

Aircraft Manufacturing Company Management System

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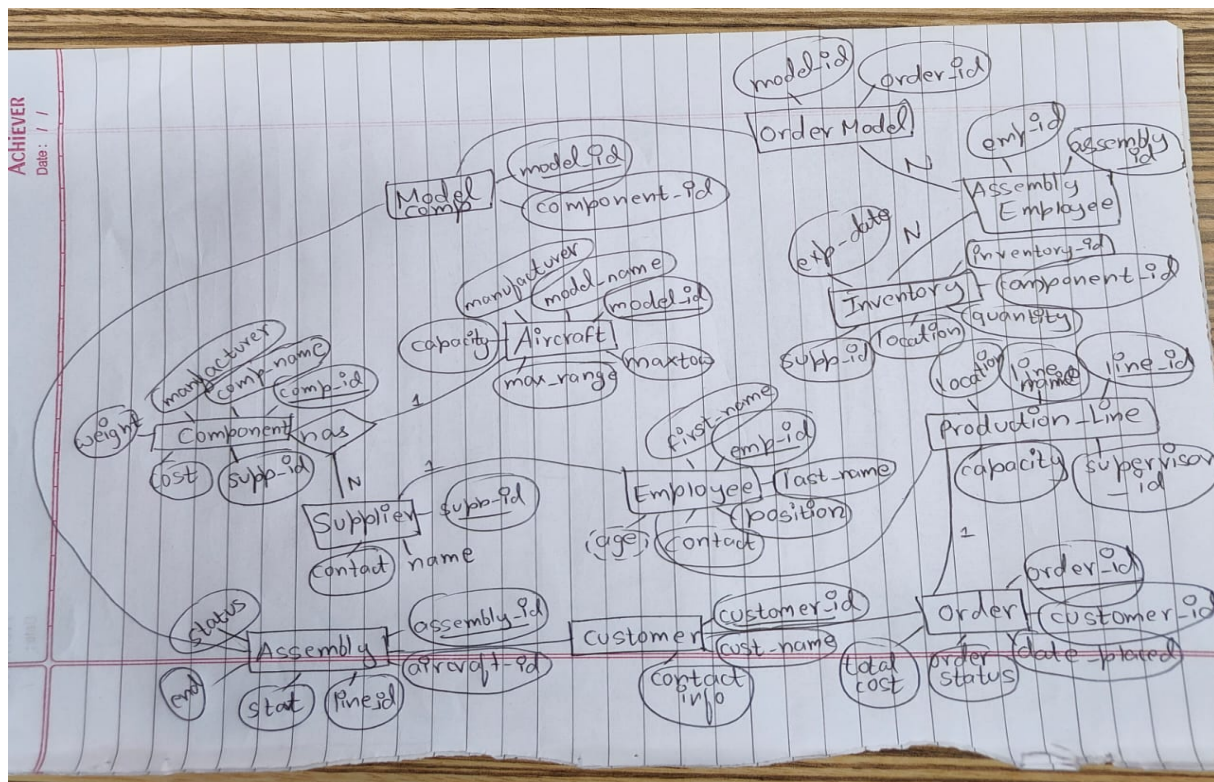
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Abstract

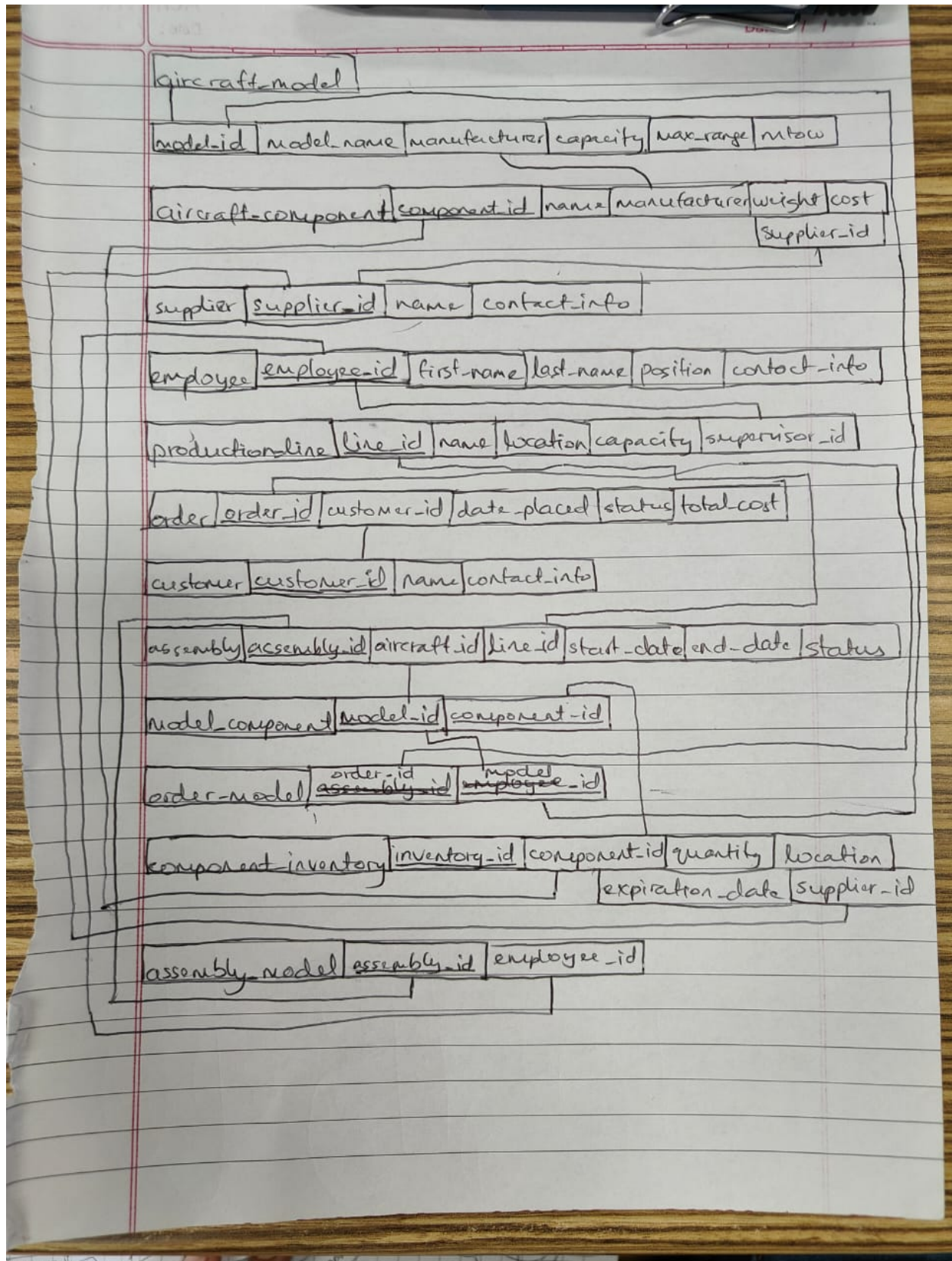
The Aircraft Manufacturing Company Database System is designed to enhance the efficiency and effectiveness of an aircraft manufacturing company's operations. This comprehensive system aims to streamline various aspects of the manufacturing process, from inventory management and production planning to quality control and customer management. By centralizing and automating critical functions, this project seeks to improve the company's overall productivity, maintain high-quality standards, and ensure smooth customer interactions.

The primary purpose of this project is to develop and implement an integrated database system tailored to the specific needs of an aircraft manufacturing company. This system will serve as the backbone of the company's operations, providing essential tools to manage its resources, processes, and data efficiently.

ER Diagram



Relational Schema



DDL SQL Commands

```
CREATE DATABASE dbms_project;
```

```
USE dbms_project;
```

```
CREATE TABLE aircraft_model (  
    model_id INT NOT NULL AUTO_INCREMENT,  
    model_name VARCHAR(255) NOT NULL,  
    manufacturer VARCHAR(255) NOT NULL,  
    capacity INT,  
    max_range INT,  
    mtow INT,  
    PRIMARY KEY (model_id)  
);
```

```
CREATE TABLE aircraft_component (  
    component_id INT NOT NULL AUTO_INCREMENT,  
    component_name VARCHAR(255) NOT NULL,  
    manufacturer VARCHAR(255) NOT NULL,  
    weight INT,  
    cost INT,  
    supplier_id INT,  
    used_in_model INT  
    PRIMARY KEY (component_id),  
    FOREIGN KEY (supplier_id) REFERENCES supplier (supplier_id),  
    FOREIGN KEY (used_in_model) REFERENCES aircraft_model (model_id)  
);
```

```
CREATE TABLE supplier (  
    supplier_id INT NOT NULL AUTO_INCREMENT,  
    name VARCHAR(255) NOT NULL,  
    contact_info VARCHAR(255) NOT NULL,  
    PRIMARY KEY (supplier_id)  
);
```

```
CREATE TABLE employee (  
    employee_id INT NOT NULL AUTO_INCREMENT,  
    fullname VARCHAR(255) NOT NULL,
```

```
position VARCHAR(255) NOT NULL,  
contact_info VARCHAR(255) NOT NULL,  
PRIMARY KEY (employee_id)  
);
```

```
CREATE TABLE aircraft_order (  
order_id INT NOT NULL AUTO_INCREMENT,  
customer_id INT,  
date_placed DATE,  
order_status VARCHAR(255),  
total_cost INT,  
PRIMARY KEY (order_id),  
FOREIGN KEY (customer_id) REFERENCES customer (customer_id)  
);
```

```
CREATE TABLE completed_orders (  
order_id INT NOT NULL AUTO_INCREMENT,  
customer_id INT,  
date_placed DATE,  
order_status VARCHAR(255),  
total_cost INT,  
PRIMARY KEY (order_id),  
FOREIGN KEY (customer_id) REFERENCES customer (customer_id)  
);
```

```
CREATE TABLE customer (  
customer_id INT NOT NULL AUTO_INCREMENT,  
customer_name VARCHAR(255) NOT NULL,  
contact_info VARCHAR(255) NOT NULL,  
PRIMARY KEY (customer_id)  
);
```

CRUD Operations

1. Sign Up

Signup

Username:

Password:

Signup successful. You can now log in.

2. Aircraft Models Table

Add/Edit/Remove Aircraft Model						
	model_id	model_name	manufacturer	capacity	max_range	mtow
0	8	Gulfstream G800	Gulfstream Aerospace Corporation	19	8000	105600
1	9	Gulfstream G280	Gulfstream Aerospace Corporation	10	3600	4750
2	10	Bombardier Challenfer 3500	Bombardier Aviation	10	3400	40750
3	11	Delta Airways	Airbus SE	853	8000	120000
4	14	Boeing 747	Boeing Commercial Airplanes	467	7790	735000

3. Components of each Model

Select Aircraft Model

8

Components for Aircraft Model 8

	component_id	component_name	manufacturer	weight	cost	supplier_id	used_in_model
0	3	Black Box	Ocean Air	50	200000	9	8
1	10	Turbines	C%L Aviation Group	2000	500000	8	8
2	13	VHF Radio	Ocean Air	200	250000	9	8
3	21	Fuselage - Mini	Aeroparts Aviation Pvt. Ltd.	300000	250000	10	8

4. Suppliers

	supplier_id	name	contact_info
0	8	C&L Aviation Group	9448124868
1	9	Ocean Air	6364699988
2	10	Aeroparts Aviation Pvt. Ltd.	9986200602

5. Customers

	customer_id	customer_name	contact_info
0	2	skanda	6364699955
1	3	shaarva	9480109539
2	8	Shreesha	9448459539
3	9	Ritvik	6364699955

6. Orders

	order_id	customer_id	date_placed	order_status	total_cost
0	121	8	2023-11-17	Complete	50000000
1	122	8	2023-11-17	Order Placed	50000000
2	123	8	2023-11-17	Order Placed	50000000
3	124	9	2023-11-17	Order Placed	30000000
4	125	9	2023-11-20	Order Placed	30000000
5	126	9	2023-11-21	Order Placed	30000000
6	127	9	2023-11-21	Order Placed	30000000
7	128	9	2023-11-21	Order Placed	30000000
8	129	9	2023-11-21	Order Placed	30000000

7. Add Aircraft Model

Add Aircraft Model

Enter Model Name:

Enter Manufacturer:

Enter Capacity:
 - +

Enter Max Range:
 - +

Enter MTOW:
 - +

Add Model

8. Add Aircraft Component

Add Aircraft Component

Enter Component Name:

Enter Manufacturer:

Enter Weight:
 - +

Enter Cost:
 - +

Enter Supplier ID:
 - +

Enter Used in Model ID:
 - +

Save

9. Edit Aircraft Model

Edit Aircraft Model

Enter Model Name for Editing:

Edit Model Name:

Edit Manufacturer:

Edit Capacity:

0.00

– +

Edit Max Range:

0.00

– +

Edit MTOW:

0.00

– +

Save Changes

10. Remove Aircraft Model

Remove Aircraft Model

Enter Model Name for Removal:

Remove Model

11. Edit Aircraft Component

Edit Aircraft Component

Select Component ID to Edit

8

Enter Component Name:

Enter Manufacturer:

Enter Weight:

0.00 - +

Enter Cost:

0.00 - +

Enter Supplier ID:

0.00 - +

Enter Used in Model ID:

0.00 - +

Update

12. Remove Aircraft Component

Remove Aircraft Component

Select Component ID to Remove

8

Remove

13. Add Supplier

Add Supplier

Enter Supplier Name:

Enter Contact Information:

Add Supplier

14. Remove Supplier

Remove Supplier

Select Supplier to Remove

C&L Aviation Group ▼

Remove Supplier

15. Add Customer

Add Customer

Enter Customer Name:

Enter Contact Information:

Save

16. Edit Customer

Edit Customer

Select Customer ID to Edit

2

Enter Customer Name:

Enter Contact Information:

Update

17. Remove Customer

Remove Customer

Select Customer ID to Remove

2

Remove

18. Add Order

Add Order

Enter Customer ID:

0.00 - +

Enter Date Placed:

2023/11/23

Enter Total Cost:

0.00 - +

Order Status:

Order Placed

19. Edit Order

Edit Order

Select Order ID to Edit

169 v

Select New Order Status

Order Placed v

Update Order

20. Delete Order

Remove Order

Select Order ID to Remove

169

Remove Order

Functionalities

1. Search Orders by Date - Aggregation

Search Orders by Date

Enter Date to Search:

2023/11/22

Search

	order_id	customer_id	date_placed	order_status	total_cost
0	169	2	2023-11-22	Complete	432342
1	170	2	2023-11-22	Order Placed	54540040
2	171	2	2023-11-22	Order Placed	54540040
3	173	2	2023-11-22	Order Placed	123446

2. Search Orders by Customers - Aggregation

Select a Customer

2

	order_id	customer_id	date_placed	order_status	total_cost
0	169	2	2023-11-22	Complete	432342
1	170	2	2023-11-22	Order Placed	54540040
2	171	2	2023-11-22	Order Placed	54540040
3	173	2	2023-11-22	Order Placed	123446

3. Search Components by Supplier - Join Query

Select a Supplier

8

	component_id	component_name	manufacturer	weight	cost	supplier_id	used_in_model
0	8	Turbofan Engine	C%L Aviation Group	5000	1500000	8	11
1	9	Turbofan Engine	C%L Aviation Group	5000	1500000	8	14
2	10	Turbines	C%L Aviation Group	2000	500000	8	8
3	11	Turbines	C%L Aviation Group	2000	500000	8	9
4	12	Turbines	C%L Aviation Group	2000	500000	8	10

4. Search Components by Aircraft Model - Nested Query

Select Aircraft Model

8

Components for Aircraft Model 8

	component_id	component_name	manufacturer	weight	cost	supplier_id	used_in_model
0	3	Black Box	Ocean Air	50	200000	9	8
1	10	Turbines	C%L Aviation Group	2000	500000	8	8
2	13	VHF Radio	Ocean Air	200	250000	9	8
3	21	Fuselage - Mini	Aeroparts Aviation Pvt. Ltd.	300000	250000	10	8

Procedures/Functions/Triggers

1. Orders marked as Complete are added to completed_orders table

Completed Orders

	order_id	customer_id	date_placed	order_status	total_cost
0	18	3	2023-11-21	Complete	0
1	19	3	2023-11-21	Complete	0
2	40	2	2023-11-21	Complete	69
3	118	2	2023-11-14	Complete	30000000
4	121	8	2023-11-17	Complete	50000000
5	149	3	2023-11-17	Complete	1000000
6	169	2	2023-11-22	Complete	432342

DELIMITER //

```
CREATE TRIGGER after_update_aircraft_order
AFTER UPDATE ON aircraft_order
```

```

FOR EACH ROW
BEGIN
    -- Check if the order_status is updated to 'Complete'
    IF NEW.order_status = 'Complete' THEN
        -- Insert the completed order into the completed_orders table
        INSERT INTO completed_orders (order_id, customer_id, date_placed, order_status,
total_cost)
        VALUES (NEW.order_id, NEW.customer_id, NEW.date_placed, NEW.order_status,
NEW.total_cost);
    END IF;
END //

DELIMITER ;

```

2. Procedure to Search Orders by Date

Search Orders by Date

Enter Date to Search:

2023/11/22

Search

	order_id	customer_id	date_placed	order_status	total_cost
0	169	2	2023-11-22	Complete	432342
1	170	2	2023-11-22	Order Placed	54540040
2	171	2	2023-11-22	Order Placed	54540040
3	173	2	2023-11-22	Order Placed	123446

```
DELIMITER //
```

```

CREATE PROCEDURE SearchOrdersBySingleDate(IN search_date DATE)
BEGIN
    SELECT *
    FROM aircraft_order
    WHERE date_placed = search_date;
END //

```


DELIMITER ;

3. Procedure to Search Suppliers by Component

Select a Supplier

8

	component_id	component_name	manufacturer	weight	cost	supplier_id	used_in_model
0	8	Turbofan Engine	C%L Aviation Group	5000	1500000	8	11
1	9	Turbofan Engine	C%L Aviation Group	5000	1500000	8	14
2	10	Turbines	C%L Aviation Group	2000	500000	8	8
3	11	Turbines	C%L Aviation Group	2000	500000	8	9
4	12	Turbines	C%L Aviation Group	2000	500000	8	10

DELIMITER //

```
CREATE PROCEDURE SearchComponentsBySupplierId(IN supplier_id INT)
```

```
BEGIN
```

```
    SELECT *
```

```
    FROM aircraft_component
```

```
    WHERE supplier_id = supplier_id;
```

```
END //
```

DELIMITER ;