

**SRS ( Software Requirements Specification )**

**for**

**“Inventory Control Management System”**

**Under the subject**

**‘ Database Management Systems  
[20CE 402]’**

**Submitted By**

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## **1. Category :**

Desktop Application

## **2. Purpose :**

The purpose of this document is to present a detailed description of the Inventory Management System. It will explain the purpose and features of the software , the interfaces of the software, what the software will do, the constraints under which it must operates and how the software will react to external stimuli. This document is intended for both the end users and the developers of the software.

## **3. Scope :**

This document covers the requirements for the Inventory Management System. This software will provide a graphical environment in which the users of the system will be able to perform various operations that are associated with storing , updating and retrieving Product Information. The purpose of this is to guide in selecting design that will be able to accommodate the full-scale application. This system will capture information about customer's personal details products and their quantities, Storing updating and retrieving in a fast and accurate way.

## **4. Introduction :**

Inventory management has become an important factor in the modern business field. This system should help the businessmen to streamline the administrative task and provide real-time access to the data. Building this system in a standalone application interface will further help the ease of accessibility through the provided portal. The study findings enable the definition of the project problem statement, its objectives, scopes and advantages of the inventory management system.

The Inventory Management System has to handle records for a number of products and maintenance was difficult. Though it used an information system, it was totally manual. Hence there is a need to upgrade the system with a computer-based information system.

## General Description

**Software Perspective** The product Inventory Management system, is an independent product and does not depend on any other product or system. The product will automate various tasks associated with handling product details and better organizing the stored information and optimum performance, thus helping the businesses to ensure smooth working of these processes.

**Software Functions** Our system has two types of accessing modes :

### 1. Admin

### 2. Customer

#### **Admin:**

Admin has to update and monitor the product details, add new items, it has its own id, username and password, it maintains all the items Admin can update his profile, and also can give help to the customers.

#### **Customer:**

Customer can purchase the products and make transactions accordingly. All his data will be saved into the database by the admin to keep record of the sold products(stock).

## 5. Advantages :

**Better Inventory Accuracy:** With inventory management, you know what's in stock and order only the amount of inventory you need to meet demand.

- 
- **Reduced Risk of Overselling:** Inventory management helps track what's in stock and what's out of Stock
- **Cost Savings:** Stock costs money until it sells. Carrying costs include storage handling and transportation fees, insurance and employee salaries. Inventory is also at risk of theft, loss from natural disasters or obsolescence.
- **Avoiding Stock Outs :** Better planning and management helps a business minimize the number of days, if any, that an item is out of stock and avoid carrying too much inventory.
- **Greater Insights:** With inventory tracking and stock control, you can also easily spot sales trends or track recalled products or expiry dates.
- **Better Terms With Customers:** Inventory management also provides insights about which products sell and in what volume. Use that knowledge as leverage to negotiate better prices and terms with Customers.

- **More Productivity:** Good inventory management solutions save time that could be spent on other activities.
- **Increased Profits:** A better understanding of both availability and demand leads to higher inventory turnover, which leads to greater profits.
- **Better Customer Experience:** Customers that receive what they order on time are more loyal.

## 6. Functional Requirements :

Inventory Management System involves the following functions

**Admin Registration:** It provides admin registration and status information about the customer to view their status. Admin can update details of customers and about the product purchased by that customer and enlist them in stock.

**Product Management:** Easily track product information (sold and available). Quickly produce reports for single or multiple sold products.

## 7. Non – Functional Requirements :

### 1.Performance

Easy tracking of records and updating can be done. All the requirements relating to performance characteristics of the system are specified in the section below. There are two types of requirements.

*Static Requirements:* These requirements do not impose any constraints on the execution characteristics of the system.

They are:

1) Number of Terminals: The software makes use of an underlying database that will reside at the same system, while the front end will be available to the administrative computer.

2) Number of Users: The number of users can be administrator only, but this software can be extended to applications for almost all staff members of the organization.

### *Dynamic Requirements*

These specify constraints on the execution characteristics of the system. They typically include response time and throughput the system. Since these factors are not applicable to the proposed software, it will suffice if the response time is high and the transactions are carried out precisely and quickly.

**2. Reliability** The software will not be able to connect to the database in the event of the server being down due to a hardware or software failure.

**3.Availability:** The software will be available only to the administrator of the organization and the product as well as customer details will be recorded by him. He can add customers, update and delete them as well as add new products and manage them.

**4. Security:** The security requirements deal with the primary security. The software should be handled only by the administrator and authorized users. Only the administrator has the right to create new accounts and generate inventory. Only authorized users can access the system with the username and password of the administrator.

Maintainability Backups for databases are available.

**5.Portability:** The Software is a web-based application and is built in JAVA and SQL so it is platform independent and is independent of the operating system.

## 8. Software tools :

Software Interfaces involved:

Front End: Java Swing

Back End: MySQL 5.1.36

## 9. Hardware Interfaces :

Hardware Environment: Dual Core 2nd generation/

System Configuration: RAM-4 GB HDD-80GB

Operating system Windows 7/8/8.1/10

## 10. Database Requirements :

- ADMIN
- PRODUCT
- CUSTOMER
- TRANSACTION
- UPDATES

### Converting ERD to Tables -

#### ADMIN:-

Attribute	DataType	Constraint
Admin_id	Int	Primary Key
Username	varchar(50)	Unique, Not Null
Password	varchar(15)	Not Null

#### PRODUCT

Attribute	DataType	Constraint
Product_id	Int	Primary Key
Product_name	varchar(30)	Not Null
Quantity	Int	Not Null
Price	Int	Not Null
Category	varchar(50)	Not Null
Admin_id	Int	Foreign Key

#### CUSTOMER

Attribute	DataType	Constraint
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## Database Management Systems ( 20CE402 )

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Customer_id	Int	Primary Key
Address	Varchar(50)	Not Null
PhNo	Bigint	Not Null

### TRANSACTION

Attribute	DataType	Constraint
T_id	Int	Primary Key
Product_id	Int	Not Null
Product_name	varchar(50)	Not Null
Quantity	Int	Not Null
Time_and_date	Date	Not Null
Customer_id	Int	Foreihn Key

### UPDATES

Attribute	DataType	Constraint
Customer_id	Int	Foreign Key
Product_id	Int	Foreign Key

## Normalization :

### 1NF =

- Table should not contain any multi-valued attributes

- Admin

```
+-----+-----+-----+
| Admin_id | U_name   | Pswd     |
+-----+-----+-----+
```



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```
| 2375 | RiyaS      | Riya#22      |
| 2376 | SakshiT      | Sakshi#22    |
| 2380 | DnyaneshwariG | Dnyaneshwari#22 |
| 2382 | AishwaryaP   | Aishwarya#22 |
```

```
+-----+-----+-----+-----+
```

- Product

```
+-----+-----+-----+-----+-----+-----+
| PId | PName          | Price | Category | Quantity | Admin_id |
+-----+-----+-----+-----+-----+-----+
| 1 | Lenovo i7      | 36000 | Laptop   | 8 | 2382 |
| 2 | Apple MacBook  | 70000 | Laptop   | 22 | 2380 |
| 3 | Apple 22       | 40000 | Laptop   | 33 | 2376 |
| 4 | Dell           | 50000 | Laptop   | 33 | 2375 |
| 5 | HP intel i5    | 2500  | Laptop   | 33 | 2380 |
| 6 | SmartWatch     | 500   | Watch    | 33 | 2382 |
| 7 | Titan          | 700   | Watch    | 19 | 2376 |
| 8 | SmartWatch2    | 1500  | Watch    | 33 | 2382 |
| 9 | Allen solly    | 2000  | Watch    | 5 | 2376 |
| 10 | Samsung Washing Machine | 27000 | Household | 89 | 2376 |
| 11 | Whirlpool Washing Machine | 37000 | Household | 50 | 2376 |
| 12 | LG Microwave   | 15000 | Household | 45 | 2376 |
| 13 | Whirlpool Refrigerator | 18000 | Household | 80 | 2376 |
| 14 | Motorola A5    | 180   | Smart Phone | 23 | 2376 |
| 23 | Camera 255    | 2900  | Camera   | 7 | 2382 |
| 24 | iPhone        | 290010 | Mobile   | 45 | 2375 |
| 25 | DSLR Camera   | 10050 | Camera   | 83 | 2376 |
| 26 | Apple TV      | 10050 | Television | 99 | 2376 |
| 43 | Canon Camera  | 10050 | Camera   | 32 | 2376 |
| 45 | Samsung A52   | 10050 | Smart Phone | 90 | 2376 |
| 48 | OnePlus TV    | 10050 | Television | 80 | 2376 |
| 71 | LG TV         | 10050 | Television | 60 | 2376 |
| 78 | Vivo V20      | 10050 | Smart Phone | 67 | 2376 |
| 79 | Sony Camera   | 10050 | Camera   | 23 | 2376 |
| 89 | Redmi Note 6  | 10050 | Smart Phone | 45 | 2376 |
| 90 | Bajaj Oven    | 10050 | Household | 12 | 2376 |
| 91 | Oppo A21      | 10050 | Smart Phone | 35 | 2376 |
| 92 | LG Series Camera | 10050 | Camera   | 23 | 2376 |
```

## Database Management Systems ( 20CE402 )

100   W series Camera	10050   Camera	78   2376
101   Samsung TV	10050   Television	90   2376
+-----+-----+-----+-----+-----+		

### - Customer

+-----+-----+-----+-----+			
custId	custName	addr	phno
+-----+-----+-----+-----+			
1	Hari	Pune	9845635463
2	Sam	Kothrud	8765436452
3	Tom	Pune	9585658745
4	Jerry	Nashik	8675647567
12	Anu	Pune	9988776655
18	Sam	Pune	9878675678
22	Tom	Kothrud	7677767678
23	Sam2	Pune	7658465789
25	Sam	Pune	7776665558
34	Jack	Pune	7777777777
99	Sam	Pune	8978987889
111	Purva	Hadapsar	8888888888
123	Sam2	Pune	8787878797
+-----+-----+-----+-----+			

### - Transaction

+-----+-----+-----+-----+-----+-----+						
tid	pid	pname	quantity	time_date	custId	Total_price
+-----+-----+-----+-----+-----+-----+						
112	1	Lenovo i7	2	2022-05-25	1	72000
113	1	Lenovo i7	3	2022-05-25	1	108000
114	1	Lenovo i7	4	2022-05-25	1	144000
115	1	Lenovo i7	1	2022-05-25	1	36000
116	1	Lenovo i7	1	2022-05-25	1	36000
117	1	Lenovo i7	1	2022-05-25	1	36000
118	1	Lenovo i7	1	2022-05-25	1	36000
119	2	Apple MacBook	3	2022-05-26	1	120000
120	3	Apple 22	5	2022-05-26	3	400000
123	1	Lenovo i7	1	2022-06-01	2	36000
+-----+-----+-----+-----+-----+-----+						

## - Updates

+-----+-----+	
custId   pid	
+-----+-----+	
1   1	
2   2	
3   3	
4   4	
+-----+-----+	

2NF =

- Tables must be in 1NF
- All the Non-prime attributes should be fully functionally dependent on candidate key.

## Admin –

+-----+-----+-----+			
Admin_id   U_name   Pswd			
+-----+-----+-----+			
2375   RiyaS   Riya#22			
2376   SakshiT   Sakshi#22			
2380   DnyaneshwariG   Dnyaneshwari#22			
2382   AishwaryaP   Aishwarya#22			
+-----+-----+-----+			

## Product -

+-----+-----+-----+-----+				
PId   PName   Quantity   Price   Category				
+-----+-----+-----+-----+				
1   Lenovo i7   8   36000   Laptop				
2   Apple MacBook   22   70000   Laptop				
3   Apple 22   33   40000   Laptop				
4   Dell   33   50000   Laptop				

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5	HP intel i5	33	2500	Laptop
6	SmartWatch	33	500	Watch
7	Titan	19	700	Watch
8	SmartWatch2	33	1500	Watch
9	Allen solly	5	2000	Watch
10	Samsung Washing Machine	89	27000	Household
11	Whirlpool Washing Machine	50	37000	Household
12	LG Microwave	45	15000	Household
13	Whirlpool Refrigerator	80	18000	Household
14	Motorola A5	23	180	Smart Phone
23	Camera 255	7	2900	Camera
24	iPhone	45	290010	Mobile
25	DSLR Camera	83	10050	Camera
26	Apple TV	99	10050	Television
43	Canon Camera	32	10050	Camera
45	Samsung A52	90	10050	Smart Phone
48	OnePlus TV	80	10050	Television
71	LG TV	60	10050	Television
78	Vivo V20	67	10050	Smart Phone
79	Sony Camera	23	10050	Camera
89	Redmi Note 6	45	10050	Smart Phone
90	Bajaj Oven	12	10050	Household
91	Oppo A21	35	10050	Smart Phone
92	LG Series Camera	23	10050	Camera
100	W series Camera	78	10050	Camera
101	Samsung TV	90	10050	Television

PId	Admin_id
4	2375
24	2375
3	2376
7	2376
9	2376
10	2376
11	2376
12	2376
13	2376
14	2376
25	2376
26	2376
43	2376

```

| 45 | 2376 |
| 48 | 2376 |
| 71 | 2376 |
| 78 | 2376 |
| 79 | 2376 |
| 89 | 2376 |
| 90 | 2376 |
| 91 | 2376 |
| 92 | 2376 |
| 100 | 2376 |
| 101 | 2376 |
| 2 | 2380 |
| 5 | 2380 |
| 1 | 2382 |
| 6 | 2382 |
| 8 | 2382 |
| 23 | 2382 |
+-----+-----+

```

- Customer –

```

+-----+-----+-----+-----+
| custId | custName | addr  | phno  |
+-----+-----+-----+-----+
| 1 | Hari  | Pune  | 9845635463 |
| 2 | Sam   | Kothrud | 8765436452 |
| 3 | Tom   | Pune  | 9585658745 |
| 4 | Jerry | Nashik | 8675647567 |
| 12 | Anu   | Pune  | 9988776655 |
| 18 | Sam   | Pune  | 9878675678 |
| 22 | Tom   | Kothrud | 7677767678 |
| 23 | Sam2  | Pune  | 7658465789 |
| 25 | Sam   | Pune  | 7776665558 |
| 34 | Jack  | Pune  | 7777777777 |
| 99 | Sam   | Pune  | 8978987889 |
| 111 | Purva | Hadapsar | 8888888888 |
| 123 | Sam2  | Pune  | 8787878797 |
+-----+-----+-----+-----+

```

- Transaction –

custId	tid
1	112
1	113
1	114
1	115
1	116
1	117
1	118
1	119
2	123
3	120

tid	pid	pname	quantity	time_date
112	1	Lenovo i7	2	2022-05-25
113	1	Lenovo i7	3	2022-05-25
114	1	Lenovo i7	4	2022-05-25
115	1	Lenovo i7	1	2022-05-25
116	1	Lenovo i7	1	2022-05-25
117	1	Lenovo i7	1	2022-05-25
118	1	Lenovo i7	1	2022-05-25
119	2	Apple MacBook	3	2022-05-26
120	3	Apple 22	5	2022-05-26
123	1	Lenovo i7	1	2022-06-01

Update - same

custId	pid
1	1
2	2
3	3
4	4

+-----+-----+

**3NF =**

- **Tables must be in 3NF**
- **There should be no transitive dependency in table.**

Admin –

```
+-----+-----+
| Admin_id | U_name   |
+-----+-----+
| 2375 | RiyaS    |
| 2376 | SakshiT  |
| 2380 | DnyaneshwariG |
| 2382 | AishwaryaP |
+-----+-----+
```

```
+-----+-----+
| U_name   | Pswd     |
+-----+-----+
| RiyaS    | Riya#22  |
| SakshiT  | Sakshi#22 |
| DnyaneshwariG | Dnyaneshwari#22 |
| AishwaryaP | Aishwarya#22 |
+-----+-----+
```

- Product –

```
+-----+-----+
| PId | Admin_id |
+-----+-----+
| 4 | 2375 |
| 24 | 2375 |
| 3 | 2376 |
| 7 | 2376 |
| 9 | 2376 |
| 10 | 2376 |
| 11 | 2376 |
| 12 | 2376 |
| 13 | 2376 |
| 14 | 2376 |
| 25 | 2376 |
| 26 | 2376 |
```

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43	2376
45	2376
48	2376
71	2376
78	2376
79	2376
89	2376
90	2376
91	2376
92	2376
100	2376
101	2376
2	2380
5	2380
1	2382
6	2382
8	2382
23	2382

+-----+

+-----+

PId	PName	Category	Quantity
-----	-------	----------	----------

+-----+

1	Lenovo i7	Laptop	8
2	Apple MacBook	Laptop	22
3	Apple 22	Laptop	33
4	Dell	Laptop	33
5	HP intel i5	Laptop	33
6	SmartWatch	Watch	33
7	Titan	Watch	19
8	SmartWatch2	Watch	33
9	Allen solly	Watch	5
10	Samsung Washing Machine	Household	89
11	Whirlpool Washing Machine	Household	50
12	LG Microwave	Household	45
13	Whirlpool Refrigerator	Household	80
14	Motorola A5	Smart Phone	23
23	Camera 255	Camera	7
24	iPhone	Mobile	45
25	DSLR Camera	Camera	83
26	Apple TV	Television	99
43	Canon Camera	Camera	32
45	Samsung A52	Smart Phone	90
48	OnePlus TV	Television	80
71	LG TV	Television	60
78	Vivo V20	Smart Phone	67
79	Sony Camera	Camera	23



## Database Management Systems ( 20CE402 )

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89	Redmi Note 6	Smart Phone	45
90	Bajaj Oven	Household	12
91	Oppo A21	Smart Phone	35
92	LG Series Camera	Camera	23
100	W series Camera	Camera	78
101	Samsung TV	Television	90
+-----+-----+			

+-----+-----+	
Quantity	Price
+-----+-----+	
8	36000
22	70000
33	40000
33	50000
33	2500
33	500
19	700
33	1500
5	2000
89	27000
50	37000
45	15000
80	18000
23	180
7	2900
45	290010
83	10050
99	10050
32	10050
90	10050
80	10050
60	10050
67	10050
23	10050
45	10050
12	10050
35	10050
23	10050
78	10050
90	10050
+-----+-----+	

- Customer-

```
+-----+-----+-----+-----+
| custId | custName | addr  | phno  |
+-----+-----+-----+-----+
| 1 | Hari  | Pune  | 9845635463 |
| 2 | Sam   | Kothrud | 8765436452 |
| 3 | Tom   | Pune  | 9585658745 |
| 4 | Jerry | Nashik | 8675647567 |
| 12 | Anu   | Pune  | 9988776655 |
| 18 | Sam   | Pune  | 9878675678 |
| 22 | Tom   | Kothrud | 7677767678 |
| 23 | Sam2  | Pune  | 7658465789 |
| 25 | Sam   | Pune  | 7776665558 |
| 34 | Jack  | Pune  | 7777777777 |
| 99 | Sam   | Pune  | 8978987889 |
| 111 | Purva | Hadapsar | 8888888888 |
| 123 | Sam2  | Pune  | 8787878797 |
+-----+-----+-----+-----+
```

- Transaction –

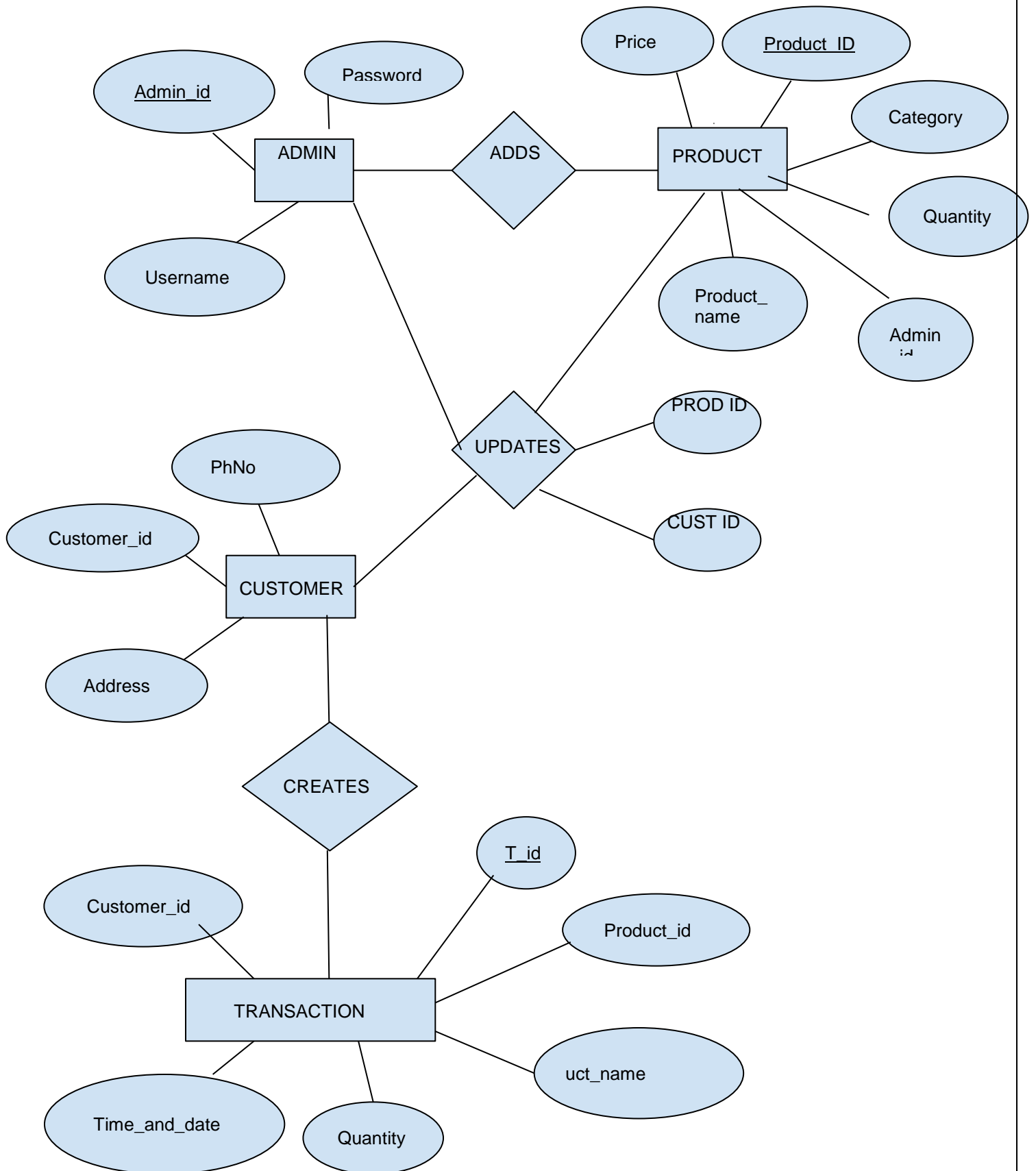
```
+-----+-----+-----+
| pid | pname      | quantity |
+-----+-----+-----+
| 1 | Lenovo i7  | 2 |
| 1 | Lenovo i7  | 3 |
| 1 | Lenovo i7  | 4 |
| 1 | Lenovo i7  | 1 |
| 1 | Lenovo i7  | 1 |
| 1 | Lenovo i7  | 1 |
| 1 | Lenovo i7  | 1 |
| 1 | Lenovo i7  | 1 |
| 2 | Apple MacBook | 3 |
| 3 | Apple 22   | 5 |
| 1 | Lenovo i7  | 1 |
+-----+-----+-----+
```

pid	tid	time_date	custId
1	112	2022-05-25	1
1	113	2022-05-25	1
1	114	2022-05-25	1
1	115	2022-05-25	1
1	116	2022-05-25	1
1	117	2022-05-25	1
1	118	2022-05-25	1
2	119	2022-05-26	1
3	120	2022-05-26	3
1	123	2022-06-01	2

- Updates –

custId	pid
1	1
2	2
3	3
4	4

## 11. E-R Diagram :



## 12. Use-Case Diagram :

(ADMIN: USE CASE)

### **ADMIN**

- Add Stock
- Remove Product
- Update Product
- Login
- Log out

### **CUSTOMER**

- Purchase Product
- Make Transaction
- Log in
- Log out
- Cancel Order
- Place Order
- Display Receipt