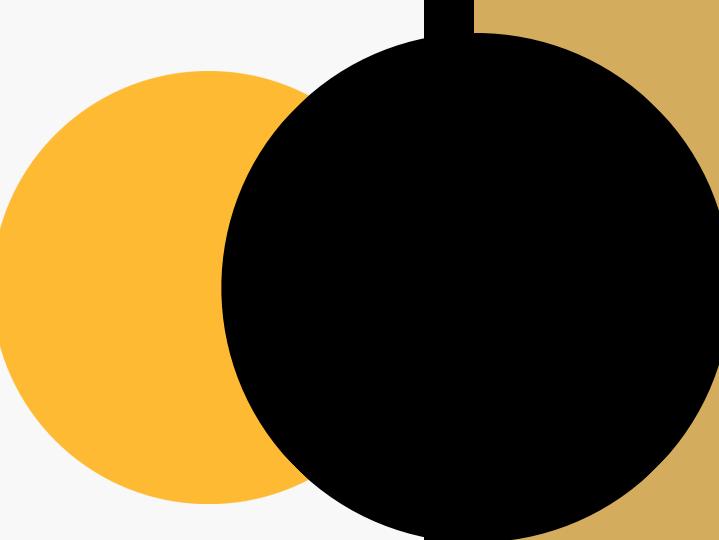
To check min and max price of a product present in the inventory

# CONCLUSION

The inventory management system provides businesses with a comprehensive solution to manage their inventory efficiently and effectively, leading to significant improvements in operational efficiency, customer satisfaction, and profitability.



**ANY QUESTIONS ?**



# THANK YOU!

